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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

### THE PROSPECT.

**D**URING the last year the activity of the building profession and trades has been unabated, though higher records may be shown. There has been continued progress in most of the branches of building in the provinces. The yearly reports of city surveyors which we have received show that a large number of building schemes are in progress, or have been passed by local authorities of our great towns, and there has been a general briskness in many places, as at Wakefield and the surrounding neighbourhood. Our own pages have illustrated and recorded the erection of many important buildings in Glasgow, Manchester, Nottingham, Birmingham, and other great cities, from warehouses and commercial establishments to civic halls and municipal buildings of various kinds, and we can simply refer our readers to our illustrations and descriptions of them, to be found in our last two volumes. When we open their pages, and find two such diverse buildings as those of the workhouse for the city of Nottingham and a large and palatial warehouse in Piccadilly, Manchester, for a well-known firm, followed by important competition designs for Taunton Town Hall, to which several of our leading architects contributed; and the municipal buildings of Henley-on-Thames; the head offices of the Metropolitan Asylums Board; the East Ham Public buildings; and the competition designs for the Southern Hospital, Carshalton, we are not far wrong in coming to the conclusion that the progress of building has not been confined to one particular direction, but that architects have been engaged upon structures of very diverse kinds, requiring skill in the adaptation of forms and architectural style. In most of those we have named the design has been characterised by breadth and common-sense treatment of features, suggested by the plan rather than by a slavish adherence to conventional treatment. Better results in some instances might have been desired, and this naturally suggests to the reader the selection of professional assessors who are quite competent to judge of the merits of plan, while they have no strong preferences for any particular style. In a few of the competition designs for important public buildings, the proper man has not always been selected for his special knowledge of the class of buildings in view.

The most significant architectural event, because of national or public character, that has happened during the last year has been the passing of the Public Buildings Bill and the selection by the Government of two architects out of eight names submitted by the Institute—Mr. William Young for the Ad-

miralty Buildings, and Mr. J. M. Brydon for the War and other offices in Great George-street. No greater opportunity has been given to any architect during the present generation. There were many who thought, not without reason, that important public buildings of this kind should be submitted to general competition; but the experience of the Government hardly justified the experiment. It is satisfactory to know, however, that the original intention to limit the ability of the chosen architects to the design of the façades, to be fitted to plans prepared by the Office of Works, has been abandoned, though that department will be consulted in the arrangements of the buildings—a mode of procedure that, had it been followed in the Home and Colonial Offices, would have saved those buildings from the serious defect of planning they now have—the result of restrictions put upon Sir Gilbert Scott by the officials of his day. The profession will await with interest the design and arrangements of the two blocks of Government offices, as upon their success will depend, in all probability, the design and construction of future buildings of the kind. The sites chosen in Whitehall and Great George-street are at once dignified and unique, and offer to the architect advantages and a free scope in the development of his work. These designs will, no doubt, have an influence on the architecture of the future. Classic or Renaissance features will have to be followed, if any regard is to be shown to the surroundings; but it is to be hoped that we may look for something in advance of the existing buildings, and worthy of the situation.

One other event in prospect is the selection of a site and a design for a building worthy of the municipal offices for the Metropolis—a question, as far as we can see, still in abeyance. That the London County Council ought to have a central position, and a building worthy of their official importance, cannot be denied, and in this connection we can only refer to the resignation of Mr. Thomas Blashill, the able Superintending Architect of the Council, and the late unsuccessful attempt to find a successor in that office. Recently, too, as the result of a conference between the Council and the London School Board, the Council, instead of the Technical Education Board, agreed to undertake the responsibility for the Science and Art instruction in London.

The housing of the working classes is one of the many vital questions awaiting the decision of our municipal authorities. By the large areas that have been opened by street and other improvements, an immense population of the poorer classes have to be provided for. The question whether they

are to be housed in buildings near the old sites, or are to be provided for in our suburban districts, is one of great importance, not only to the classes themselves, but to the residents of our fast-filling suburbs. The extension of the tramway system, and the proposal to keep the cars running through the night, as well as the facilities afforded by the completion of the Central London and other underground railways, seem to favour the erection of dwellings in outlying districts; but the result is not reassuring, as the effect of these erections is likely to drive the commercial and professional citizens further out. The design and erection of dwellings for the labouring classes is one of the pressing questions of the future. How can they be made agreeable, not to say attractive? How can they be planned and built so as not to injure other buildings in their vicinity? The high-block system is an eyesore to any suburb, as can be proved by anyone going to Camberwell, Brixton, Fulham, and other localities.

The transformation of estates by the extension of shops in residential neighbourhoods is equally a serious outlook not in London only, but in many of our large towns. Legislation of a private or public kind can only meet the evil, and ground owners can restrict the letting of their land to private dwellings; but the over-building mania threatens to destroy many of our fairest suburbs near the Metropolis, despite the regulations of the London Building Act.

One of the many things of a professional nature that is in a fair way to be accomplished, despite the opposition of a few exclusive bodies, is the Registration of the Architect. Professional opinion on the Continent and in America no longer hesitates as to the advantages to be secured by the legal recognition of competence, and the protection of all architects from charlatans and others who have no right to the title. The Bill for this object, like many others, has been before Parliament for some years, and there is little doubt it will receive renewed support every time it is presented. The Plumbers' Registration Bill has also been read twice in successive Parliaments, and must ultimately become law. Very often, indeed, the larger the body of public opinion in favour of a measure, the greater the difficulties encountered by the promoters. The advancement of technical education, and the more systematic education of architects, are questions that have received a very large amount of attention during the past year, and we may now begin to look forward to the results. Our craftsmen have now a more complete and perfect acquaintance with their work and tools than they ever had before, and we may confidently expect a better class of workmen



in the future. As we have pointed out, there are certain drawbacks in the system as at present in operation, which admit of removal. The young architectural student also has now every opportunity to learn his profession in its comprehensiveness open to him, if he will only take advantage of the facilities, and learn so much of his art as he is capable of mastering without making himself a learned crib or being too self-satisfied to learn more.

#### THE WORKS OF REMBRANDT.

THE Winter Exhibition at the Royal Academy of Arts is devoted to Rembrandt, and a magnificent display it is, far surpassing the Amsterdam collection, and including many of the choicest works of the great Dutch painter, mostly from English houses and collectors. It is impossible in a brief notice to speak of more than a few of the principal pictures. Of course, the larger part consists of portraits. In the first gallery is a portrait of "The Painter's Mother," a small panel; the Duke of Westminster lends two portraits, one a fine portrayal of Nicholas Berchem and his wife, the latter a daughter of Wils, the Dutch landscape painter—a round-faced woman, half-length, with white ruff and cap; Earl Spencer's picture of "The Circumcision" (5), and the Duke of Buccleuch's portrait of "The Painter," painted in 1659. He is shown wearing a dark cap which he much affected, and the background is dark. The partially-shaded face of "An Old Woman" (8), in the Duke of Buccleuch's collection, is a fine example—the woman's face is shaded by a hood. Earl Brownlow's "Isaac and Esau," full of detail and technique, is a fine example; and one may further notice Lady de Rothschild's "Portrait of the Painter" (18). Light falls on the brow and nose, the rest of face in shade, a very admirable example of expression and chiaroscuro. There are numerous portraits of the painter as a young man, in middle life, and in age. Lord Iveagh's half-figure portrait of the painter holding a palette and brushes, in brown mantle lined with fur and in white cap, is a good example of one of his last, a sturdy-looking old man. In the second gallery we notice the Queen's "Christ and Mary Magdalene at the Tomb," a sombre view of the sepulchre overshadowed by foliage—the figures of Mary Magdalene and the Saviour are not very distinct; "Girl at a Window," from Dulwich College; "An Old Woman Reading" (36, Earl of Pembroke's), bending over a book which rests on couch (not held on lap, as in catalogue); "Portrait of Burgomaster Six" (38); a fine-toned landscape "The Mill" (40), lent by the Marquess of Lansdowne, remarkable for its sunlight and deep shadowed effect; a portrait of "A Man" in cap, full of character; and the "Portrait of an Old Lady" from the Windsor collection (45), a very beautiful partially-shaded face, with hood; over head and shoulders known as "Countess of Desmond," and two other portraits from the same collection. Gallery III. is exceptionally strong in noble examples, and we can only mention a few. The Duke of Devonshire's portrait of "An Old Man" (54) is fine in tone, light, and shade; but of more interest and less known is "Belshazzar's Feast," lent by the Earl of Derby; the figure of the king is larger than life, and the composition by no means attractive; crude and harsh is the king's face, but the picture is interesting, nevertheless, as showing the painter's failure in painting subjects of this size—it is dated 1636. Very realistic is the Earl of Yarborough's portrait of "An Old Lady" (65), in dark-trimmed dress with ruff and white cap. The furrowed brow and puckered skin of hands are most carefully painted. The "Adoration of the Magi," from Buckingham Palace (66), is dark, and the composition and figures are

indistinct. Next to it is the marvellous and well-known picture, also from Buckingham Palace, "The Shipbuilder and his Wife" (67), one of the best examples of the painter. The ruddy-faced, good-tempered man, in black dress and white ruff, with pair of compasses in hand, turns himself to take a letter from his wife; painted in 1633. The animation and expression on the face of the old man and his wife are remarkable. There are five portraits of the painter himself. The Earl of Ilchester's (61), dated 1658, shows a heavy-looking, rough-faced, stout man. Capt. Heywood-Lonsdale's (64) is warm in tone, and shows a younger man, dated 1637; another shows him in a brown robe and turban, dated 1661. "A Lady with a Parrot" (75) is well known, and belongs to Lord Penrhyn; and fine colour is seen in portrait of "Saskia" (77). The Duke of Devonshire's portrait of "A Rabbi" (83) is a very fine example, with gold embroidered turban and jewelled clasp. No. 57 is apparently a replica.

In the last gallery the Corporation of Glasgow's "Man in Armour" (85) deserves notice, and there are several subject pictures, as "The Prodigal Son" (89); but the most interesting and little known is the Duke of Abercorn's picture of "A Deposition," representing the body of the Saviour lying on a white cloth, supported by Joseph of Aramathæa with the Holy Women, dated 1650. It belongs to the painter's best period, when his art was fully ripe. The emaciated body of the Lord has the purple hue of death, contrasted with which the red drapery of the Virgin makes a pleasant note; the young Magdalen is at the foot of Cross. There is deep pathos and sadness in the expression of the two Marys; the younger one looks almost terror-stricken in anguish, and there is an Italian feeling about the composition. Other pictures worth notice are Lord Leconfield's "Portrait of a Lady" (55), Earl Cowper's "Portrait of a Man" (72), Capt. Holford's "Man with a Sword," full of expression and animated in attitude—a fine mellow-toned picture. Other wonderful pictures are to be seen; but everyone should examine the very choice studies and sketches in the water-colour room, chiefly in pen and bistre wash.

#### MODEL SPECIFICATIONS.—XLVI.

##### SANITARY AND WATER-SUPPLY FITTINGS.

AS regards cisterns and service-pipes a few things should be remembered. Lead-lined cisterns ought to be without solder, lead-burnt joints only being used. Rising mains should be of a sufficient bore, large enough to keep up the supply of cistern when the water is being drawn off from the several taps. A stop-cock protector from frost should be put on main just outside the house, easily accessible. There should also be a draw-off cock above it for emptying the pipe in case of frost. All service pipes should be placed on some internal wall. When against an outside wall they should be cased or protected from frost by packing of slag wool or felt. Their diameter should be regulated by head of water from cistern to draw-off tap; the greater the head, the smaller the pipe. Mr. Hellyer, in his work, gives a table of sizes of service pipes and valves, by which we see that a head of water under 6ft. requires a  $\frac{1}{2}$ in. pipe and valve for flushing a rim closet; a head of 7ft. and under 12ft.,  $\frac{1}{4}$ in. pipe; 13ft. to 18ft., a pipe of  $\frac{1}{2}$ in.; and above 18ft. a pipe of  $\frac{3}{4}$ in. for that purpose, with valves to correspond. The sizes of pipes for sinks and draw-offs are smaller; for a head under 6ft.,  $\frac{1}{4}$ in. to  $\frac{1}{2}$ in.; for a head under 12ft.,  $\frac{1}{2}$ in. to  $\frac{3}{4}$ in.; under 18ft.,  $\frac{3}{4}$ in.; and above 18ft. head, a pipe of  $\frac{1}{2}$ in. to  $\frac{3}{4}$ in. Drawn-lead pipes have several advantages over iron pipes—they can be easily bent or bossed; but the socket and spigot of iron pipes do not lend themselves to bending.

Lead soil-pipes are made in 10ft. lengths, but iron in 6ft. lengths.

Some authorities recommend Spence's metal for jointing iron pipes; or the socket may be packed round with yarn and molten lead then poured in and well batted. Jointing iron or lead soil-pipes into earthenware drains should be carefully done. The soil-pipes should be flanged, to grip the cement firmly, and such joints should be vertical.

Lead soil-pipes should have wiped joints, and fixed with soldered tacks to the wall. (See sketch.) When of iron with branches of lead, brass-ferrule connections are to be made to comply with L.C.C. rules.

We show a joint between lead and iron pipe. A piece of brass pipe slightly larger than the lead and 6in. long has its upper end turned prepared for a wiped joint; the brass ferrule is slipped over the lead pipe, the lead dressed as shown under the ferrule. It is soldered at upper end, and the brass ferrule end is slipped into socket of iron pipe and packed with yarn, and molten lead poured in, and batted home with caulking tool and hammer. We also show the connection of lead pipe with cast-iron bend, showing the brass ferrule and wiped joint, and lead joint above level of paving. It is necessary to support the pipe at base by means of an iron standard at the foot of soil-pipe. We also show two kinds of closet apparatus of approved form, Doulton's "Simplicitas" wash-out, in which the full force of the the flush is exerted directly on the water in trap; and Duckett's "Wash-down" pedestal closet, "The Clencher," where there is a large water surface and a seal of 2in. One important point in this form is that the water is conducted from foot of fall-pipe to flushing-rim by means of two oblique channels, and the flush is strong.

When several branches are connected to soil-pipe anti-siphonage-pipes 2in. diam. must be put in, taken from closet-traps, and carried up and connected to soil-pipe. The outlet-pipes from closets should be as short as possible.

Galvanised-iron cisterns are made in three qualities—the ordinary "strong,"  $\frac{1}{8}$ in. plate bare;  $\frac{1}{4}$ in. plate full. The following are a few capacities and sizes:—

25gal.	2ft. long	1'5ft. wide	1'5ft. deep.
50 "	2'5ft. "	1'10ft. "	1'10ft. "
100 "	3'2ft. "	2'3ft. "	2'3ft. "
200 "	3'10ft. "	2'11ft. "	2'11ft. "
500 "	6'0ft. "	4'0ft. "	3'4ft. "
1,000 "	8'0ft. "	5'0ft. "	4'0ft. "

A good flushing-cistern should discharge and fill quickly and noiselessly, and a well-directed three-gallon flush is required to clear out the closet soil-pipe and drain. There are several varieties. The siphon-action waste-preventers are numerous. In some it is started by displacement, in others by a cap over mouth of siphon which the pull raises, by a piston-plunger, by lifting a metal plate, by admitting the water direct to the flushing-pipe, or by lifting the w.c. flush-valve. We can recommend those patented and supplied by Messrs. Doulton, Jennings, Duckett, and other well-known firms.

Sinks for pantries should be lined with 8lb. lead for the bottom at least; when of copper,  $\frac{3}{4}$ lb. to the foot is required for bottom, and  $\frac{2}{3}$ lb. at the sides.

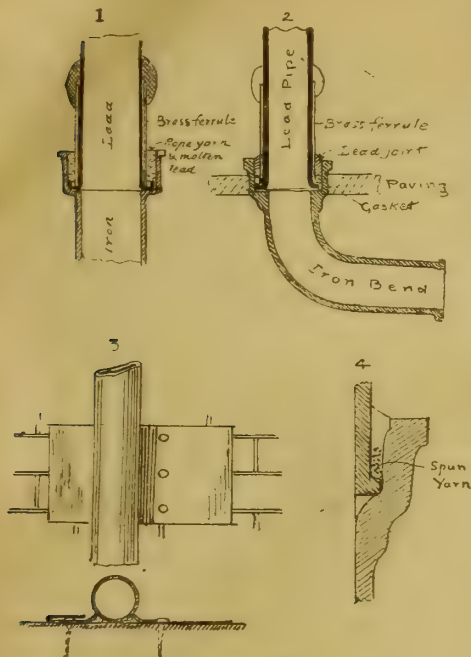
Waste pipes from sinks should discharge into intercepting traps, and be carried down just below the grating; or they may discharge over a grated and trapped gully, or over a trough or channel discharging into a gully 18in. away; but the first plan is the least offensive. Doulton's yard gullies are made in several forms. Duckett's patent self-cleansing channel gully conforms to the Model By-laws of the Local Government Board, and other good forms of gullies are in the market. Bath wastes should discharge over trapped gullies.

The London Building Act and other



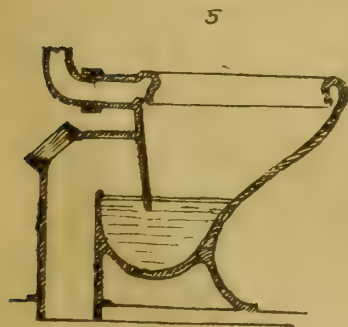
Regulations impose several conditions on the plumber which a specification should take notice of.

The regulations under the Metropolis Water Act, 1871, give the sizes and weights of pipes, the manner of fixing, the provision of stop-valves, cistern ball-taps, overflows, &c., and a penalty of £5 is imposed on any person



who violates, refuses, or neglects to comply with the regulations.

The County of London Regulations give a table of the diameter and weight of lead and iron soil-pipes to be used, and state: "Every person who shall provide a soil-pipe outside or inside a building shall cause such soil-pipe to have an internal diameter of not less than 3½ in., and to be continued upwards without diminution of its diameter, and (except where unavoidable) without any bend or angle being formed in such soil-pipe



to such a height, and in such a position as to afford by means of the open end of such soil-pipe a safe outlet for foul air, and so that such open end shall in all cases be above the highest part of the roof of the building to which the soil-pipe is attached, and, where practicable, be not less than 3 ft. above any window, within 20 ft., measured in a straight line, from the open end of such soil-pipe. He shall furnish the open end of such soil-pipe with a wire guard covering, the opening in the meshes of which shall be equal to not less than the area of the open end of soil-pipe."

"In all such cases where he shall connect a lead trap or pipe with an iron soil-pipe or drain, he shall insert between such trap or pipe, and such soil-pipe or drain, a brass thimble, and he shall connect such lead trap or pipe with such thimble by means of a wiped or over-cast joint, and he shall con-

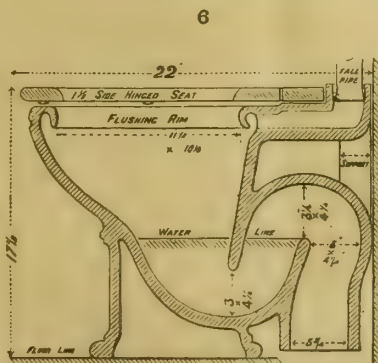
nect such thimble with the iron soil-pipe or drain by means of a joint made with molten lead, properly caulked." And it proceeds, where a stoneware trap or pipe is connected with a lead soil-pipe, "he shall insert between such stoneware trap or pipe and such soil-pipe a brass socket or other similar appliance, and he shall connect such stoneware trap or pipe by inserting it into such socket, making the joint with Portland cement, and he shall connect such socket with the lead soil-pipe by means of a wiped joint." No soil-pipe is to be directly connected with the waste of any bath, rain-water pipe, or of any sink; and the soil-pipe is to be constructed "so that there shall not be any trap on such soil-pipe or between the soil-pipe and any drain with which it is connected."

We append a few other clauses for external work:—

18. *Roofs and Domes.*—Cover cupola with 6 lb. sheet-lead dressed over rolls as shown in detail, and copper-nailed on one side, with weltd horizontal joints, and dress the finial over in 7 lb. lead.
19. *Dormers.*—Put to the dormers, where the ridges meet the main roof, 6 lb. lead soakers.
20. *Lead-covered Dormers.*—Cover the flat on top of dormers with 6 lb. lead lapped over ends, and bossed and dressed over 2 in. deal rounded rolls; the dormer cheeks to be of 5 lb. lead, secured by soldered dots and brass screws, with weltd ends on front edges copper-nailed.
21. *Flat over Billiard-Room.*—The flat over billiard-room to be covered with 6 lb. sheet-lead laid to falls of 1½ in. (or 2 in. or 3 in.) in 8 ft. (or 10 ft.), with 2 in. drips, properly dressed over rolls, drips, and tilting fillets with bossed ends; the lead to be turned up 6 in. against walls, with 5 lb. lead flashing, 6 in. wide, properly passed and tacked with 5 lb. lead aprons over curb of skylight, &c.

#### INTERNAL PLUMBING.

31. *Valve-Closets.*—The first and second floors to have approved valve-closets (Jennings' or Underhays') of best white ware basin, copper bellows regulator, with 1½ in. supply unions, with stop-cock to each for shutting off supply. Take 1½ in. vent-pipe from each valve-box through wall, and finish with brass perforated grating; connect 3½ in. anti-D lead siphon-traps to a 3½ in. lead pipe arm branched into a 3½ in. diameter lead soil-pipe of 10 lb. per foot, with astragal beaded joints, ears, and rose-headed nails 6 ft. apart (or with wiped joints, with 6 lb. lead tacks every 8 ft. or 10 ft. apart); carry down to drain, and connect in a workmanlike manner. The soil-pipe to be



carried up full-bore, 5 ft. above eaves of roof, and have a copper wire rose to top. From top of each trap take a 2½ in. anti-siphonage pipe, and connect to ventilating or anti-siphonage pipe carried up above roof.

32. *Wash-down Closets.*—Provide and fix on first floor Doulton's wash-down closet "Simplicitas," basin and trap in one piece, white ware, with stout mahogany-hinged seat, No. — in catalogue, with flushing rim; or a washdown pedestal closet in which the full force of the flush is exerted directly on the water in the trap, with the basin so formed as to be entirely cleansed by the action of every flush; or provide and fix the "Clencher" washdown (Duckett's), or the "Deluge" (Tyford's), or other closet with all fittings and connections complete.

33. *Intermediate Cistern.*—Provide and fix over each closet an intermediate deal cistern to hold 6 gals., and lined with 6 lb. lead or of galvanised iron, with 1½ in. overflow, ½ in. branch service pipe and copper ball, and 1½ in. lead flushing service-pipe to closet.

34. *Soil-Pipe Connection to Drain.*—Put to soil-pipe

at its junction with drain a brass ferrule, wiped on to connect socket of stoneware drain, and joint same with neat cement. The soil-pipe to be carried up its full diameter to a height of 5 ft. above eaves of roof, covered at top with copper wire.

35. *Air-Pipes.*—Connect 2 in. lead anti-siphonage pipes to traps of all branches at a point not less than 3 in. from highest point on outgo side with a vertical pipe of same diameter, carried up at side of soil-pipe, and taken into it 4 ft. above top branch, and secured to wall by lead tacks. The joints of connection to be wiped joints.

36. *Galvanised-Iron Cistern.*—Fix in position marked in roof plan a 300-gallon galvanised wrought-iron cistern with strong angle-stays and cross-stays or rods, close riveted. The cistern to be incased with 1 in. wrought and beaded boarding, with a 2 in. space to be filled in with silicate cotton, and to have a double-cased, rebated lid on top, hinged with 18 in. cross-garnet hinges. Or—

Provide and fix where shown on drawings, on proper bearers, a galvanised wrought-iron riveted cistern to contain 250 gallons, with perforations for supplies and overflow. Jacket the cistern with slag wool, and incase same with ½ in. match-boarding with close-fitting hinged flap. The connections of all lead pipes to be made with brass boiler screws and double nuts and unions.

37. *Lead-Lined Cistern.*—Fix on roof a 300-gallon lead-lined cistern of 1½ in. wrought, grooved, and tongued boarding, dovetailed at angles and bottom. Line same with 6 lb. (or 7 lb.) milled lead, dressed over top edges and copper nailed.

The cistern to be carried on 10 in. by 3 in. fir bearers, and to be incased in felt or have a silicate cotton packing, as above described.

38. *Supply Pipe.*—The supply pipe to have extra full-way screw-down gunmetal stopcocks fixed on outside, packed with hair-felt or silicate-cotton in iron guard-box, with cover complete.

39. *Rising Main.*—The rising main to be 1 in. (or 1½ in.) lead pipe, taken to cistern and fitted with gunmetal high-pressure equilibrium ball valve with copper ball, and take all services from main of ½ in. or ¾ in. (state to where taken). Or—

Excavate ground in road and pavement, and connect to company's main with ½ in. (or 1 in.) screw ferrule and union, take ½ in. (or 1 in.) lead pipe as rising main, encase when in ground in 1 in. tarred rough deal gutter trough 2 ft. 6 in. deep in ground and filled with pitch, fill in ground, and leave road and footway in good condition. Carry the rising main to cistern or cisterns on roof, and terminate to each with a ½ in. (or 1 in.) high-pressure equilibrium ball valve with copper ball, and put gunmetal stopcock and spanner on lobby complete.

40. *Main Service and Pipe.*—Tap cistern, and connect with 1 in. brass union and washer 1½ in. from bottom, and carry 1 in. lead service-pipe to lowest draw-off. Put 1 in. screw-down brass (or gunmetal) stop-cock near cistern.

41. *Branches.*—From this main branch off ½ in. pipe to slop-sink, ½ in. to lavatory, ½ in. to housemaid's sink and butler's pantry, scullery sink, washing trough, and 1 in. to scullery sink. Each to have a ½ in. (or 1 in.) gunmetal screw-down ball-cock p.c. 10s. each.

(Note.—Horizontal service-pipes to have a fall towards main.)

42. *Feed Cistern and Supply to Range.*—Branch off ½ in. lead to cistern of range and connect to range with 1 in. supply. Provide and fix a cast-iron galvanised feed cistern, 10 in. by 1 ft. 3 in. by 7½ in., with cover, &c., complete. Take a separate 1 in. galvanised-iron supply pipe, with 1 in. brass union, to kitchen range for circulating boiler, and put on 1 in. stopcock under cistern.

43. *To Bath.*—Take a separate 1 in. lead supply to bath, with brass union and washer, with 1 in. stopcock placed under cistern.

44. *Bath.*—Provide and fix in deal bearers a 5 ft. 6 in. strong tinned copper bath enamelled white (or green), with copper overflow arm and extra large copper waste valve, 1 in. nickel-plated hot and cold supply valves complete, p.c.—Or No. — in Young and Marten's or other catalogue.

#### THE BURNE-JONES PICTURES AT THE NEW GALLERY.

THE private view of this unique exhibition took place last Saturday at the New Gallery. Although the directors of the New Gallery had an exhibition of the works of Sir Edward Burne-Jones not many years since, they were quite justified in repeating the exhibition in a more comprehensive manner since the death of the great painter. We have here 225 pictures and designs, besides numerous sketches and studies. In the South Room a very choice collection of the



early work of this great master of the ideal will come upon many for the first time. Beginning at about the year 1861, we find such inimitable works as those of "Clerk Saunders," illustrative of the "Minstrelsy of the Scottish Border"—two most delightful figures essentially pre-Raphaelite in manner, "A Love Scene" (3), "The Blessed Damsel" (4); the Chaucerian legend of "Dorigen of Bretagne," the maiden robed in blue; the "Adoration of the Magi," a fine composition, decorative in character, forming one panel of a triptych, originally painted as an altarpiece for St. Paul's, Brighton. The figures are portraits of William Morris, Algernon Swinburne, and the painter; the background of gold, and the colouring extremely rich. The other two panels represent "The Annunciation." Very beautiful and ideal in conception and colour is "Cinderella," a girl in greenish dress and white apron, standing in front of a dresser full of blue china (11). The rich colour in "Laus Veneris" (16); the essentially decorative but later work "Dies Domini" (23), a circular panel, showing Christ in blue flowing robe, in the act of benediction, descending on the wings of angels; but there is nothing finer than the six panels illustrating "The Days of Creation" (39), lent by Mr. Alex. Henderson, M.P., a wonderful unfolding of the six days, each day symbolised by a beautiful maiden holding a crystal globe; reflected in each are the various creations—we believe the first important work which brought into notice the ideal power of the artist. It was exhibited at the Grosvenor Gallery 1877. Here we have, too, the legend of the "Briar Rose," or the story of the Sleeping Beauty, in three pictures—the early version. The Princess asleep on a richly-draped couch, with attendant at her side, lent by Mrs. Mackail, is graceful also and full of delicate harmony. Again, in "The Merciful Knight," a knight showing mercy to his enemy, prostrate before a crucifix on a wayside shrine, the figure on which bends forward and embraces him, is a work full of wonderful passion and technical detail, and dated 1863, now belonging to Mr. John T. Middlemore. Many of these works, particularly the last, show the influence of Rossetti on the painter. In the West and North Rooms the later developments of Burne-Jones art are seen, but they are so well known, as having been hung at the Grosvenor Gallery, and duly noticed in the BUILDING NEWS, that it is unnecessary to refer to them in detail, except as embodying the ideal of the master who looked upon the mystery of life with its wealth of form and colour, and tried to give it expression on canvas. As Rossetti once said, according to Mr. Comyns Carr's appreciative sketch (prefixed to the catalogue) of the painter lately passed away, "There never has been a painter more greatly gifted than Burne-Jones with the highest qualities of poetical invention." As "painted poems" we have to look and judge of these performances, as it was the one thought the painter kept before him. He once said that "if I could travel backward, I think my heart's desire would take me to Florence in the time of Botticelli." How deeply imaginative, rising above the mere facts of nature, we find such works as those of "The Golden Stairs," the "Chant d'Amour" (109), "The Hours," "King Cophetua and the Beggar Maid," the large centre subject in the West Room, "The Mirror of Venus" (99), and "The Depths of the Sea" (101). Some of these are known to the public by engravings, but we have here the pleasure of making anew our acquaintance with them, and their beauty and imaginativeness again charm us. Very beautiful in composition and colour is "Caritas," a full-length figure of Charity, lent by Lord Wantage; "Love Among the Ruins," exhibited in 1894, and lent by Mrs. R. H. Benson, is here also. Visitors to the Old Grosvenor Gallery will recognise the large upright composition of "The Annunciation," where the Angel Gabriel descends into a court, in which the Virgin, clad in white, stands (now belonging to the Earl of Carlisle); they will see also the remarkable picture, "The Wheel of Fortune," with its fine modelling of figures lent by the Rt. Hon. Arthur J. Balfour, M.P.; and the lovely six maiden figures symbolising "The Hours" (93). But the picture above all others that awaits the public verdict, that has never been exhibited before, still unfinished, and upon which the artist had been engaged for 18 years at the time of his death, is "Arthur in Avalon"—a colossal canvas measuring 21½ ft. in length by 11½ ft. in height, lent by the executors of the artist. It is

indeed a wonderful composition. The king lies asleep in his armour in the centre of a marble cloister under a golden canopy with panels of reliefs illustrating the history of the Holy Grail. Three queens watch over him at the head and foot of the couch, and in front are graceful maidens with musical instruments, while on the right and left are attendant graceful figures holding horns and the king's armour. Others are peering into the valley awaiting the signal for his awakening, the legend being that after his last battle, the mythical king wounded was conveyed by three queens to the Isle of Avalon, and that he slumbered, there awaiting the moment to resume his sovereignty—the belief was that he did not die, but was "had into another place." The romance of the scene, the grass plot with its canopied couch, the expectant maidens with their instruments, the meandering rivulet bordered by forget-me-nots, the water plants, the blossoms amidst foliage in this beautiful vale, make up a picture of legendary and poetical beauty. The draperies and harmonies of colour are broad, and the technical qualities of the picture in its finish will rank with any of the works of the painter. The composition by its arrangement suggests a design for a huge tapestry. Is it too much to hope that this picture may find a home in the Tate Gallery, for it is too large for most private collections? As a picture it will take its rank as one of his best works. A great decorative picture is "Sponsa de Litano," lent by the Corporation of Liverpool: "Awake, O north wind, and comethou south; Blow upon my garden," &c. The swirl of draperies is effective. Here, too, we see the "Perseus and Sea Nymphs," and others of the Perseus series, such as the "Baleful Head," "Perseus and the Graiae," lent by the Rt. Hon. Arthur J. Balfour. The central hall contains a colossal unfinished picture of the "Triumph of Love," lent by the executors, where Love is represented on a triumphal car drawn through a narrow street by his countless victims. Each figure is life-size—it is a design of considerable promise. Nor will the visitor go away without admiring the splendid tapestries from Burne-Jones's cartoons, woven under the direction of William Morris for Mr. D'Arcy of Stanmore Hall, representing six scenes in the legend of the "Quest of the San Grail," and every student of art will value the series of water-colour and crayon studies which cover the sides of the central hall, and show how the painter composed and perfected each figure of his finished picture, as he did of his last great unfinished work. In all that he did Burne-Jones expressed his own individuality.

#### THE EFFECT OF FREEZING ON CEMENT-MORTAR.

SOME interesting experiments have been made by Mr. A. C. Hobart, Fellow in Civil Engineering of the University of Illinois, on the effect of freezing on cement-mortar. The phenomena incident to the freezing of freshly-mixed cement mortar have already been investigated with tolerable thoroughness, and Mr. Hobart, therefore, devoted himself mainly to the study of such mortars, frozen only after setting had begun. In order to secure uniform conditions, he obtained the use of a room in a cold-storage warehouse, where a constant temperature was maintained of about 20° Fahr., and the briquettes of cement, of various kinds, were removed to this room after a definite period had been allowed for setting in the rooms of the Engineering Laboratory. The cements experimented with were all of sorts not much used in the East, the natural brands being Clark's Utica, Louisville Black Diamond, Louisville Star, and Akron; while only two Portland cements were used, Saylor's and Dufosse's. With all these, freezing immediately after moulding caused loss of strength, and, where frozen in contact with water, total disintegration; but where the briquettes were allowed to set before freezing the result was very different. In the case of the natural cements, where the briquettes were allowed to set for six hours, or, in some cases, less, and then frozen, it was found that the strength, instead of being diminished, was greatly increased, such briquettes, after careful thawing, resisting a greater tension than similar briquettes of the same age which had not been frozen. Mortars made with two parts sand to one of cement were more favourably affected than the one-to-one or the neat mortars, the Louisville Black Diamond briquettes, mixed two of sand to one of cement, allowed to set for

two or three hours only, showing, after freezing, and subsequent thawing, a resistance about three times as great as that of similar briquettes, made at the same time, and tested at the same time, but not frozen meanwhile. It is curious that the same mortar, if allowed to set for several days before freezing, gained much less by the process, but even after fourteen days' setting freezing added something to the strength. With Portland cement there was no gain by freezing in any case, and, generally, a considerable loss, but the loss in strength was less when frozen after twenty-four hours' setting than after six hours, and mortars made with a considerable proportion of sand lost, proportionally, much less than neat cement. The conclusions which Mr. Hobart draws from the experiments are, that cement-mortars, made either with natural or Portland cement, if frozen in the presence of water, are likely to be disintegrated and destroyed; but that, if extraneous moisture is kept away from them, natural-cement mortars, if allowed to set from three to six hours, are improved by subsequent freezing; while mortars of Portland cement, under such circumstances, lose strength, particularly when mixed with a large excess of sand. Moreover, while mortars of natural cement usually suffer a slight surface disintegration by freezing, although the total resistance of the briquette is greatly increased, briquettes of Portland-cement mortar show no change on the surface, although their strength may be almost entirely destroyed.

#### THE NEW PHYSICAL LABORATORY OF THE OWENS COLLEGE, MANCHESTER.

THE laboratory, of which the foundation-stone has been laid on the 25th anniversary of the occupation of the present Owens College buildings, will be the largest and most completely equipped in this country. It stands on a separate plot of ground adjoining the Owens College site, and consists of a main building and a large annexe, the latter being more especially intended for electro-technical work. The principal building is 100ft. long, and over 60ft. wide, and consists of a basement and three stories. The cost of the buildings, with fittings and new apparatus, is estimated at £30,000. It is intended to have, at least, one room set aside for constant temperature work, and to establish a small plant for the production of low temperatures. An electro-technical laboratory will be added, in which large currents will be available for electric furnaces. One of the features of the laboratory will be a carefully-planned system of ventilation, combined with an attempt to exclude dust, as far as possible, from all rooms, and especially from the instrument-cases. The architect is Mr. J. W. Beaumont, who, before finally drawing the plans, was sent by the council of the Owens College to visit the principal modern laboratories of Germany.

#### NORTH WILTS CONSERVATIVE AND UNIONIST CLUB, SWINDON.

THIS club has lately been built in Fleet-street, New Swindon. It is erected with the local red bricks and covered with blue slates, but Bath stone from the Hartham Park Quarries has been used for the whole of the front elevation. The accommodation on the ground floor is as follows:—Bar, 38ft. 3in. by 30ft. 3in., with recess for serving-bar; card room, bowling saloon, 55ft. by 22ft., with two alleys, and stewards' apartments, &c. On the first floor is the concert-room, 39ft. 6in. by 31ft., exclusive of stage in recess; committee-room, stewards' bedrooms, &c.; and on the second floor, billiard-room, 31ft. by 24ft., with lantern light in roof over, and a reading-room, 23ft. by 15ft. The floors on ground floor are laid with pitch-pine wood blocks. The lobby at front entrance has a marble mosaic floor with the name of the club worked in the pattern, and the passages, &c., are laid with hydraulic red tiles. The joinery is of varnished pitch-pine. The bar has a framed dado of this material, and the cabinet and barrel-stand is in pitch-pine and mahogany, as is also the counter, which has teak pilasters. The total cost of the building, including the site and furnishing, is about £6,000. The contractor was Mr. Charles Williams, of New Swindon, who carried out the works from the designs of the architects, Messrs. William Drew, M.S.A., and Sons, of Swindon.





Ground Plan.



NORTH WILTS CONSERVATIVE AND UNIONIST CLUB, SWINDON.—MESSRS. W. DREW AND SONS, Architects.



## OIL AS A ROAD MATERIAL.

THE great interest that is now being awakened in all parts of the United States in the good roads movement is born of necessity. In the keen competition in all the markets of the world, America is at a disadvantage, commercially, by reason of bad roads, much as the railroads have done to bring the producer and the consumer close together. The best investigations yet made on the subject show that it costs, on an average, 25 cents per ton mile to market the produce of our farms over the country roads, often much more; or the farmers spend as much for one mile as the railroads ask for 75 miles of haulage.

Great areas of our prairie farm country are remote from any supply of good road material, and the outlook for good roads in these sections is discouraging, on account of the expense. Some cheap substitute for stone, brick, or gravel, if it could be found, is most desirable.

I venture to suggest to your readers that possibly cheap oil may be one solution, and offer this paper in order to induce others to multiply the experiments I am now making. On a certain clay road in Pennsylvania, which lay deep in dust in summer and deep in mud in winter and spring, there was an oil-pipe line by the side of the road, which on a certain occasion sprung a leak, and spurted a considerable quantity of oil on to the road. An observer noted that for a space of several rods, to which the oil was transported by horses' feet and wagon wheels, this road showed a marked improvement. The dust in summer did not rise, the mud in spring and winter did not exist. The explanation would seem to be that the oil formed a water-tight covering to the road, and the earth beneath being dry, no ruts or mud could form, and the road became good.

At the recent Good Roads Convention in St. Louis, Mo., the writer brought forward this idea, and offered it as a possible help to improving our dirt roads at a small cost, occasioning considerable comment. It seemed rational, and, at least, easy to try, and many asked questions not easy to answer, for want of sufficient knowledge as to method of applying the oil, the best kind of oil to use, the quantity to put on the road, &c.

As confirmatory of the value of oil on roads, the following observations were made:—A gentleman from California said that near Santa Barbara, where he lives, they have oil wells, and have used the oily sand from the borings to fill holes and ruts in the road, and in places the sand has even been distributed over the roadway. In all these places the road is free from dust in the dry season (a great curse out there), and perfectly hard and firm in the wet season; and he now thinks it must be due to the oil in the sand. Another gentleman said he used to handle oil at Austin, Texas, in years gone by; he remembered the lot, of perhaps a quarter acre, where he had his depot became sprinkled with oil from leaky cans, and was always hard and firm despite the weather, and he thought it must have been the oil that did it. Another, a road builder from Missouri, said that on a muddy road leading into his town a man let a barrel of black oil fall from his wagon, breaking it and spilling the contents. Ever since then he had noticed there was a firm piece of road near that place, where it did not get muddy or rut, and he thought this was due to the oil. A railroad man said the Pennsylvania Railroad began spraying their roadbed with oil to lay the dust, and now found it not only laid the dust, but shed water, kept down the weeds, and preserved the ties.

The present experiments are being made through the liberality of the Standard Oil Company, who, by Mr. Rockefeller's orders, placed a tank of crude oil at the disposal of the writer. On November 20, the writer coated a newly-graded piece of dirt road with oil, distributed by means of an improvised sprinkler, over a strip about 12ft. wide by 200ft. long.

A second part of the roadway was sprinkled more lightly about 300ft. further, making 500ft. or 600ft. in all, and used eight barrels of oil in the experiment. The day after the sprinkling was done and before the oil had time to become absorbed, for it soaked in very slowly, a heavy rain fell. The road was examined during the rain, and quite a marked difference was seen between the oiled and unoled portions. Where oiled it was evident that the dirt beneath the surface was still dry and retained its supporting power, while on each side of the oiled portion it was muddy and rutty. A heavy freeze, with the temperature at zero, followed the

rain, and on the 25th the road was again examined. The oiled part was still more different from the neighbouring stretches. The unoled road was cut up with ruts 1in. to 2in. deep, and frozen rough and hard; the oiled portion was perfectly smooth, and the wheels made on it a muffled sound that showed the dirt beneath the surface was unfrozen and dry.

It will scarcely be possible until the spring thaw comes to really estimate the value of the oil; but at present the experiments seem to promise well. It is too soon to make any good estimate of the quantity of oil required per mile of road. It will possibly vary with the character of the soil, whether loam, sandy clay, or gumbo. The place selected for this experiment is a regular black gumbo, which cuts normally into ruts hub-deep, and holds the water like a jug.

My object in this paper, as before said, is to present it to your readers, among whom there are no doubt many who are interested in roads, and induce experiments on varying qualities of soil. To meet with success, the following conditions, in the writer's opinion, should be observed:—

1. The road should be smoothly graded and rounded well, so as to shed water.
2. Apply the oil to the roadbed while dry. If the soil is filled with water, the oil will penetrate with difficulty, and much of it will be carried off on the wheels of passing waggons.
3. It will be well to roll the ground after the oil is put on. It has a tendency to collect in ruts and small hollows, and the roller would force it into the soil and distribute it evenly.
4. Crude oils costs from 60 to 90 cents per barrel at the wells. Its odour is disagreeable, and oil from which the naphtha and kerosene has been extracted would be preferable to apply in warm weather. When cold the heavy oil becomes too stiff to be applied without heating. This could be overcome by some form of spraying apparatus, using a jet of steam.—M. MILES, U.S.C.E., U.S. Engineer Office, Keokuk, Ia., in the *Scientific American*.

## EXPERIMENTS ON BRIDGES.

A VERY complete series of experiments on bridges under moving train-loads is given in a paper by Mr. F. E. Turneure, Assoc. Am. Soc. C.E., in the *Transactions* of that Society. We can only give here a few of the conclusions under the several heads of the paper. The results are given in tables. Under the head of "Vibrations in Girders and Trusses" it is stated that the principal points brought out by the data in this table are: (1) the increase of deflection or flange stress due to vibration is about the same on all spans from 25ft. to 55ft. in length, and has a maximum value of about 50 per cent. for speeds of 40 or 50 miles per hour. For spans of 60ft., 70ft., and 85ft. in length the maximum percentages are 22, 28, and 17 respectively. (2) Speeds greater than about 20 miles per hour for short spans, and 35 miles per hour for long spans almost invariably caused large vibrations. (3) The rates of vibration of the bridges for high speeds and large amplitudes agree approximately with the rates of the revolution of the locomotive drivers, and show clearly that the chief cause of vibration is the effect of the locomotive counterweights, &c. The tests on trusses are given in tables showing the ratios of deflection to span-length. The results show the comparative uniformity in the maximum percentages added to deflection by vibration. The rate of vibration of the structures agrees quite closely with that of the revolution of the drivers, indicating that, as in plate-girders, the chief cause of vibration is the unbalanced wheels.—The general conclusions are given at the end of paper, and are chiefly: That speeds less than about 25 miles per hour are not likely to result in much vibration; the increase in deflection due to vibration caused by locomotives running at speeds of 40 to 50 miles per hour is likely to be 40 or 50 per cent. for girder spans of less than 50ft. in length; this percentage decreases rapidly for longer spans, becoming about 25 per cent. as a maximum for 75ft. spans; the relative increase in chord stress is about the same as in deflection, that in centre diagonal is somewhat more than in the deflection; and in hip vertical it corresponds more nearly to that in girders of 40ft. to 50ft. span; secondary stresses are likely to be high in small girders with shelf-angles and in some parts of trusses. The tables given in the paper are numerous. Taking those of

open trusses for which diagrams are given showing stresses in thick lines, the columns give the number of the bridge and its span, the number of experiments made, kind and direction of train, weight of engine and tender, diameter of drivers, speed of train. The results give deflection in inches, percentage added by vibration stress on chord, with percentage by vibration added, stresses on diagonal with the same addition, and stress in hip with the same addition, &c. Those who are interested in experiments of this kind will find the paper of Mr. Turneure, with its tables of results, a useful contribution on moving-load experiments.

## DOVETAIL METAL SHEETS AND LATHS.

THE "Cunnah-Wright" patents are pretty well known to the profession as a very effective mode of constructing fireproof, sound, and damp-proof partitions, floors, ceilings, drains, full particulars of which can be obtained of the Fireproof Partition Syndicate, Ltd., 25, Billiter-street, E.C. The patent sheets are formed of iron or steel sheet, with a double dovetail corrugation, given to it by passing it through special machines. This dovetail corrugation, of course, gives great rigidity to the sheet, as well as an excellent "key" for plaster on both sides. For partitions and walls the sheets can be fixed between small flanges of H-shaped standards, and T or channel iron being used for beads and sills. Special rolled sections for this purpose are made. Any plaster can be used if worked stiff. Many important applications of this valuable metal sheet and lathing are shown in the Syndicate's catalogue, showing how dwellings and other erections of one story can be erected. The walls so constructed are only 2in. thick, and are absolutely fire and damp-proof. Iron or wood stanchions may be superseded by brick piers at the angles and at intervals. For isolation hospitals, factories, bungalows, and other buildings which require to be speedily erected, the material is admirably adapted. The shafts of cylindrical columns can be formed by the patent metal lath, and as a fireproof casing for stanchions, girders, coverings, &c., nothing could be better. The patent metal laths are much stronger than wooden laths; the studs can be placed farther apart (18in.) and the "key" is excellent. As a "filling-in" between half-timbered work, the architect will do well to specify it. A very excellent floor for factories or warehouses can be made by placing sheets of this material on the lower flanges of steel joists, and filling up between them with concrete. The sheets can be suspended by iron clips to the flanges, and, of course, arched ceilings can easily be made by the use of the Cunnah-Wright sheet. A specimen slab of this construction is before us, and is a marvel of strength and hardness.

## CHIPS.

Sir Charles Elliott has opened a new elementary school for 100 children built at a cost of £3,000 by the Duke of Bedford on his estate at Potsgrove, near Woburn.

In the church of St. Ignatius-the-Martyr, Sunderland, built by the late Bishop Lightfoot at his own cost as a thank-offering, a window has been dedicated. It is in the west end, and has three lights, and has been executed by Messrs. Burlison and Grylls. It consists of nine cartoons, illustrating the late bishop's life, work, and inspiration.

The rural district council of Malpas have adopted a scheme, prepared by Mr. Davenport, of Nantwich, for the supply of water to the village of Bickley, at an estimated cost of £2,000.

A bronze statue of the celebrated Polish poet and patriot Adam Mickiewicz was unveiled at Warsaw last week on the centennial anniversary of his birth.

We are requested to state that Major Hector Talloch, C.B. (retired), Royal Engineers, and lately Chief Engineering Inspector of the Local Government Board, is not the person who was a director of the West Australian Trading Syndicate, two of the directors of which are under prosecution by the Public Prosecutor.

The Wimbledon Urban District Council have applied to the Local Government Board to sanction the disposal to the South-Western Railway Company of certain lands adjoining the railway in consideration of the railway company reconstructing and widening the Gap-road Bridge. The council further propose to borrow £2,000 for improvement works in Wimbledon.



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—CHRIST CHURCH, MORNINGSIDE.—NORTH WILTS CONSERVATIVE AND UNIONIST CLUB, SWINDON.—NEW RESIDENCE FOR LORD RIBBLESDALE, GREEN STREET, PARK LANE.—VILLA RESIDENCE, BATH ROAD, READING.  
—ST. MICHAEL'S CHURCH, ABERTILLERY.—HOUSE AT CLAREMONT PARK, BLACKPOOL.

MINEHEAD UPPER TOWN, SOMERSET.

We published a view and plan of Minehead Church in the *BUILDING NEWS* for August 19th, 1892, on the occasion of the Architectural Association's excursion to this part of Somersetshire. To-day we print a more recent view of the upper town looking up towards the south side of the church, and showing the old thatched and plastered houses of this charming old village, which stands high above modern Minehead with its villas, shops, and seaside hotels. The ancient simplicity of the upper town remains unchanged, save that every now and again a fresh coat of pinkish-yellow colour-wash is applied to the stucco walling of the cottage fronts, or, possibly, a luckless fire sweeps away one of the dwellings. This catastrophe fortunately is a rare occurrence, though it did happen a few years ago, and the ruins still record the fact opposite the church porch on the upper road. To reach this upper road from the main streets of the upper town a series of rambling and stepped footways have to be climbed on the way to church, where Mr. Luttrell, a member of the famous Luttrell family of Dunster celebrity has been parson for any number of years. The churchyard is very steep on the side of the hill, from whence the tower has an exceptionally commanding effect, and makes a charming feature in a most beautiful landscape. The church inside is noted, of course, for its wonderful screen, dating from 1499. There is a good font, an interesting altar-table with angel figures of Jacobean date, a traceried and carved Gothic chest of rare quality and richness, and the Bacton monument on the north side of the sanctuary. The tower of the church is plain as compared with others in this district. It was built in the 15th century, and has some quaint sculptures of St. Michael weighing souls, and a representation of the Trinity. The turret containing the rood-loft staircase makes a pretty feature on the south side of the church.

SCHOOLS, PORT SUNLIGHT.

THESE schools have been erected in a central position in the picturesque village which Messrs. Lever Bros., Limited, are building for the use of those engaged in connection with their extensive works. The bridge in the foreground spans a ravine, which, by retaining its natural slopes and fine trees, assists in realising the *ensemble* of an old English village. The school at present accommodates 500 boys, girls, and infants, but, owing to the growing needs of the place, the infants' department is shortly to be enlarged. A separate room is provided for each class in the mixed school, so that the teaching may be as efficient as possible, while four of these rooms can be readily thrown open to the main hall by sliding back the glazed screens, which were supplied by Messrs. Peace and Norquoy. The large hall (including the four classrooms) is used for services on Sundays, a chancel with organ chamber and vestry under, being attached, but which can be screened off during the week. Facilities for teaching science, cookery, and wood-working are provided, and there are spacious playgrounds. The walls are of Ruabon brick, with Helsby stone-dressings, and the roofs are covered with green slates. The woodwork is of oak—the floors being laid with wood blocks, except the entrances, lavatories and cloakrooms, which are tiled, and round which run glazed

brick dados. The heating and ventilation was carried out by Messrs. John King, Limited, of Liverpool. The schools were built (without a contractor) by Messrs. Lever's own workmen, and the care with which they were carried out is in a measure due to the able superintendence of Mr. R. Nicholson. Messrs. Douglas and Fordham (now Messrs. Douglas and Minshull), were the architects of both the schools and the bridge.

THE RED HOUSE, AYR.

THIS drawing shows the seaward addition first proposed to be made to Red House. The new dining-room and billiard-room, with bedrooms over, were planned for the purpose of securing on the west a greater sea view; and on the south to open up in part the Carrick range of hills. The new wing would have been connected to the offices and older portion of the house by a service lobby and a wide corridor, the latter, with its garden entrance, forming the north side of the bulb garden. Continuing westward is a range of successive lawns and gardens, following the line of a broad central turf walk and divided from one another by walls or hedges. The garden has been laid out, but, in place of the extension here shown, the additions were made to the south side of the main house. The architect is Mr. James A. Morris, of Ayr, and the drawing was exhibited last year in the Royal Academy.

NATIONAL GOLD MEDAL DESIGNS FOR BOOK ILLUSTRATION.

THE "Tempest" scene, with three figures on the upper part of our double-page plate, represents the entrance of the drunken butler, Stephano, drinking copiously, who discovers the monster Caliban and Trinculo, a jester, hiding under one cloak in terror of an approaching storm and of each other. (Act ii. sc. 2.) The next drawing, with numerous figures, represents the appearance of Ariel, like a harpy, at the mysterious banquet that by Prospero's magic is spread before the stranded king, surrounded by his nobles, and which suddenly disappears on the harpy clapping its wings, when it then recites their sins against the three conspirators. (Act iii. sc. 3.) The head-piece, I think, explains itself as a part of the rocky coast on which they were wrecked. In the last drawing, which is wholly unconnected with the others, Blue Beard's wife is in the act of opening the forbidden door, with excited anticipations of what she will see within.

MARGARET E. THOMPSON.

NEW CHURCH OF ST. MATTHEW, CHAPEL ALLETON, LEEDS.

THE church is one of considerable size, the main dimensions being, nave 102ft. long by 25ft. 6in. wide, and the aisles 15ft. wide. The nave has six bays with arches of good wide span. The chancel is 53ft. long, and the same width as the nave. There is no chancel arch, the nave being divided from the chancel by a high open screen. The organ is to stand on this screen, and this will give an effective arrangement, and the full value of the instrument will be got. There will be an ample loft on the screen. In style, the building is that of the 14th century, and is strictly of English character. Length will be its leading characteristic feature. It is simple in its detail, and is treated in a very broad manner. The tower is detached, except that a cloister-like passage leads from it to the church. The lower part of the tower is vaulted. The stones used are Ancaster and Bath, and red tiles cover the roof. The two east windows, those of the chancel and the side-chapel, will have stained glass. The church has been designed by Mr. G. F. Bodley, A.R.A., and is being carried out by Messrs. Stephens and Bastow. The cost will be about £17,000. The drawing reproduced was shown at the Royal Academy last summer.

THE CANON'S HOUSE, GANDERSHEIM.

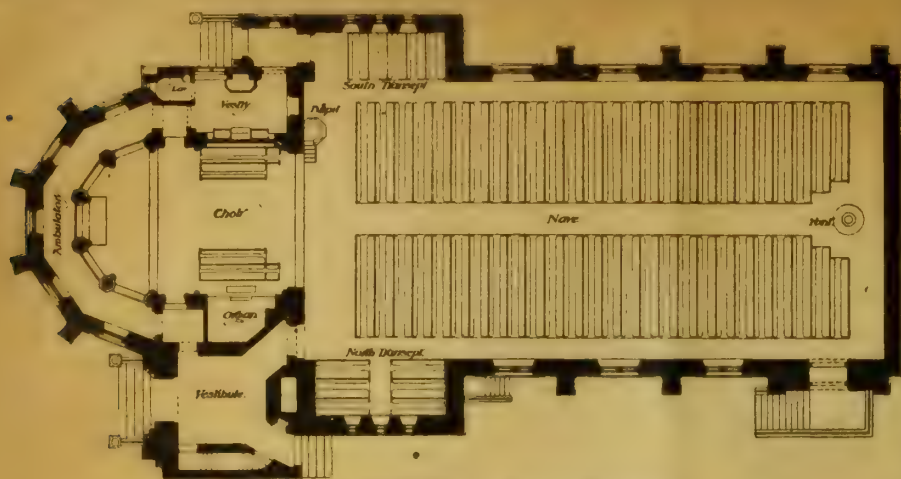
THE elevation of this example of the German Renaissance is both typical and suggestive, as it furnishes a somewhat uncommon treatment of a street front, and in other ways it is unusual. The town of Gandersheim is a comparatively small place some 35 miles S.W. of Brunswick, but its buildings make it certainly worthy of a visit. The town-hall (its chief glory) is a highly picturesque structure dating from 1581 to 1588. The Moritz, or Market Church, was destroyed in 1580 by fire, its ancient steeple alone remaining. Upon this site and with the materials saved out of the fire this Rathaus was constructed, the external outline of the church walls being made the measure for the precincts of the new building,

Our Illustrations.

AVILA CATHEDRAL, SPAIN.

ALTHOUGH Avila is on the central line of railway, it is by no means well-known, though its buildings are of the greatest interest. The town is located midst an arid desert, and its surrounding tawny plains may account for the infrequent visits of the architectural tourist. The churches of Avila are rich in archaeological charms; for instance, in the small Romanesque church, on the walls, the monuments of Bishop San Segundo and of Prince Juan, only son of Ferdinand and Isabella, may be particularly mentioned. There are some beautifully-carved stalls in the coro at the western end of the building. Till within a few years ago children were permitted to play in this deserted church, and boys broke off pieces of the monuments and sold them to chance customers. The beautiful figures have remained, however, comparatively uninjured, and at the present time an inclosure of rough wood serves to keep off intruders. The other churches of the city are equally interesting. The cathedral was built by Garcia de Estrella in 1107, and is extremely curious, partaking more the form of a fortress outside than a church. The apse beyond the choir projects over the ramparts of the town wall, and, with its machicolated skyline, is fortified like a castle. Storks make their nests unmolested in the belfry of the lofty tower, whose pinnacles crown the composition. Mr. Wallace Rimington's beautiful water-colour drawing, which, by the courtesy of Mr. Pryce Weedon, we are enabled to reproduce to-day, gives a capital idea of the charming architecture which distinguishes the interior of this remarkable cathedral, with its grey Gothic arches and glorious stained glass. The irtable of the time of Ferdinand and Isabella is enriched by the paintings of Berrequete and Borgona. The rood beam is draped with a crimson hanging, which in Mr. Wallace Rimington's drawing, furnishes an exquisite contrast to the sombre tones of the arched walls. The building is groined, and a great feature is made of the organ on the north side of the choir. The tower itself is unchanged, and still wears a Medieval character all its own. A few of the houses are magnificent and elaborated with decorations; but for the greater part even the houses of the nobility, or what remains of their families, are plain and simple in style. Every house has its stone balcony over the entrance, and the portal generally has shields or coats-of-arms sculptured upon it, after the typical Spanish fashion. Most of the houses are arranged round the usual courtyard, and out of this the "cuerpo





CHRIST CHURCH, MORNINGSIDE.

while the old walls of the choir were surrounded by a new wall. The choir, and symmetrically with it the newly-added portions of the building, were divided into stories, the lower one for vaults and cellarage, and the upper for municipal offices. The new hall was located in what was once the church choir, and the windows, more or less original, give the apartment a very unusual effect. The entirely new portion then added extends westward from the old Norman steeple, and it exceeds the older building in width, the whole grouping very quaintly together, though some might consider the effect somewhat inharmonious. Mr. K. E. O. Fritsch, in his admirable work published by Mr. Von E. Wasmuth, of Berlin, a few years ago, under the title of "Denkmäler Deutscher Renaissance," quotes the account, thus given by Bohnsack, as his authority for these particulars of the building of the town-hall. He also describes very briefly the old domestic building, of which we publish a double-page ink-pencil drawing to-day, and we are also indebted to Prof. Fritsch for the name of its architect—one "Master Heinrich von Oevckate," who designed the building after the fire for the Abbess Anna Erica von Waldeck in 1599. This house was long known as the Ladies' Institution; but in the course of years its use became diverted, though the name, more or less, in loose terminology, has seemingly continued to reflect the original ecclesiastical associations of the property as more strictly belonging to the times before the disastrous fire, to which reference has already been made. Its architectural detail, like most of the German Renaissance work, varies very much in scale and quality of design. The square bay windows, which are set so quaintly on the limits of the façade, are refined, and have delicate Ionic pilasters flanking their lights, with skillfully-designed band-work above and below, interspersed with heraldic carvings. The coats-of-arms in the panels, too, reveal the hand of some very capable artist. The gable above the front, which so distinguishes the composition, is marked by strong and somewhat coarsely convoluted scrolls or volutes, inclosing the several stages of the upper part in a masterful way. The wall fountain below is a sample of the Rococo period, adding, however, very considerably to the general effect by supplying an emphatic feature just where it is most wanted. Gandersheim is known for some steel and ironware factories, and the town possesses Latin and Burgher schools, a castle of historic fame, a monastery, and a hospital. It was walled in, but for a long while has extended itself beyond the old confines, and possesses two suburbs. One of the features of the old city is formed by the two public squares.

## HOUSE AT CLAREMONT PARK, BLACKPOOL.

This residence is in the course of construction at Blackpool, at a cost of about £5,000. The whole of the dressings are of Mr. Edwards' Ruabon red terracotta, the bricks being supplied by the same firm. Mr. H. Wade is the architect, and Messrs. Hilton are the contractors.

## NEW RESIDENCE FOR LORD RIBBLEDALE, PARK-LANE, W.

The illustrations show a new residence which is nearly completed for Lord Ribblesdale, and is built of Portland stone, Fareham bricks, and for

roofs green Westmoreland slates. The servants' offices are in the basement and under the side terrace, the accommodation being his lordship's room and dining-room on ground floor, and her ladyship's room, large drawing-room, and boudoir on first floor, while over on second, third, and fourth floors are fifteen bedrooms and a studio, as well as good clothes-rooms, stores, bathroom, &c., on each floor. The reception-rooms will be treated in the Georgian style, with Classic cornices, doors with pedimented heads, Ionic pilasters, &c., all finished in white and gold. The suggestion for design of the elevations has been taken somewhat from the garden front of Hampton Court Palace, and the grand staircase (which will be in white marble) has a treatment somewhat on the lines of Ashburnham House. The drawing was in this year's exhibition of the Royal Academy. The builders are Messrs. Bywaters. The fireproof construction is by Messrs. Dennett and Ingle; the plasterwork to the reception-rooms and staircase by Messrs. Jackson and Sons. This house is on a corner site, the next four houses having been also carried out by the same architect; while on the other corner site he is erecting new stables for Lord Ribblesdale, and two other blocks of stables adjoining them. Mr. Sydney R. J. Smith, F.R.I.B.A., is the architect.

## CHRIST CHURCH, MORNINGSIDE, EDINBURGH.

The drawing herewith illustrated was shown at the Royal Scottish Academy in Edinburgh last summer. We also give a plan of the building, which shows the ambulatory round the apse, illustrated in the view. The church was finished some time since, but till now has not been illustrated, and as an example of modern Scotch Ecclesiastical architecture it is a notable building. Mr. Hippolyte J. Blanc, R.S.A., was the architect, but no further particulars have come to hand.

## NEW RESIDENCE, BATH ROAD, READING, FOR MR. EDWARD FARRER.

The site is in the best part of a residential neighbourhood. The building contains eight bedrooms, dressing-room, bathroom, linen closet, two w.c.'s, three reception-rooms, and usual offices; also wine, beer, and coal cellars. There is also a large billiard-room opening out on to the garden level. On the west side is a conservatory extending the whole length of house. It is built in red and grey brick, with white moulded brick and Bath stone dressings. The architect is Mr. W. G. A. Hambling, Reading, and the builder is Mr. W. Stokes, Queen's-road, Reading.

## ST. MICHAEL'S CHURCH, ABERTILLERY, MON.

This church has been erected on the site of a much smaller one, the latter having been pulled down on account of its unsafe condition, although erected not more than fifty years ago. The style is Late 13th-century, and the building will seat about 750. The plan includes nave and aisles, tower, chancel, large vestries with organ-chamber over and heating apparatus under, as well as a morning chapel on south side. The walls are of local stone with Bath stone dressings, and the interior, including the arcade, is of buff Ebbw Vale bricks, with Bath stone caps and base, &c. There is no chancel arch. Between the nave and chancel there will be a massive rood beam with a cross in centre. Over this beam the roof

is arched and panelled between two heavy principals which will carry the fleche, in which is hung a bell. Under this bell an open ventilating shaft is carried up from a trunk in roof, and inlet vents are constructed in the walls 6ft. above floor. The church is heated by fresh warm air by Messrs. Musgrave and Co., of Belfast. The glass comes from the studio of Messrs. A. Savell, of Albany-street, London, and the work is being carried out by Mr. A. P. Williams, Buiran, Abertillery, from plans and under the supervision of Mr. C. B. Fowler, F.R.I.B.A., of Cardiff. The district being a poor one, and funds being difficult to obtain, no ornament has been lavished on the building. Although a cheap, plain church, it is lofty and of good outline. From floor to apex of roof the height is 54ft. 6in.

## CHIPS.

The bells of Harpenden parish church, Herts, have been recast, and a sixth bell added. The work has been carried out by Messrs. Warner and Co., of London. The reopening took place last week.

Mr. Robert H. Boyce, who has just been created a Commander of the Bath, is just retiring from Her Majesty's Office of Works, in which he ranks as the senior first-class surveyor.

The new temporary fever hospital, Knutsford, is being warmed and ventilated by means of Shorland's patent Manchester stoves, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

Mr. Henderson McGill McBlain, for the past 26 years one of the staff of H.M. Office of Works, died on the 27th ult. of pneumonia at the early age of 42 years.

On Saturday the undertaking of the Sheffield Electric Light Company was formally transferred to the corporation of Sheffield in compliance with the deed of purchase. A cheque for £260,000 was handed to Alderman Franklin, the chairman of the company, and in return the chairman of the committee of the corporation received the conveyances of different properties of the company, and formally took possession of the same on behalf of the corporation.

A tender of over £10,000 has been accepted for the erection of new buildings for the London and County Banking Company, at the corner of Windmill-street and King-street, Gravesend.

Mr. R. Durnford, Assistant Commissioner, held an inquiry at the Guildhall, Taunton, on Thursday last week, on behalf of the Charity Commissioners, to hear evidence concerning the proposed erection of a new town-hall and the contraction of a further loan for that purpose. The proposal of the market trustees is to borrow a sum of £30,000 for the erection of a town-hall on the Parade at an estimated cost of £13,650, and for the payment of the existing debt of £16,000. Mr. A. Basil Cottam, a member of the firm of Messrs. Samson and Cottam, whose design was selected in competition, exhibited the plans.

Mr. Tye, of Bradford, has just presented a stained-glass window to the German church there. It consists of an allegorical subject illustrating the text "Honour thy father and thy mother." The figures are painted in rich colours, and surmounted with delicate canopy work. The window is from the studio of Messrs. Powell Bros., of Park-square, Leeds.

At Rochdale, during last year, a larger number of dwellings were built than in any previous twelve-months; 515 new houses were certified as fit for occupation, and 260 more are still in course of construction.

Mr. F. T. Turton, the deputy-surveyor of Liverpool Corporation, has drawn up a report regarding the construction of dwellings for the labouring classes in Dryden-street and Rachel-street. The cost of the land and building is estimated at £15,100, and the net estimated rental is £665 7s. The Sanitary Property and Artisans' Dwellings Committee will invite the city council to approve the scheme.

A new stained-glass window has been given to the parish church of Gravesend, as a memorial. The window contains a central panel, on which is represented our Lord praying in the Garden of Gethsemane, and in the foreground are the three sleeping Disciples. The whole is surrounded by canopy work.

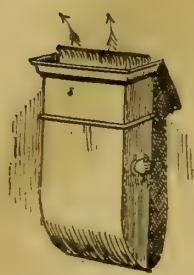
An extraordinary occurrence has taken place at Stranorlar Road Sessions, when Mr. McCorry, deputy-country surveyor, narrowly escaped with his life. He had refused to sign the certificates of about 300 road contractors, when many of them attacked him in court. The surveyor took refuge on the Bench, and the police kept the mob off him for two hours. McCorry at length escaped by a back window, jumped to the roof of another house, and, taking a circuitous route, reached a railway station three miles distant.



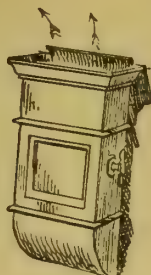
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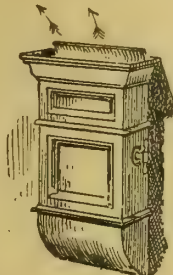
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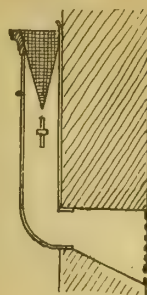
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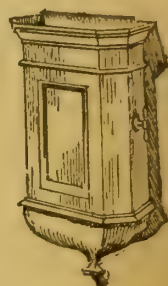
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Section.



No. 248.



No. 249.

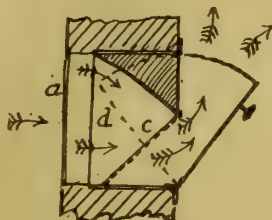
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No. 245	No. 246	No. 247	No. 248	No. 249
18in. by 9in. by 3in. ... £0 7 6	£0 8 6	£0 10 6	20in. by 8in. by 3in. ... £0 18 6	£0 18 6
18in. by 9in. by 3½in. ... 0 9 0	0 10 6	0 12 6	20in. by 9in. by 3½in. ... 1 0 0	1 0 0
20in. by 10in. by 4in. ... 0 10 6	0 12 6	0 14 6	23in. by 10in. by 4in. ... 1 2 6	1 2 6
24in. by 12in. by 5in. ... 0 15 0	0 17 6	0 19 6	27in. by 12in. by 5in. ... 1 7 6	1 7 6
24in. by 12in. by 6in. ... 0 16 6	0 18 6	1 1 0	28in. by 12in. by 6in. ... 1 10 0	1 10 0

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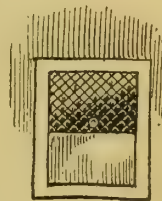


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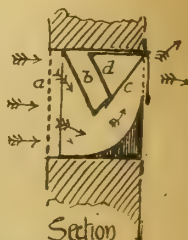
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10in. by 8in. by 7in. ... 0 10 6	0 12 0	10in. by 8in. by 8in. ... 0 10 6	0 12 0
11in. by 9in. by 8in. ... 0 12 0	0 14 0	10in. by 10in. by 8in. ... 0 12 0	0 14 0
12in. by 10in. by 9in. ... 0 14 6	0 18 0	10in. by 17in. by 8in. ... 0 14 6	0 18 0

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5ft. 9in. by 10in. by 4in. ... 1 1 0	1 7 0	1 12 0
5ft. 9in. by 12in. by 5in. ... 1 5 0	1 12 6	1 17 6
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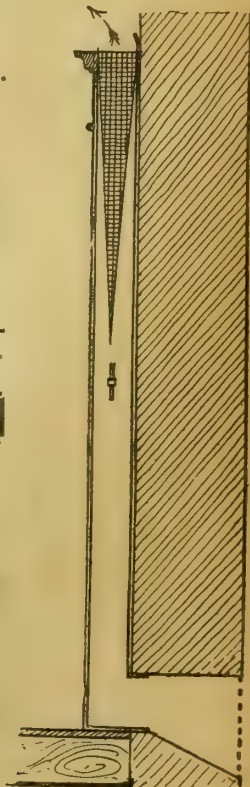
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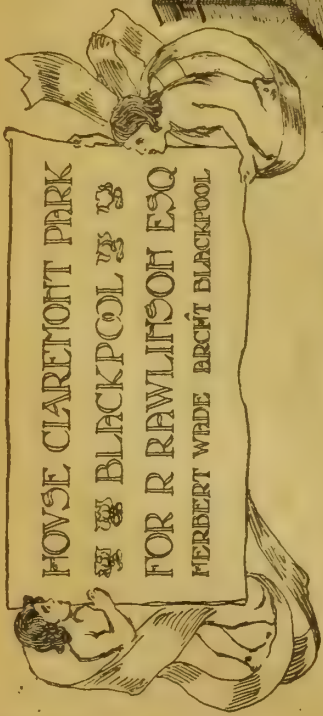


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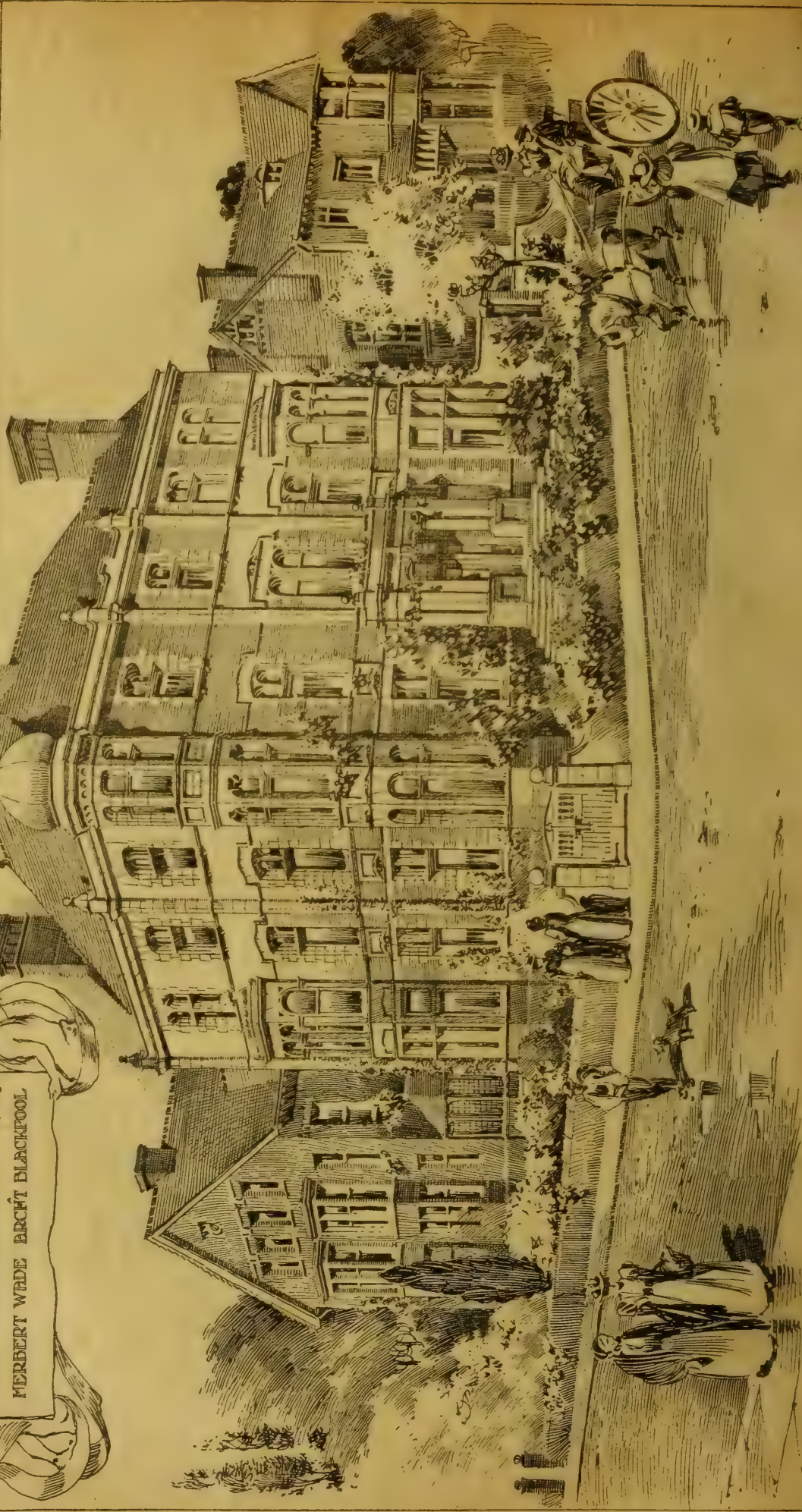
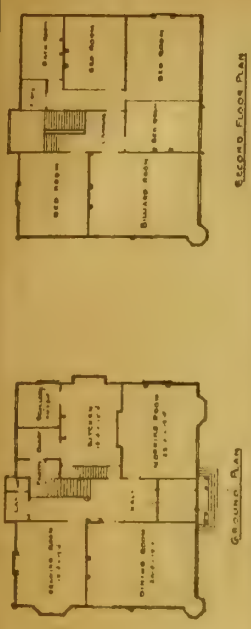


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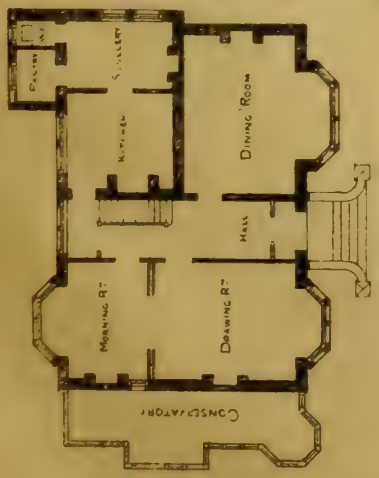




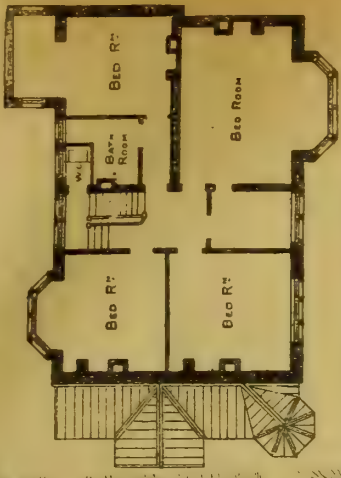
HOUSE CLAREMONT PARK  
& BLACKPOOL &  
FOR R RAWLINSON ESQ  
MERBERT WADE ARCHT BLACKPOOL



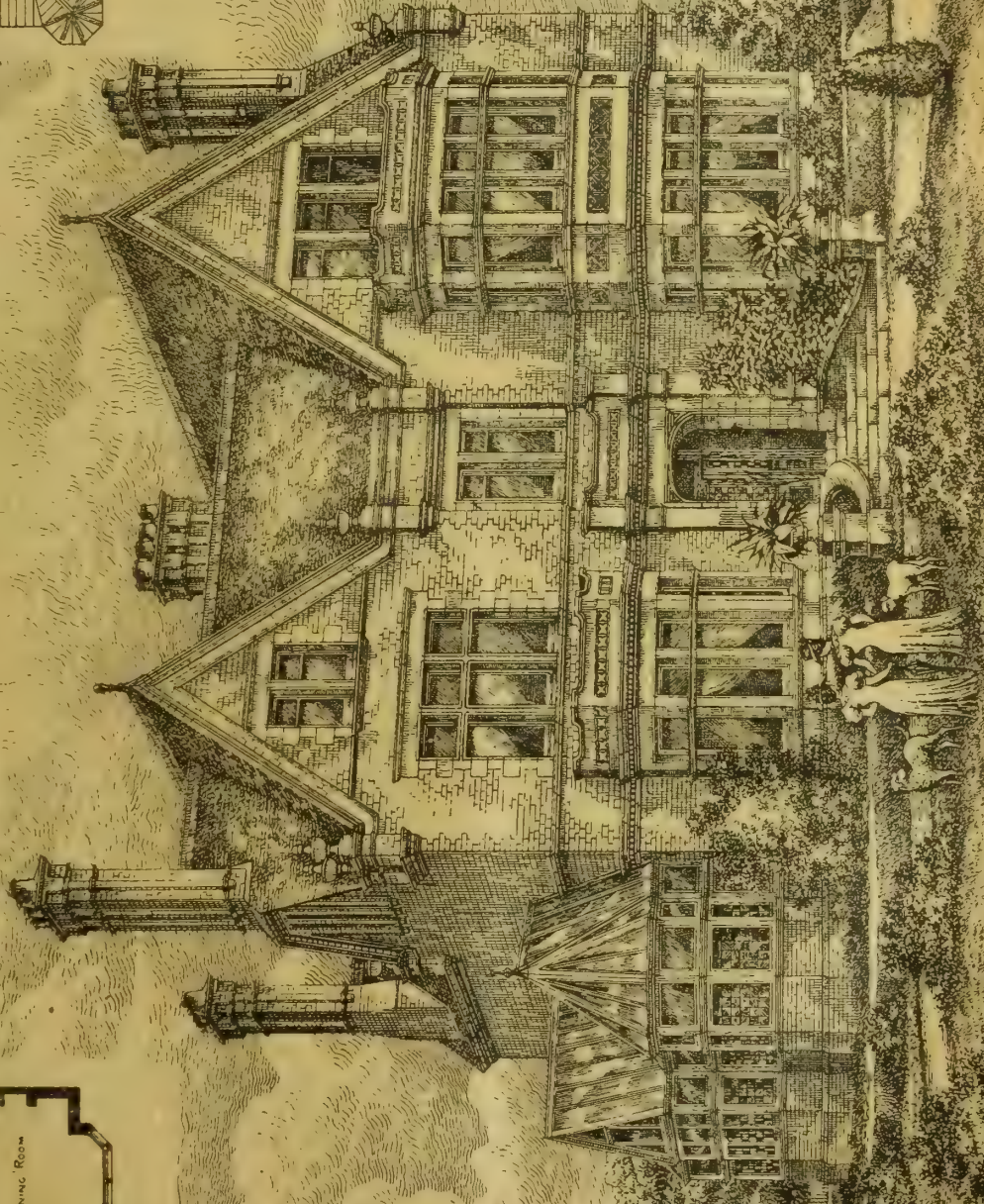




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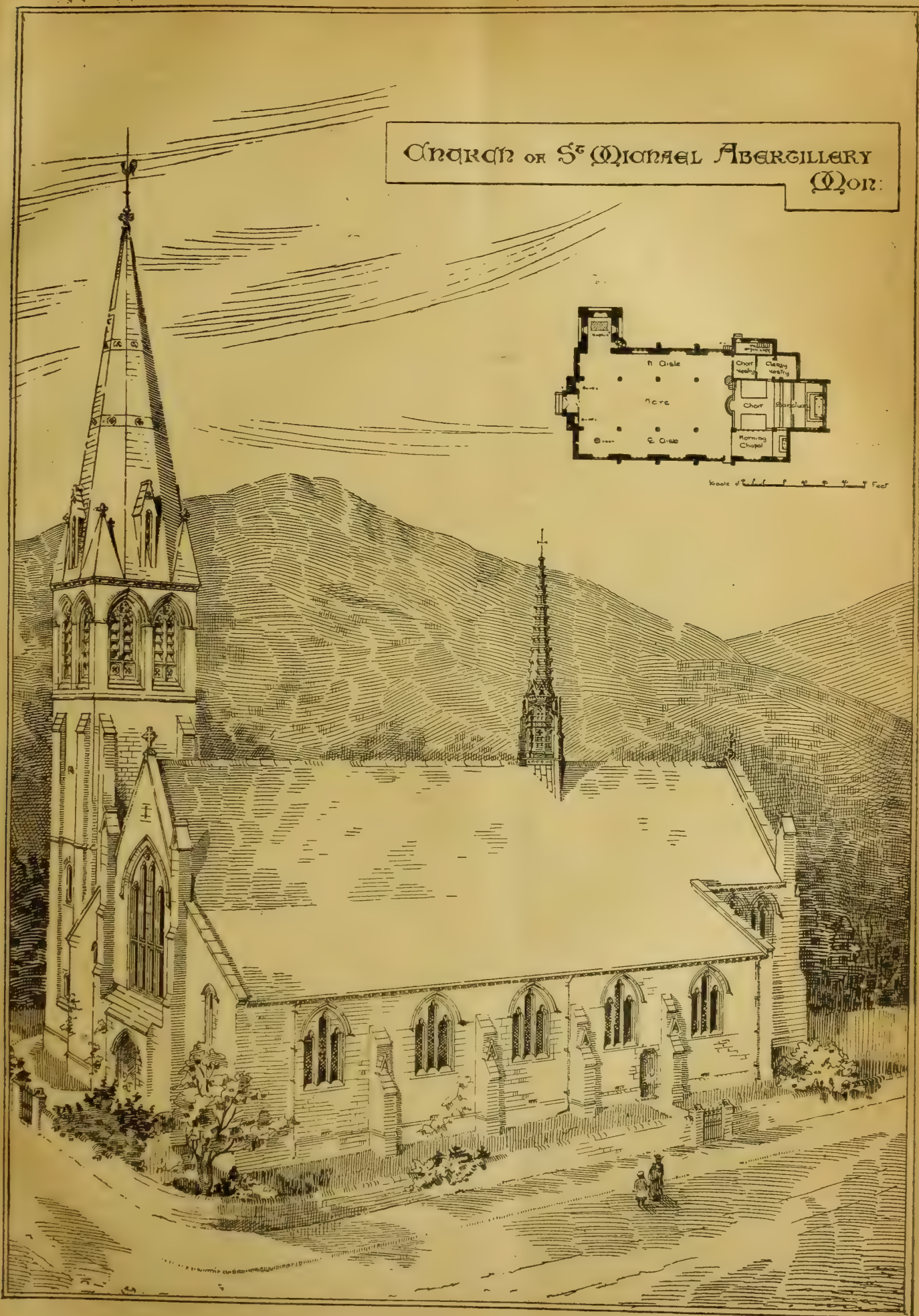
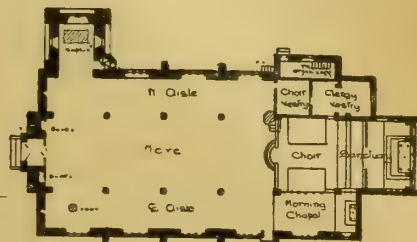
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## OBITUARY.

Moscow has just lost its patron of the fine arts, PAUL MIKHAILOVITCH TRETIAKOFF, who possessed a splendid gallery of Russian pictures. Tretiaikoff, who died on the 16th December, aged 66, came of a rich family of Moscow merchants, and early in life he began to collect the masterpieces, first of foreign, and then exclusively of Russian artists. In 1893 he made over the gallery and its contents to the town of Moscow, stipulating only that he should be allowed to add to the collection, which at that time numbered 1,276 Russian paintings, 471 Russian drawings, ten pieces of Russian sculpture, and 84 foreign pictures bequeathed by his brother. He had since increased this total of 1,841 to 2,212 works of art, now left to the nation.

## CHIPS.

At Exeter, John William Kerswell, builder, John Kerswell, jun., mason, and James Denning Clogg, clerk, have been remanded on a charge of stealing eleven bags of cement, the goods of Thomas Gabriel and others, cement merchants.

The Hills memorial village church at Penshurst, near Tunbridge Wells, opened on the 28th inst., has been built from plans by Mr. Maxwell Maberley Smith, of Berners-street, W.; Mr. Hope Constable, of Penshurst, being the contractor. The style is English Renaissance, and the facing materials are brick and local ashlar sandstone.

On Saturday the remains of Mr. George Fuge, foreman to the Plymouth Corporation Waterworks for nearly fifty years, were interred in the Plymouth Cemetery. There were in attendance a large number of friends and employes, amongst them being Mr. Bellamy, late borough surveyor, and Mr. Sandeman, water engineer.

On Friday the memorial clock tower which has been erected in the East Park, Wolverhampton, to the late Mr. John Lysaght, a well-known iron-master, of Bristol and Wolverhampton, was handed over to the mayor and corporation to take care of in perpetuity. The funds were raised by the men in the employ of the late Mr. Lysaght at his ironworks in Wolverhampton. Mr. Lavender, of Wolverhampton, was the architect, and Mr. George Lovatt, of the same town, the builder. The clock was supplied by Messrs. John Smith and Sons, of Darby.

The Bath Stone Firms have taken over the old-established quarries of John Pearce, of Portland. The latter firm employs a large number of men, and among the contracts still running, and which it will take several years to complete, are—Belfast City Hall, 12,000 tons; Leeds Insurance Office, 10,000 tons; Patent Office, London, &c. The Bath Stone Firms propose to sink some £7,000 in bringing the working of the quarries up to date, and in generally improving the equipment of the business.

The recently-erected chapel at Salisbury Workhouse was opened and dedicated by the Bishop of Salisbury on Wednesday week. The building has been erected by Messrs. Kite and Son, of Fisherton, from plans by Mr. George Gordon, architect. It is Gothic in character, and is of brick, with courses of grey brick round the window, and elsewhere. In the nave there are six lancet windows, and in the chancel two, and an east window. It has a wood-block floor, and the seats are of pitch-pine, and are capable of accommodating 150 persons.

The west window of St. Mary's Church, Oatlands Park, has recently been rebuilt, the stained-glass removed and newly-designed glass inserted from the studio of Mr. J. Dudley Forsyth, of Finchley-road, Hampstead.

At Tuesday's meeting of the Birmingham City Council, a letter was read from Lady Burne-Jones stating that she would leave to the Municipal Art Gallery at her death the portrait of her late husband by Mr. G. F. Watts, R.A. The city council approved a proposal to lease 9,890 square yards of land for 999 years, for the extension of the Art Gallery.

The partnership heretofore subsisting between H. D. Davis and H. Emanuel, architects and surveyors, Finsbury-circus, E.C., under the style of Davis and Emanuel, is announced.

Sir Benjamin Baker, the engineer, and Mr. John Aird, the contractor, will leave England on Wednesday next for Egypt, in order to inspect the great works now being laid down at Assuan and Assiut for the new Nile reservoirs.

At Monday's meeting of the Leeds Corporation Tramways Committee, it was decided to equip the Beckett-street and York-road sections of the tramways with electric overhead system of traction, and to proceed with the work at once. It is hoped that the new system will come into operation by July or August, at the same time as that on the Headingley and Chapelton line.

## Building Intelligence.

CANTERBURY.—A contract has just been approved by the Ecclesiastical Commissioners for England for the erection of an archiepiscopal residence in the Cathedral precincts at Canterbury in place of Addington Park, which was sold in the early part of the year. The remnant of the ancient archiepiscopal palace known as "Old Palace," which is situated close to the west front of the Cathedral, will form the nucleus of the new residence. The ancient palace was founded by Archbishop Lanfranc (1070-89), and first abandoned by Archbishop Wareham (1053-33) in consequence of a dispute with the citizens. In Crammer's time (1533-56) it had fallen into decay, and was further gutted by a disastrous fire. It was restored by Matthew Parker (1559-76), who gave a magnificent entertainment to Queen Elizabeth within its walls, but he was its last occupant, and the building was after his time again allowed gradually to fall into decay. Some portion of the ruins has been alienated to the use of the King's scholars, and an ungainly red brick house in Palace-street, which incorporates some of the ancient structure and is occupied by the junior school, is still known as "The Palace." The remnant, which will now be incorporated in the new residence, remained the property of the Archbishops of Canterbury until about 30 years ago, when it passed to the Dean and Chapter and was transformed into workshops, but it has now been re-acquired. Mr. W. D. Caröe, F.S.A., is the architect, and the contract has been taken at £18,967 by Messrs. Barker and Co., of London.

EDINBURGH.—Building operations will shortly be commenced with the new halls and other premises for the Wesleyan Mission at the corner of Earl Grey-street and Wellington-place, a site at present occupied by St. John's School and two blocks of new tenements of shops and dwelling-houses. A sum of nearly £20,000 has been paid for the existing buildings and ground. The street and basement floors have been planned as business premises. The main entrance to the hall will be by a corridor leading into a crush room on an entresole floor. A staircase leads to large hall on first floor, and this hall is planned to accommodate, with gallery, 1,600 to 1,700 persons. At one end is provided a large recess for platform and future organ-chamber, with retiring-rooms adjoining. Staircases at each side lead to the street as special exits. On the first floor there is also arranged a small hall accommodating 280 persons, with platform at one end, and class-rooms and lavatories at the other. The upper floors are arranged for class-rooms, stores, and caretaker's house. The heating will be by hot-water pipes and radiation. The building will be practically fireproof, concrete floors and steel roofs entering largely into the construction. Externally the buildings have been designed in a free treatment of the French Renaissance. The whole scheme has been designed by Messrs. Duon and Findlay, architects, Edinburgh. The total cost of the scheme will be over £40,000.

HARROGATE.—The Hon. H. E. Butler laid the foundation-stone of a Technical Institute and School of Art at Harrogate last week. The site of the Institute is at the junction of East-parade and Bower-road, and the total cost of the building will be about £6,000. On the ground floor there will be a cooking-room, with scullery and storeroom adjoining, a room for building construction, and, in connection with the art department, a room for advanced modelling, a room for studies from life and the antique, and two classrooms for bookkeeping and dressmaking. On the first floor are lecture-room and painting-room, and head-master's room, as well as a physics laboratory and a chemical laboratory and lecture-room. In the basement are a manual room and a large spare room, besides the usual provision for heating. The entrance will face Haywra-crescent, the staircase being in a central position and conveniently placed for access to all departments. The exterior is designed in a simple style of Renaissance—the corridors and laboratories will be lined with glazed bricks, dado height. The other rooms will have pitch pine dados. The building when completed will contain seven additional rooms. The architect is Mr. W. J. Morley, of Bradford and Harrogate.

SHERNBOURNE, SANDRINGHAM.—The parish church of SS. Peter and Paul on the Sandring-

ham estate was reopened after restoration at a cost of £2,000 on the 24th ult. The church has hitherto consisted only of a small and insignificant nave, and for many years past presented but evidence of decay, neglect, and ruin. It has now, however, principally owing to the munificence of the Prince of Wales, been transformed. During the process of excavations the foundations of the original aisle and chancel were discovered, and the church now consists of nave, chancel, south aisle, and porch, the new walls being, like the old work, executed in rubble and flint. Externally the roofs to nave and chancel are covered with Broseley tiles, a stone cross surmounting the east gable and a bell turret the western. The roofs to south aisle and porch are covered with lead. An addition has been made to the churchyard, and all inclosed by a flint and carrystone wall, with an oak entrance-gate, and the churchyard itself has been levelled, turfed, and the memorial stones regulated. Internally the chancel has a wagon-headed roof in oak, treated with moulded ribs and carved bosses, those to nave and south aisle being of a plainer character. The piers to the south arcade (of the Decorated period), after being walled in for centuries, again divide the nave from the south aisle, the eastern end of which is intended as a future organ-chamber. The floors of nave and aisle are of wood blocks, the sacarium and chancel being laid with tiles and stone steps. The pulpit (on stone base) and the choir-stalls are in oak, and the font has been refixed on a stone slab. The only remaining brass, together with the Purbeck marble slab to which it is attached, has been restored and refixed in an upright position in the north wall of chancel. This probably commemorates Sir Thomas and Lady de Sharnborne, who were buried beneath the high altar in the ancient chancel. All the memorial mural tablets have been retained. The windows throughout are glazed with cathedral glass. The heating apparatus is by Messrs. Mackenzie and Moncur, who also executed that at Sandringham Church. Mr. Geo. Riches, of Dersingham, restored the fabric of the building, Mr. John Boddy, of Harpley, being responsible for the roofs, floors, and internal fittings, and Mr. A. W. Hall, of Norwich, reinstated the ancient stonework, and executed the new masonry throughout. Sir Arthur Blomfield, of London, has acted as consulting architect, and the work has been carried out from the designs and under the superintendence of Mr. Herbert J. Green, of Norwich.

STAFFORD.—On Friday the Bishop of Lichfield attended a service at Castle Church, and dedicated a memorial aisle and windows which have been added in memory of the late vicars. The present edifice dates from 1844, when it was rebuilt, mainly through the benevolence of the late Mr. R. W. Hand, and at that time the plans, which were prepared by the late Sir Gilbert Scott, provided for the building of a north aisle. This work has now been undertaken and carried out from the same designs by Mr. R. Bridgman, of Lichfield, the architect being Mr. J. Oldrid Scott. The new aisle is 48ft. in length and about 15ft. in width, being separated from the nave by four Norman arches. The whole of the work is in keeping with the architecture of the church, and has been executed at a cost of about £850. The extra seating will accommodate 60 persons, and it is proposed to make a further extension in the course of time which will embrace an organ chamber and choir vestry. At the west end of the new aisle there is a lancet window of cathedral glass, and four memorial windows, representing the Four Evangelists, have been placed on the north side. The pulpit has been changed from the north-west to the south position, and the interior of the church is now lighted with gas.

A new Wesleyan church is being erected at Sheffield, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

An exhibition of drawings by students of the Bolt-court Technical School, which is carried on under the auspices of the London County Council Technical Education Board, is open to public view during this week, up to and including Saturday. The object of the school, of which Mr. Cecil Rea is the art director, and Mr. Gamble the school director, being to give instruction in the craft of producing surfaces for printing, the instruction comprises drawing, design, lettering, lithography, photographic copying, and the chief photo-mechanical processes.



## COMPETITIONS.

WREXHAM.—A special meeting of the Wrexham School Board was held on Friday to consider the award of the assessor on the plans sent in for the proposed new board schools for Wrexham. The competition was confined to architects practising in the town, and nine sets of plans were sent in. The assessor appointed by the board was Mr. W. E. Willink, F.R.I.B.A., Liverpool, and he awarded the first premium to Mr. W. Moss, Regent-street; the second to Mr. John Harris, Westminster-buildings; and the third to Mr. J. H. Swainson, Holt-street. The board asked for plans for accommodation for 1,000 children—400 boys, 300 girls, and 300 infants—and the entire cost, exclusive of building site, was not to exceed £8,000. Mr. Willink said they could not get what they wanted for the money, and he estimated that the first plan would cost £9,610 to carry out, and the others £10,995 and £10,607. The assessor's award was unanimously accepted, and it was decided the £30 premium be paid to Mr. Moss.

## STATUES, MEMORIALS, &amp;c.

STATUE OF THE QUEEN FOR DURBAN.—A statue of Her Majesty the Queen, recently completed by Mr. Hamo Thornycroft, R.A., has this week been on private view at the sculptor's studio. The work was commissioned by the Municipal Corporation of Durban, Natal, as a borough commemoration of the Sixty Years' Reign. Mr. Thornycroft undertook it in February last, and it is now finished, and will be shipped in the middle of next month. The statue, which is of Sicilian marble, is on an heroic scale, standing nearly 10ft. high. It represents the Queen as she appeared shortly after her accession to the Throne. Her Majesty wears a jewelled crown, and heavy State robes which fall over the back of the support. The Ribbon and Star of the Garter are shown, and the dress is richly brocaded. In the right hand is the sceptre, resting against the upper part of the arm, and the left holds the orb surmounted by a cross. The base has in the centre the letters V.R.I. linked together in a plain scroll, but is otherwise without ornament. The pedestal, which has already gone to Durban, is also of marble, and stands about 11ft. high. The total cost of the memorial will be over £2,000. The site selected is in the Town Gardens immediately opposite the portico of the Town Hall.

ST. MARGARET'S, WESTMINSTER.—A memorial to the late Sir Frank Lockwood, Q.C., M.P., has just been placed in this church, and has taken the form of a brass very elaborately engraved, and bearing the following inscription: "To the memory of Sir Frank Lockwood, M.P., sometime Solicitor-General, born 1846, died 1897, whose qualities of head and heart, adorned by an unfailing, yet unwounding humour, endeared him to all parties in the House of Commons. This tablet is erected by his sorrowing friends in both Houses of Parliament." At the desire of the Committee the work was placed in the hands of Messrs. Percy Bacon and Bros., 11, Newman-street, W.

## CHIPS.

The Duke of Devonshire will visit Derby on the 19th inst. for the purpose of opening the new municipal technical college, erected by the corporation at a cost of £40,000.

Dr. Baccelli, Minister of Public Instruction in the Italian Government, has ordered the immediate evacuation of three halls in the Doge's Palace at Venice, which, if danger of collapse is to be apprehended, would be the first portions of the edifice to be imperilled. The whole library of St. Mark's will then be removed into the rooms of the Zecca.

The partnership hitherto subsisting between F. H. Lancaster and H. W. Rogerson, architects and surveyors, Boscombe, Bournemouth, under the style of Lancaster and Rogerson, has been dissolved.

At the Birkbeck School of Art, an exhibition of the work done by the students during the past session has been on view during this week. There was a total of 304 students, and by these 266 certificates were obtained from the Science and Art Department. In the National competition a large percentage of works from this school were selected for examination, two silver medals and ten book prizes being awarded.

The foot-bridge over the lines to the eastern end of Truro station is being completed. The two large girders were placed in position on Sunday morning, the travelling crane lent by the Great Western Company to the contractor for that purpose being used successfully. The work was watched by Mr. Fox, resident engineer of the railway company; Mr. A. Carkeek, the contractor; and a representative of Messrs. Lysaght and Company, sub-contractors for the ironwork. The station itself is in course of reconstruction.

## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

ARTHUR RADCLIFFE. (Write B. T. Batsford, 94, High Holborn, W.C. He will recommend a selection, including Rivingtons, and probably supply same at second-hand prices.)

RECEIVED.—W. L. S.—M. F. and Co.—G. I. P.—H. P.—S. W. K. (Bristol).—A. N. and Sons.—W. K. G.—R. B. Co.—G. C. H. (Manchester).—T. F. L.

## "BUILDING NEWS" DESIGNING CLUB.

## FOURTH LIST OF SUBJECTS.

D.—A Village Tavern situated by the road-side in the main street, with a frontage of 48ft., the ground line falling from left to right 1 in 12. The elevation to set back 15ft. from the rear line of pavement; but a porch or bays may project from the building not more than 6ft. The adjoining houses are plain 18th century brick ones, 26ft. high to top of parapet. A carriage entrance, 10ft. wide, must be contrived leading to the stable-yard in the rear. The new building to comprise ground floor, first floor, and second floor. The top rooms may be partly in roof. The accommodation to include a good, sufficiently ample public bar, a smoke-room, a good, spacious stairway, 4ft. wide, leading to club or meeting room about 32ft. long by 20ft. wide, or of that area on the first floor. There must be a billiard-room for two full-size tables on the ground floor, and a "tap-room" leading out of the stable yard. The stables and coach-house need not necessarily be drawn in. The residence connected with the tavern to comprise sitting-room to the rear of the bar, a good ample kitchen, scullery and offices, five bedrooms, bath-room, and w.c. Sanitary accommodation for customers must be arranged in the yard premises; but it is essential to keep the house and its buildings distinct from the public part of the establishment. A retiring-room in conjunction with the big room on first floor is necessary, also a rolling-way and hatch to the cellars below. The elevation is to extend the whole width of the site in front, and must include the 10ft. way already mentioned. The forecourt to be inclosed with posts and chains. A sign of the "Red Lion" is to form part of the design. Style, "Later Renaissance," in red brick mainly, with stone sparingly used. An old-fashioned-looking tavern is required, not a modern gin-palace. Tiles for the roof. Parts may be plastered. Scale, 8ft. to the inch for elevation, and two sections, plans 16ft. to the inch if desired. There must be a sketch view.

DRAWINGS RECEIVED.—"Le Nord," "Astragal," "Arc," "Rikki," "Butts," "Balbas," "Hoopoe," "Alexam," "B. Gyn. R." "Espoir," "Swan," "McGilligan," "Jabez," "Bat," "Seruton," "Quadrant," "Tokio," "Thistle," "The Old Firm," "Pup," "Casual," "F," "La Poupee," "King Crow," "Carlo," "Jonnie," "Bedouin," "Gargoyle," "Athos," "Vigornia" (these two last came very late).

## Intercommunication.

## QUESTIONS.

[12150.]—Level.—Which is the most useful and handiest level to use in such works as taking levels of building sites and so forth? A level is wanted that could be carried about readily in the hand, and great accuracy would not be so much a requisite as portability and speed in use.—W. D.

[12151.]—White Flooring.—Many thanks to "G. H. G." and "L. E." for noticing my query. From their replies it appears to me that, as far as decay is concerned, there is really very little difference between red and white wood flooring. I have seen a good many red deal floors, but never to my knowledge have I seen one entirely free from bright sap (not green sap) on the edges of the boards. For this reason, seeing that the white flooring is generally more free from sap than the red, it should be equally lasting, but is more liable to strip with wear and tear than red wood. Is not this the real reason of its being less frequently specified for ground floors than red flooring?—ENQUIRER.

## REPLIES.

[12148.]—Moving Brick Houses.—The buildings have to be securely tied and strutted so that there is no danger of them falling to pieces. Some time since there was an article in the Strand Magazine showing houses in the course of being moved. You might gain some hints if you could look up that article.—L. E.

[12149.]—Value of Brick Earth.—It is almost impossible to say the value of the earth you have. The best way is to see what offers you can get for it.—L. E.

## LEGAL INTELLIGENCE.

ARBITRATION AWARDS.—The awards in several important compensation cases recently reported in our columns have been issued. In the case of "Penreth v. Great Central Railway Company" (reported in the BUILDING NEWS for November 18, p. 735), a claim for compensation for land taken from the Thorpe Mandeville Estate, a hunting-box in Northamptonshire, and for depreciation of the rest of the property, Mr. Robert Vigers, president of the Surveyors' Institution, awards the claimant the sum of £2,065. Mr. Alexander R. Stenning, sole arbitrator in the case of "Gregory v. Staines Reservoirs Joint Committee" (reported in our issue of Dec. 2, p. 807), has awarded £2,313 in respect of an easement through Rivernook Park, Wraybury, near Staines, required for the purposes of an aqueduct from the Thames to the new reservoirs at Staines. In "Milledge v. the School Board for London" (reported Nov. 4, p. 665) Mr. Robert Vigers awards £830 in respect of a total ground-rent of £26 per annum derivable from four houses in Marriot-road, Tollington Park, N. In the case of "Lewin, Gregory, and Anderson v. H.M. Office of Works" (also reported by us in our issue of Nov. 18, p. 735), a claim in regard to the acquisition of office premises, No. 13, King-street, Westminster, for the purposes of the Parliament-street improvement, Mr. Arthur Cates awards the claimant £2,800, inclusive of compensation for interference with the business by removal.

RE SAINT OSWALD PENNINGTON.—The liabilities in this case, that of an architect and surveyor, of Lichfield-street, Wolverhampton, are set down at £261 5s. 2d., and the deficiency is estimated at £246 5s. 2d. The bankrupt was formerly in business at Southport, Ramsey, and Douglas (Isle of Man), and afterwards at various towns in England. In 1893 he went to Darlaston, and later on to Wolverhampton. Since March last he has been continually sued by his creditors. The whole of the furniture is claimed under a marriage settlement.

## CHIPS.

The new mission-hall at East Grinstead was opened on Tuesday. It has been erected by Mr. H. Young, from plans by Mr. H. E. Mathews, of the firm of Messrs. Douglass Mathews and Son.

At the Guildhall Justice Room on Tuesday, James H. Barker, timber merchant, formerly of High-street, Leyton, was charged with obtaining credit to the extent of £759 from Messrs. Whitting and Manning, timber merchants, St. Mary Axe, without disclosing the fact that he was an undischarged bankrupt. Evidence having been given for the prosecution and defence, the defendant was committed for trial.

The Empress Frederick of Germany opened on Friday the Diamond Jubilee wing, which has been added, at a cost of £8,000, to the Royal Sailors' Rest at Portsmouth. In the new wing, which is of red brick with dressings of Portland cement, 112 sleeping cabins are provided, and there are now altogether 450 sleeping-cabins at the Rest. There are stores for bicycles, club-rooms, and work-rooms for the sailors' wives. The wing and main building are connected by a bridge carried across the street. Mr. H. J. Snell, of Plymouth, was the architect, and Mr. J. H. Corke, town councillor of Portsmouth, the builder.



## LATEST PRICES.

A COURSE of architectural engineering has been inaugurated this week at the Massachusetts Institute of Technology. It is a branch of the regular course in architecture, diverging from it only at the beginning of the second term of the third year, when students who desire to qualify themselves for the science, rather than the art, of building, discontinue academic design and some of the purely artistic courses, and take up, instead, advanced applied mechanics and the theory of structures, as applied particularly to

THE New York Reform Club Committee have reported upon the reforms effected in cleaning the streets of that city. It is shown that the ease with which certain types of pavement can be kept clean, as indicated by careful observations of the cost of doing the work, is as follows: Asphalt, 100; brick, 100; wood (smooth karri), 100; granite, 150; Belgian blocks, 160; cobble stones, 400. All the pavements were in good condition, and the accuracy of the table was checked by comparison with the number of sweepers actually employed in each subdivision in the city. For the entire city, 1,623 sweepers were employed, each sweeper keeping clean an average of 5,746 square yards, at an average cost of 2-40dol. per 1,000 square yards a week, indicating that asphalt, brick, and smooth karri wood paving could be kept clean at 69 cents per 1,000 yards per week. A brick pavement, when properly laid, is, the report asserts, not a noisy pavement; it is a good and smooth road for traction purposes or for bicycling, while it affords a better foothold for horses than asphalt does; it is more than ten times as durable, it is lower in first cost, incomparably lower in cost of maintenance, and, in the cost of cleaning, the brick pavement is in no way inferior to asphalt.

A memorial brass to the memory of the late Lord Plunket, Archbishop of Dublin, a companion one to that erected in memory of Archbishop Trench, was unveiled on Friday afternoon by Archbishop Peacocke after a special dedication service in Christ Church Cathedral, Dublin.

IRON, &c.									
	Per ton.				Per ton.				
Rolled-Iron Joists, Belgian.....	28	0	0	to	28	10	0		
Rolled-Steel Joists, English.....	6	10	0				7	0	
Wrought-Iron Girder Plates.....	5	15	0				6	10	
Bar Iron, good Stuffs.....	7	5	0				5	5	
Do., Loomwork, Flat, Round, or Square.....	17	0	0				17	5	
Do., Welsh.....	5	15	0				5	17	
Boiler Plates, Iron—									
South Stuffs.....	7	17	8				8		
Best Snedshill.....	10	0	0				10		
Angles 10s., Tees 20s. per ton extra.									
Builders' Hoop Iron, for bonding, &c., £6 15s.									
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.									
Galvanised Corrugated Sheet Iron—									
No. 13 to 20.							No. 22 to 24.		
8ft. to 8ft. long, inclusive									
gauge.....	210	15	0				211	0	
Best ditto.....	11	5	0				11	10	
Per ton.....									
Cast-Iron Columns.....	28	5	0	to	28	15	0		
Cast-Iron Stanchions.....	6	5	0				8	15	
Rolled-Iron Fencing Wire.....	7	5	0				8	5	
Rolled-Steel Fencing Wire.....	7	5	0				7	15	
Galvanised.....	10	10	0				11	10	
Cast-Iron Sash Weights.....	4	2	6				4	5	
Cut Clasp Nails, 3in. to 6in.....	9	0	0				10	0	
Cut Floor Brads.....	8	15	0				9	15	
Wire Nails (Points de Paris)—									
0 to 7	8	9	10	11	12	13	14	15	
9/0	9/6	10/0	10/9	11/6	12/6	13/6	15/3	17/3	
per cwt.									
Cast-Iron Socket Pipes—									
3in. diameter.....	25	10	0	to	25	15	0		
4in. to 6in.....	5	5	0				5	10	
7in. to 24in. (all sizes).....	4	15	0				5	0	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]									
Fig Iron—									
Cold Blast, Lilleshall.....							105s. to 110s.		
Hot Blast, ditto.....							57s. 6d. to 62s. 6d.		
Wrought-Iron Tubes and Fittings—Discount off Standard									
Lists f.o.b.:—									
Gas-Tubes.....							75p.c.		
Water-Tubes.....							70		
Steam-Tubes.....							62½		
Galvanised Gas-Tubes.....							60		
Galvanised Water-Tubes.....							56		
Galvanised Steam-Tubes.....							45		
10cwt. caasks. 5cwt. caasks.									
Per ton.....									
£27 10 0 to £28 0 0									
Do., Vieille Montagne.....	29	10	0				29	15	
Sheet Lead, 3lb. per sq. ft. super.....	15	0	0				16	0	
Pig Lead, in lwt. piglets.....	14	7	6				15	7	
Lead Shot, in 28lb. bags.....	18	0	0				19	0	
Copper Sheets, sheathing and rods.....	67	0	0				68	0	
Copper, British Cake and Ingot.....	55	10	0				56	0	
Tin, Straits.....	86	5	0				87	5	
Do., English Ingots.....	89	0	0				90	0	
Spelter, Silesian.....	21	0	0				22	0	
TIMBER.									
Teak, Burmah..... per load	113	0	0	to	115	10	0		
Bangkok.....	10	10	0				14	10	
Quebec Pine, yellow.....	4	7	6				6	5	
Oak.....	4	0	0				6	0	
Birch.....	3	0	0				5	0	
Elm.....	4	12	6				5	15	
Ash.....	3	17	6				5	5	
Danitic and Memel Oak.....	3	5	0				3	15	
Fir.....	2	0	0				4	0	
Wainscot, Rigas p. log.....	3	15	0				5	15	
Lath, Danitic, p.f.....	4	10	0				5	10	
St. Petersburg.....	4	0	0				6	10	
Greenheart.....	8	0	0				8	5	
Box.....	4	0	0				15	0	
Sequoia, U.S.A. per cube foot	0	1	9				0	2	
Mahogany, Cuba, per super foot									
lin. thick.....									
Honduras.....	0	0	4				0	0	
Mexican.....	0	0	3½				0	4	
Cedar, Cuba.....	0	0	4				0	0	
Honduras.....	0	0	3½				0	4	
Sassawood.....	0	0	9				0	1	
Walnut, Italian.....	0	0	8				0	0	
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1lin.—									
Quebec, Pine, 1st.....	118	15	0	to	125	5	0		
2nd.....	13	15	0				17	0	
3rd.....	8	10	0				10	0	
Canada Spruce, 1st.....	6	10	0				10	10	
2nd and 3rd.....	7	5	0				8	10	
New Brunswick.....	7	5	0				8	5	
Riga.....	8	5	0				9	5	
St. Petersburg.....	9	15	0				12	5	
Swedish.....	9	15	0				16	15	
Finland.....	9	15	0				10	5	
White Sea.....	10	15	0				18	0	
Battens, all sorts.....	5	0	0				16	0	
Flooring Boards, per square of lin.—									
1st prepared.....	20	9	6				20	16	
2nd ditto.....	0	8	0				0	13	
Other qualities.....	0	6	3				0	7	
Staves, per standard M.—									
Quebec pine.....									
U.S. ditto.....	235	0	0				242	10	
Memel, cr. pine.....	210	0	0				220	0	
Memel, brack.....	180	0	0				190	0	
OILS.									
Linsced..... per ton	116	10	0	to	117	0	0		
Rapeseed, English pale.....	22	0	0				22	5	
Do., brown.....	20	15	0				21	0	
Cottonseed, refined.....	14	14	0				15	15	
Olive, Spanish.....	28	15	0				29	0	
Seal, pale.....	21	5	0				21	10	
Cocoaout, Cochon.....	30	0	0				30	10	
Do., Ceylon.....	25	15	0				26	0	
Palm, Lagos.....	22	0	0				22	5	
Oleine.....	18	15	0				19	15	
Lubricating U.S..... per gal.	0	6	8				0	7	
Petroleum, refined.....	0	0	6				0	6½	
Tar, Stockholm..... per barrel	1	0	0				1	8	
Do., Archangel.....	0	15	0				0	18	
Turpentine, American..... per ton	28	15	0				29	0	



## LIST OF COMPETITIONS OPEN.

Burnley—Higher Grade School, &c., Ormerod-road (limited to Architects within 60 miles of Burnley).....  
 Bradford—Central Fire Brigade Station.....  
 Dartford—York-road Board Schools (1,150 places).....  
 Knutsford—Cemetery Buildings.....  
 Forfar—Isolation Hospital (Assessor).....  
 Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor).....  
 Nelson—New Church of St. Philip's.....  
 Old Bailey, E.C.—Rebuilding of Sessions House (Professor Aitchison, R.A., Assessor).....  
 Charlbury—Drinking Fountain (£120 limit).....

£100, £50, £30  
 30gs., 10gs.  
 £20 and £10  
 £31 10s., £21, and £15 15s.

£150, £100, £50

E. Jones, Clerk, Town Hall, Burnley..... Jan. 14  
 The City Surveyor's Office, Bradford..... Feb. 1  
 Arthur S. Dixon, Clerk to School Board, Dartford..... 10  
 W. J. Downes, Surveyor U.D.C., Knutsford..... 28  
 Henry A. Patello, Solicitor, 1, Bank-street, Dundee..... Mar. 31  
 The City Surveyor's Office, Bradford..... April 14  
 H. Duerdon, Hon. Secretary, 190, Barkerhouse-road, Nelson..... —  
 Sir John B. Monckton, Town Clerk, Guildhall, E.C..... —  
 The Vicar, Charlbury, Oxon..... —

## LIST OF TENDERS OPEN.

## BUILDINGS.

Gillingham—School (to accommodate 900).....  
 Heysham—Arcade at Sandyland.....  
 Dunchurch—Enlargement of House and Stabling.....  
 West Ham—Enlargement of Hospital, Southern-road.....  
 Halifax—Smith's Shop.....  
 Tadcaster—Tramp Wards at Workhouse.....  
 Derby—Extension of Institute Buildings.....  
 Ellon—Double Cottage.....  
 Reedley, Lancs—Two Villas.....  
 Edgware—Two Houses.....  
 Crofton—Stabling, &c., Cock and Crown Hotel.....  
 Bideford—Seven Houses in North Down-road.....  
 Keighley—Nine Houses and Shops in Oakworth-road.....  
 Horsham—Infirmary Block.....  
 Eastbourne—Additions to Cottage at Roselands.....  
 Sheffield—Alterations to the Bull's Head Inn.....  
 Derby—Two Wards, &c., County Asylum.....  
 Exmouth—Villa, Exeter-road.....  
 Mortlake—Fire Station, High-street.....  
 Wellington, Somerset—Bible Christian Chapel and School.....  
 Southend-on-Sea—Reconstruction of Damaged Portion of Pier.....  
 Londonderry—Alterations to Premises.....  
 Exmouth—Two-Storeyed Paint Shop.....  
 Bradford—Island Revenue Office.....  
 Halifax—Infants' School, Mile Thorn, and Alterations to Queen's-road School.....  
 Holloway, N.—Demolition of Buildings, Eden-grove.....  
 Selby—Public Baths.....  
 Kidderminster—Fire-Engine Station.....  
 Leeds—White House Hotel, Dewsbury-road.....  
 Hathershaw—School.....  
 Normanton—Implement Sheds, High-street.....  
 Saltburn-by-Sea—Five Houses, Diamond-street.....  
 New Barnet—School (860 Children), Victoria-road.....  
 Preston—Shedding, &c., West Cliff and Avenham Park Lodges.....  
 Hull—Tramway Sheds.....  
 Forres—Two Semi-Detached Villas, Saughar-road.....  
 Morecambe—Shops, Restaurants, &c., Calton Lodge Estate.....  
 Normanton-by-Derby—Chapel and Lodge at Burial Ground.....  
 Limerick—National School Training College.....  
 Knowle—Infirmary Wards, &c., at County Lunatic Asylum.....  
 Burnley—Rebuilding Yorkshire Hotel, Gunsmith-lane.....  
 Bishopton—Conservative Club.....  
 Leeds—Alterations and Additions to Poor-Law Offices, East-parade.....  
 Handsworth—Burial Ground.....  
 Wombourne—Superintendent Engineer's House at Waterworks.....  
 Huxton—Police Station.....  
 Sturminster—Railway Hotel.....  
 Rochdale—Electricity Works.....  
 Preston—Police Station.....  
 Warwick—Bath-room, &c., at Workhouse.....  
 Hanwell—Block of School Buildings, Cuckoo-lane.....  
 Dunoon—Court House and Police Station.....  
 Little Dford—School Buildings, &c., Bessborough-road.....  
 Manstone—Cottage Home Buildings.....  
 Trimdon—Shop.....  
 Berwick-on-Tweed—Lock-Up and Police Station.....  
 Leeds—New Premises, Globe-road.....  
 Brigham—Out-Kitchen, &c., for Dutch Barn at Scales Farm.....  
 Llandrindod Wells—Baths.....  
 Horforth—Cottage.....  
 Maeborough—Infants' School at Thornhill.....  
 Llanelly—Alterations at 13, Station-road, and 14, Stepney-street.....  
 Dewsbury—Eighteen Houses, Lees Moor, Thornhill.....  
 Batley—Converting Old Masonic Hall into Four Cottages.....  
 Kidderminster—Additions to Lyndholm.....  
 Manningham—Converting House into Shop, Heaton-road.....  
 Colchester—Extension of Laundry.....  
 Bury—Alterations to Mill, Wash-lane.....  
 Harrogate—Four Houses, Park-avenue.....  
 Bulwell—Five Houses, Scott's-street.....  
 Nottingham—Additions to Ironmongers' Premises.....  
 Whitehead—Pair of Villas.....  
 Bridlington—Two Houses, St. John's-walk.....  
 Llandrindod Wells—Pump-Room, &c.....  
 Dorchester—Workhouse Piggeries, Fordington.....  
 Herbertstown—House at Cabercooney.....  
 Wrexham—Additions to Premises, Regent-street.....  
 Carlisle—Eight Houses.....  
 Smithy Bridge—School.....  
 Winchester—Residence, Abbott's Barton Estate.....  
 Leeds—Studio, Rowland-road.....  
 Tinsley—Villa.....  
 Llandrindod Wells—Stables and Cottage.....  
 Carmel—Alterations to Cavendish Arms.....  
 Leeds—Excavations for Basements of Seventy-Five Shops, Wood-street.....  
 Huddersfield—Offices.....  
 Brampton—Two Houses.....  
 Grays—Cast-Iron Band-Stand and Shelter in Public Park.....  
 Sharncliffe—Lodge and Four Cottages.....  
 Burnley—Sub-Post-office, &c.....  
 Rusholme—Brewery, Dickenson-road.....  
 Nottingham—Dairy Premises, Park-street.....  
 Burnley—Five Houses in Arkwright-street.....  
 Crynant—Rebuilding Masons' Arms Inn.....

Gillingham & Grange School Board.....  
 C. Lee.....  
 West Ham Town Council.....  
 Board of Guardians.....  
 Midland Railway Co.....  
 H. Walton.....  
 Canons Park Estate Co.....  
 Bentley's Yorkshire Breweries, Ltd. J. Folley.....  
 Guardians.....  
 Highways Committee.....  
 Directors of the Old Albion Brewery.....  
 Committee of Visitors.....  
 T. Rowseall.....  
 Barnes Urban District Council.....  
 Trustees of Taunton Circuit.....  
 Corporation.....  
 Austin and Co., Drapers.....  
 T. Rowseall.....  
 H.M. Commissioners of Works.....

School Board.....  
 Islington Vestry.....  
 Urban District Council.....  
 Town Council.....  
 Hathershaw School Board.....  
 Urban District Council.....  
 Naylor and Holmes.....  
 East Barnet School Board.....  
 Corporation.....  
 Forres Building Company.....  
 Morecambe Tower Co., Ltd.....  
 Parish Council.....  
 Trustees.....  
 Grimshaw, Limited.....

Guardians.....  
 Handsworth Burial Board.....  
 Bilston Urban District Council.....  
 Lancaster Standing Joint Committee.....  
 Gray and Son.....  
 Gas Committee.....  
 Lancashire County Council.....  
 Guardians.....  
 Central London School Managers.....  
 School Board.....  
 Isle of Thanet Union Guardians.....  
 Co-operative Society.....  
 Town Council.....  
 Symingtons, Limited.....  
 T. Heighway.....

Rotherham U.D. School Board.....  
 Dewsbury Pioneers' Indus. Soc., Ltd.....  
 Wm. Adam, jun.....

Colchester Steam Laundry Co.....  
 A. Sutcliffe.....

Pearson Bros.....  
 J. H. Northrop.....

Guardians of Dorchester Union.....

Wm. Aston.....

Littleborough School Board.....

Allen Nield.....

Gwalio Hotel Company.....

Leeds Estate Co., Ltd.....

Prudential Assurance Company.....

Grays Thurrock U.D.C.....

R. P. Cooper, C.C.....

F. Boscove.....

Hyde and Co., Rusholme Brewery.....

Farmers' and Cleveland Dairies Co.....

W. J. Rogers.....

F. Smith, Architect, Bank Chambers, High-street, New Brompton Jan. 7  
 A. L. Lang, Architect & Surveyor, 12A, Pedder-street, Morecambe.. 7  
 P. Ridley Thompson, Gayton Rectory, Blisworth..... 7  
 Edwin T. Hall, F.R.I.B.A., 57, Moorgate-street, E.C..... 7  
 W. G. Gray and Sons, Architects, 28, George-street, Halifax..... 7  
 Bromet and Thorman, Architects, Tadcaster..... 7  
 The Company's Architect, Cavendish House, Derby..... 7  
 Robert Burgess, Carpenter, Ellon..... 7  
 J. T. Landless, Architect, Station Buildings, Nelson..... 7  
 J. H. May, College Chambers, 249, High Holborn, W.C..... 9  
 B. Wood Higgins, Architect, Oulton, near Leeds..... 9  
 R. T. Hookway and Son, Architects, 12, Bridgeland-st., Bideford... 9  
 W. H. and A. Sugden, Architects, Keighley..... 9  
 C. H. Burstow, Architect, 6, West-street, Horsham..... 9  
 W. Chapman Field, Borough Architect, Town Hall, Eastbourne..... 9  
 Hall and Fenton, Architects, 14, St. James's-row, Sheffield..... 9  
 J. Somes Story, County Surveyor, County Offices, Derby..... 9  
 Ernest E. Ellis, Architect, Market-street, Exmouth..... 10  
 G. Bruce Tomes, A.M.I.C.E., Engineer, Council Offices, Mortlake..... 10  
 F. W. Roberts, Architect, 2, Hammet-street, Halifax..... 10  
 Alfred Fidler, A.M.I.C.E., Borough Engineer, Southend-on-Sea..... 10  
 Forman & Aston, Architects, Queen's Bldgs, Royal-avenue, Belfast..... 10  
 Ernest E. Ellis, Architect, Market-street, Exmouth..... 10  
 Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate..... 10

Joseph F. Walsh, Architect, Bank Chambers, Halifax..... 11  
 Wm. F. Dewey, Clerk, Vestry Hall, Upper-street, N..... 11  
 W. Hanstock and Son, Architects, Batley..... 11  
 Arthur Coomber, Borough Surveyor, Kidderminster..... 11  
 The Secretary, Armley Brewery, Ltd., Armley..... 11  
 Winder and Talor, Architects, Oldham..... 12  
 C. B. L. Fernandes, Normanton..... 12  
 Ed. A. Whipham, A.R.I.B.A., 59, High-street, Stockton-on-Tees..... 12  
 W. Powell, Architect, 40, Great James-street, Bedford-row, W.C... 12  
 The Borough Surveyor, Town Hall, Preston..... 13  
 A. E. White, City Engineer, Town Hall, Hull..... 13  
 John Forrest, Architect, High-street, Forres..... 14  
 Henry Waters, Sec., 1A, Euston-road, Morecambe..... 14  
 T. A. Fuller, F.S.I., Architect, The College, All Saints, Derby..... 14  
 William H. Byrne, F.R.I.A., Architect, 20, Suffolk-street, Dublin..... 14  
 W. J. Taylor, County Surveyor, The Castle, Winchester..... 16  
 Robert Neill, Architect, 9, Grimshaw-street, Burnley..... 16  
 J. C. H. Sandback & J. Parker, Architects, 15, Richmond-ter., Blackburn..... 16

T. Butler Wilson, F.R.I.B.A., 12, East-parade, Leeds..... 17  
 Edmund Winder, jun., Surveyor, Corn Exchange Chmbrs., Sheffield..... 17  
 W. Wilson, Architect, District Council Offices, Town Hall, Bilston..... 17  
 Henry Littler, Architect, County Offices, Preston..... 17  
 P. M. Beaumont, Architect, Maldon..... 17  
 T. Banbury Ball, Manager, Gasworks, Rochdale..... 17  
 Hy. Littler, County Architect, Preston..... 17  
 Francis P. Trepass, Architect, 8, Jury-street, Warwick..... 19  
 J. T. Newman and Jacques, Architects, 2, Fen-court, London, E.C..... 21  
 W. Fraser, Architect, Burgh Buildings, Dunoon..... 21  
 S. Jackson, Architect, 65, Fenchurch-street, E.C..... 25  
 Leonard Grant, Architect, High-street, Sittingbourne..... 25  
 The Secretary, Station Town Co-operative Society, Wingate..... 28  
 R. Burns Dick, 55, Northumberland-street, Newcastle-on-Tyne..... 31  
 Walter H. Hobson, Architect, 82, Albion-street, Leeds..... —  
 Adam Thompson, Brigham..... —

Swash & Bain, Architects, Midland Bank Chambers, Newport, Mon. H. and E. Marten, Architects, 5 and 7, Charles-street, Bradford.....  
 J. E. Knight, Architect, 33, College-street, Rotherham.....  
 Wm. Griffiths, F.S.I., Architect, Falcon Chambers, Llanelly.....  
 Holton and Fox, Architects, Westgate, Dewsbury.....  
 Walter Crawshaw, Architect, Branch-avenue, Batley.....  
 J. M. Gething, Architect, Oxford Chambers, Kidderminster.....  
 H. Hardaker, Architect, New Ivegate, Bradford.....  
 Oliver and Dodgaun, Architects, Carlisle.....  
 James Sellers and Son, Architects, Union Chambers, Bury, Lancs.....  
 Bland and Bown, Architects, North Park-road, Harrogate.....  
 Fred C. Martin, C.E., Angel-row, Nottingham.....  
 C. N. Holloway, Architect, Newcastle Chambers, Nottingham.....  
 J. Russell, Architect, 16, Waring-street, Belfast.....  
 David Petch, Architect, Victoria Chambers, Scarborough.....  
 A. B. and W. Scott Deakin, Architects, Shrewsbury.....  
 D. Hinchcliffe, R.D.C. Surveyor, Union House, Dorchester.....  
 John Ryan, Solicitor, 100, George-street, Limerick.....  
 M. J. Gummow, A.R.I.B.A., Wrexham.....  
 James Beatty, Old Post Office-court, Carlisle.....  
 S. Butterworth and Duncan, Architects, Rochdale.....  
 G. A. Barnard, Architect, City-road, Winchester.....  
 H. Swanwick, Architect, 6, Upper Fountain-street, Leeds.....  
 J. P. Earle, Architect, Norfolk-road, Sheffield.....  
 Swash and Bain, Architects, Bank Chambers, Newport, Mon.....  
 Settle and Farmer, Architects, County-square, Ulverston.....

J. Swann, Clerk of Works, Wood-street, Leeds.....  
 A. Waterhouse and Son, Architects, New Cavendish-street, W.....  
 J. S. Thompson, Solicitor, 18, Bank-street, Carlisle.....  
 A. C. James, Surveyor, Grays, Essex.....  
 William Perry, Architect, Lichfield.....  
 J. M. Fawcett and Son, Architects, 26, Albion-street, Leeds.....  
 Harrap and Duffield, Architects, 24, Queen-street, London, E.C.....  
 Evans and Son's Offices, Wheeler-gate, Nottingham.....  
 A. Robinson, Architect, 321, Padham-road, Burnley.....  
 Swash and Bain, Architects, Midland Bank Chambers, Newport.....



## BUILDINGS—continued.

Leeds—Photographic Printing Works, Rowland-road .....	Allen Nield .....	J. Swanwick, Architect, 6, Upper Fountaine-street, Leeds .....	—
Bradford—Four Houses at Bankfoot .....	.....	Brayshaw and Dixon, Architects, Bowling Old-lane, Bradford .....	—
Gwendraeth—New School and Additions .....	Llanely Fchool Board .....	J. B. Morgan, M.S.A., Architect, 17, New-road, Llanely .....	—
Seaforth—Composition Building .....	Diamond Match Co. ....	The Secretary, Linacre-road, Seaforth .....	—
Bury, Lancs—Club .....	Stanley Conservative Club Co. ....	C. H. Openshaw, Architect and Surveyor, Fleet-street, Bury .....	—

## ENGINEERING.

Newport, Isle of Wight—Gasholder Tank .....	Newport Gas Company .....	F. C. Cockey, A.M.I.C.E., 98, High-street, Newport, I.W. ....	Jan. 7
Armagh—Cistern for Drinking-Water, &c., Lunatic Asylum .....	.....	J. J. Phillips and Son, Architects, 61, Royal-avenue, Belfast .....	7
Brackenthwaite—Two Bridges over Hope Beck .....	Cockermouth R.D.C. ....	J. B. Wilson, A.M.I.C.E., Court Buildings, Cockermouth .....	7
Edinburgh—Switchboard, &c., at Electric Lighting Station in Macdonald-road .....	Magistrates and Council .....	The Resident Engineer, Dewar-place, Edinburgh .....	9
Bucharest—Two Tubular Wells .....	Corporation .....	J. Radu, Chief Constructors Dept., 9, Strada Mihai-Voda, Bucharest .....	9
Southampton—Sewage Tanks .....	Corporation .....	W. B. G. Bennett, Borough Surveyor, Southampton .....	9
Tunbridge Wells—Filter Beds, &c. ....	Corporation .....	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells .....	9
Bucharest—Water Supply .....	Corporation .....	J. Radu, Chief Constructors Dept., 9, Strada Mihai-Voda, Bucharest .....	10
Burnley—Electricity Underground Cables .....	Corporation .....	W. R. Wright, Borough Electrical Engineer, Town Hall, Burnley .....	10
Muswell Hill, N.—Extension of Heating System at Isolation Hospital .....	Horneby Urban District Council .....	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N. ....	11
Branksome—Stand Posts and Fire Hydrants .....	Urban District Council .....	S. J. Newman, F.R.I.B.A., 3, Tennyson-buildings, Branksome .....	11
Tunbridge Wells—Three Telephonic Fire Alarms .....	Corporation .....	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells .....	11
Harehewhead, Strathaven—Reservoir on Kype Water and Main Conduit (13 miles) .....	Waterworks Commissioners .....	W. R. Copland, C.E., 146, West Regent-street, Glasgow .....	11
Fowey—Reservoir, &c. ....	St. Austell Rural District Council .....	T. H. Andrew, Engineer, 1, Trevarrick-villas, St. Austell .....	12
Hull—Tramway Works .....	Corporation .....	E. White, City Engineer, Town Hall, Hull .....	13
St. Andrews—Storage Reservoir .....	Commissioners .....	Belfrage and Carfrae, C.E., 1, Erskine-place, Edinburgh .....	13
Hull—Steel Roof Trusses, Columns, &c., for Car Sheds .....	Corporation .....	A. E. White, City Engineer, Town Hall, Hull .....	14
Newton and Clarkston—Main Line of Railway (10 miles) .....	Caledonian Railway Company .....	Formans and McCall, C.E., 180, Hope-street, Glasgow .....	16
Caterham—Ironwork in Covered Way at Asylum .....	Metropolitan Asylums Board .....	T. Duncombe Mann, Clerk, Nrfik House, Norfolk-st., Strand, W.C. ....	16
Weston-super-Mare—Heating Locking-road School .....	School Board .....	Wildie and Price, Architects, Weston-super-Mare .....	17
Leeds—Two Two-flue Lancashire Boilers .....	Guardians .....	John Waugh, Sunbridge Chambers, Bradford .....	17
Billerica—Steel Cornish Boiler at Workhouse .....	Guardians of Billerica Union .....	C. Edgar Lewis, Clerk, New-road, Brentwood .....	17
London, S.W.—Fifty Bogie Wagons .....	Uganda Railway Committee .....	The Crown Agents for the Colonies, Downing-street, S.W. ....	18
Islington, N.—Engineering Installation at Horney-road Baths .....	Vestry of St. Mary, Islington .....	A. Hessel Tiltman, F.R.I.B.A., 6, John-street, Bedford-row, W.C. ....	19
Plumstead—Iron Staircases at Workhouse .....	Woolwich Board of Guardians .....	C. W. Brooks, 23, Finsbury-pavement, E.C. ....	19
Farnham—Cooling Tanks, &c. ....	Farnham United Breweries .....	J. W. Start, F.S.I., Civil Engineer, Colchester .....	20
Newmilns—Storage Reservoir on Auchruglin Burn .....	Corporation .....	P. Campbell Hart, C.E., 32, John Finnie-street, Kilmarnock .....	20
Glasgow—Generating Plant, Electricity Works .....	Harbour Commissioners .....	W. A. Chamen, Engineer, 75, Waterloo-street, Glasgow .....	21
Belfast—Cranes, &c. ....	.....	G. F. Giles, Harbour Engineer, Belfast .....	23
Poplar and Greenwich—Tunnel for Pedestrian Traffic under the Thames .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	24
Erith—Alterations to Engines, Crossness Outfall .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	24
North Woolwich—Overhead Traveller at New Pumping Station .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	24
Newhaven and Seaford—Sea Wall .....	Newhaven and Seaford Commnsrs. ....	W. H. Pawson, Clerk, Newhaven and Seaford .....	27
Breamore—Steel Highway Bridge .....	Hants County Council .....	W. J. Taylor, County Surveyor, Winchester .....	28
Midhurst—Covered Concrete Service Reservoir and C.I. Mains .....	Rural District Council .....	J. Taylor, Sons, & Santo Crimp, C.E., 27, Gt. George-st., Westminster .....	30
London—Four Gas-Engines at Victoria Embankment Electric Lighting Station .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	31
Burton-on-Trent—Widening of Bridge crossing the Midland Railway, Horninglow-street .....	Corporation .....	George T. Lynam, Borough Engineer, Burton-on-Trent .....	Feb. 1
Townsville—Steam Pivot Crane (20-ton) .....	Harbour Board .....	The Chairman, Harbour Board, Townsville, North Queensland .....	1
Alexandria, Egypt—Two Swing Bridges over Canal .....	Government .....	The Inspector of Third Circle Irrigation, Alexandria .....	16
Shanghai—Electric Trolley Tramways (23 miles) .....	Municipal Council .....	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....	Mar. 15
Belem—Waterworks .....	Government of Pará .....	The Treasury of Pará .....	15
Orgreave Colliery—Reservoir Works (400ft. by 100ft.) .....	.....	The Engineer's Office, Orgreave Colliery, near Sheffield .....	—

## FENCING AND WALLS.

Normanton-by-Derby—Fencing, &c., Burial Ground .....	Parish Council .....	T. A. Fuller, F.S.I., Architect, The College, All Saints, Derby .....	Jan. 14
Cheltenham—Reconstruction of Retaining Reservoir Wall .....	Corporation .....	The Borough Surveyor, Municipal Offices, Cheltenham .....	23

## FURNITURE AND FITTINGS.

Wakefield—Furnishing Dining Hall of Workhouse .....	Board of Guardians .....	H. Beaumont, Clerk, 47, Kirkgate, Wakefield .....	Jan. 7
Omagh—Shop Front, &c. ....	.....	Daniel Conroy, Architect, 2, Bishop-street, Derry .....	7
Horton, Epsom—Asylum Furniture .....	London County Council .....	R. W. Partridge, Clerk to Asylums Com., 21, Whitehall-place, S.W. ....	—
Barrow-in-Furness—Desks, &c., Three Schools .....	School Board .....	W. Hutchison, Clerk, Town Hall, Barrow .....	—

## PAINTING.

Huddersfield—Outside Wood and Ironwork of Shops, Buxton-rd. ....	Corporation .....	The Borough Surveyor, Town Hall, Huddersfield .....	Jan. 7
Barnsley—Interior and Exterior of Public Baths .....	Town Council .....	J. Henry Taylor, C.E., Borough Engineer, Barnsley .....	10
Birmingham—Main Corridor, Workhouse Infirmary, Dudley-rd. ....	Guardians .....	Walter Bowen, Clerk, Parish Offices, Edmund-street, Birmingham .....	14
Manchester—All Stations on Line .....	Lancashire and Yorkshire Ry. Co. ....	Engineer's Offices, Hunt's Bank, Manchester .....	Feb. 6

## PLUMBING AND GLAZING.

Sligo—Repairing, &c., Village Pump .....	Guardians of Sligo Union .....	Patrick J. Mehan, Acting Clerk, Sligo .....	Jan. 10
Halifax—Plumbers' Work at Infant School, Mile Thorn .....	School Board .....	J. F. Walsh, Architect, Bank Chambers, Halifax .....	11
Lancaster—Plumber Work (One Year) .....	Corporation .....	The Borough Surveyor's Office, Market-square, Lancaster .....	11
Rishton—Conservative Club .....	.....	Sandbach and Parker, Architects, 15, Richmond-terrace, Blackburn .....	16

## ROADS AND STREETS.

Aberysychan—Repairing Path .....	Urban District Council .....	E. Cooke, Surveyor, Council Offices, Aberysychan .....	Jan. 7
Surbiton—Making-up St. James's, Gladstone, Southborough, and Orchard-roads .....	Urban District Council .....	Saml. Mather, A.M.I.C.E., Victoria-road, Surbiton .....	7
Beckenham—Making-up Border-crescent .....	Urban District Council .....	John A. Angell, Surveyor, Beckenham .....	9
Wolverhampton—Extension of Raby-street & Liverpool-street. ....	Streets Committee .....	J. W. Bradley, C.E., Borough Engineer, Town Hall, Wolverhampton .....	9
Church, Lancs—Street Works .....	Urban District Council .....	W. E. Wood, Surveyor, District Council Offices, Church .....	9
Norton—Paving, &c. ....	Rural District Council .....	Edward A. Sampson, Surveyor, 17, York-street, Sheffield .....	9
Southampton—Street Works in Brighton-road .....	Corporation .....	W. B. G. Bennett, Boro' Engineer, Municipal Offices, Southampton .....	9
Beckenham—Paving Works in Trinity, Arthur, & Croydon-rds. ....	Urban District Council .....	John A. Angell, Surveyor, Beckenham .....	9
South Bank—Street Works .....	Urban District Council .....	The Surveyor's Office, Town Hall, South Bank, Yorks .....	10
Dover—Completing Beaconsfield-road .....	Town Council .....	Henry E. Stilgoe, Borough Engineer, Town Hall, Dover .....	10
Clacton-on-Sea—Making-up Ellis-road, Agate-road, Dudley-road, and Hayes-road .....	Urban District Council .....	A. R. Robinson, Surveyor, Town Hall Buildings, Clacton-on-Sea .....	11
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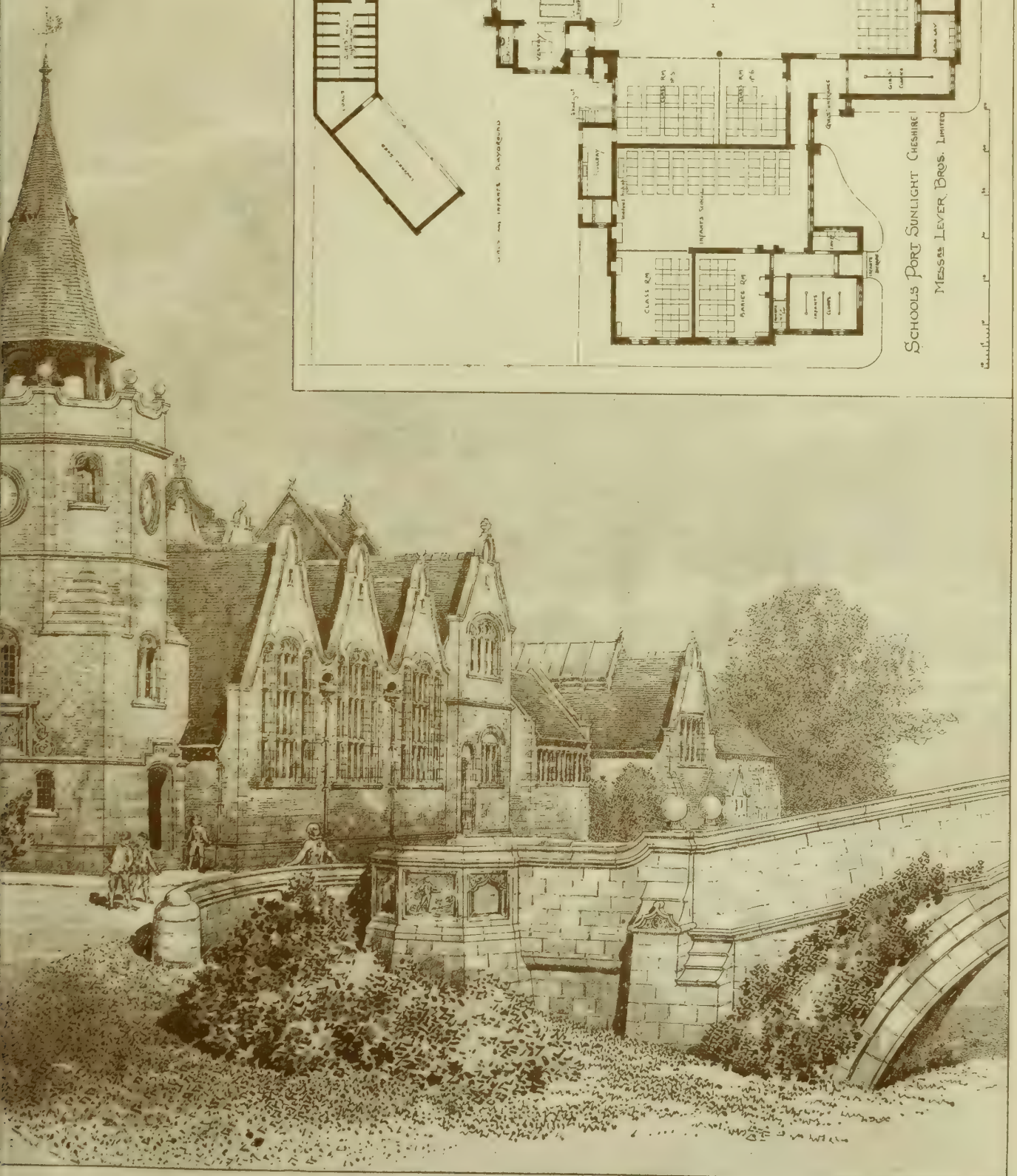
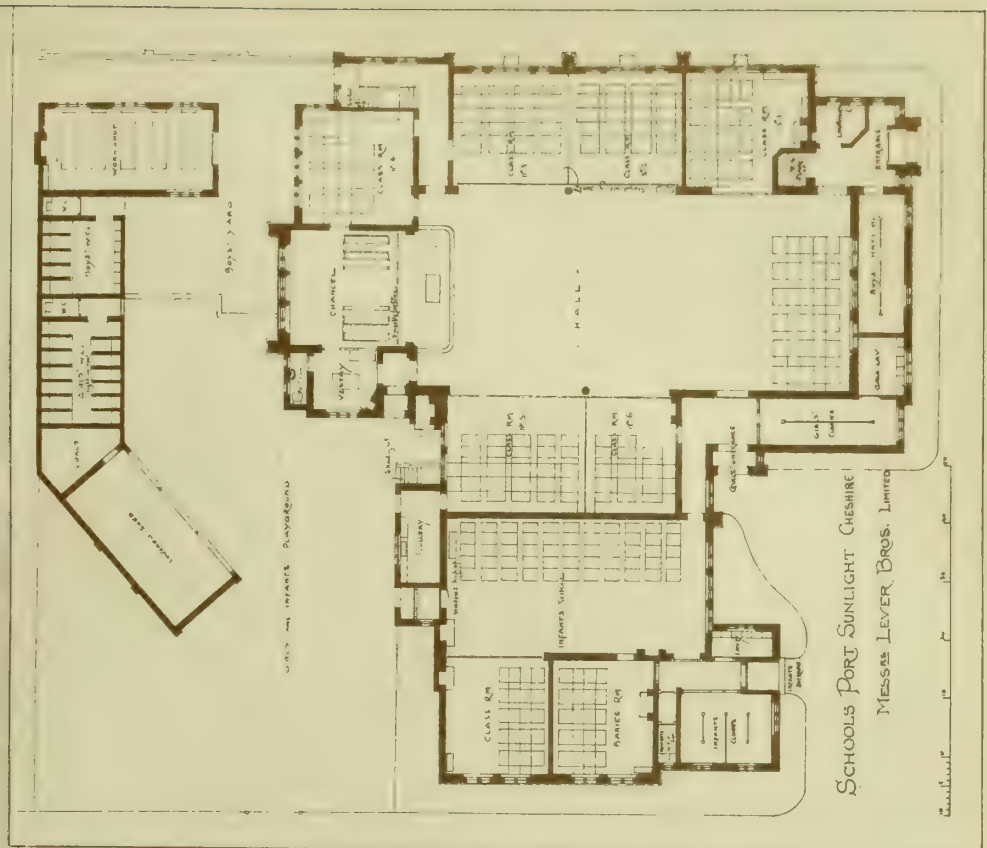








Am. 6, 1599.



SUNLIGHT.  
ARCHITECTS

"PHOTO-TINT" BY ALFRED NICHOLS, 1907





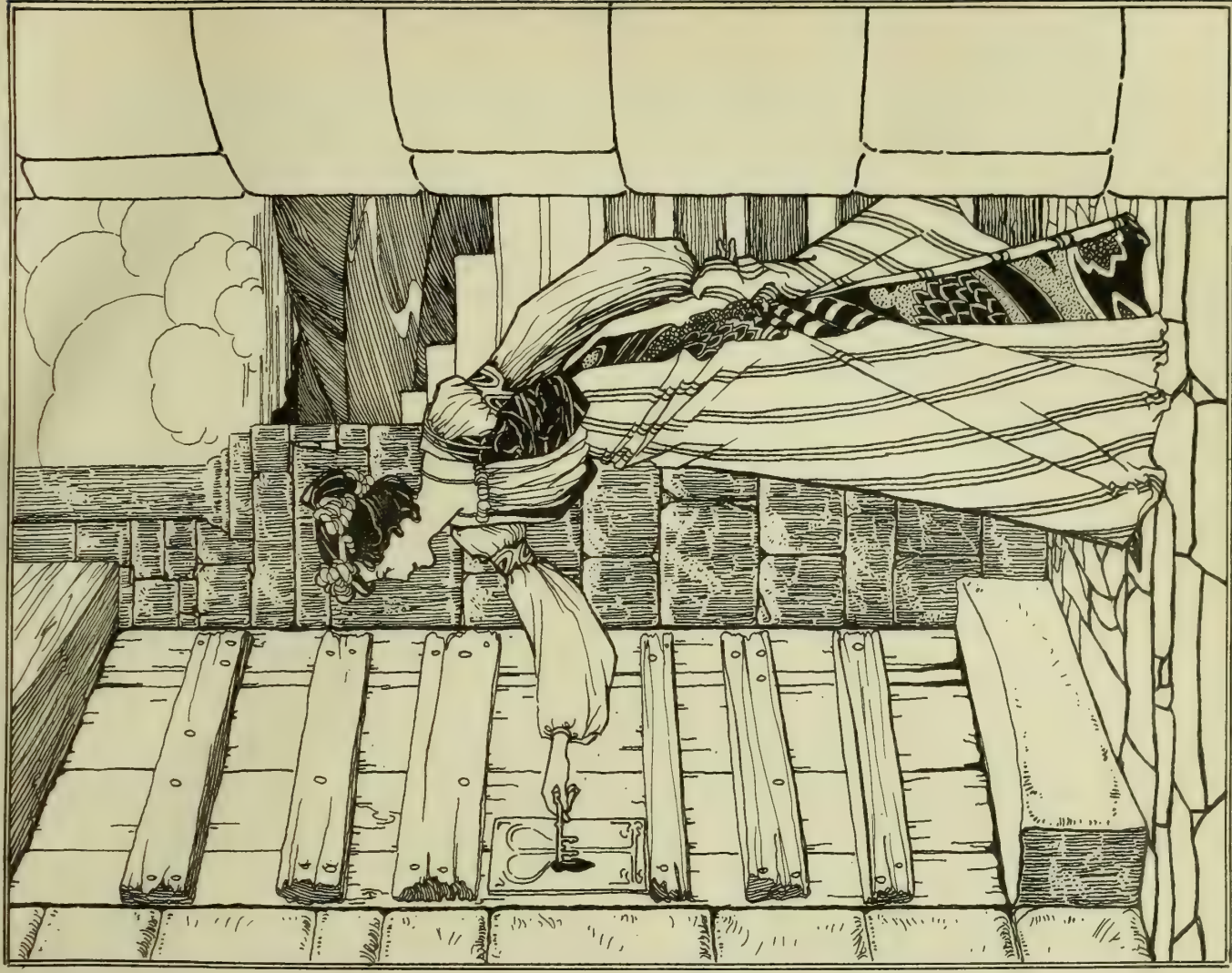
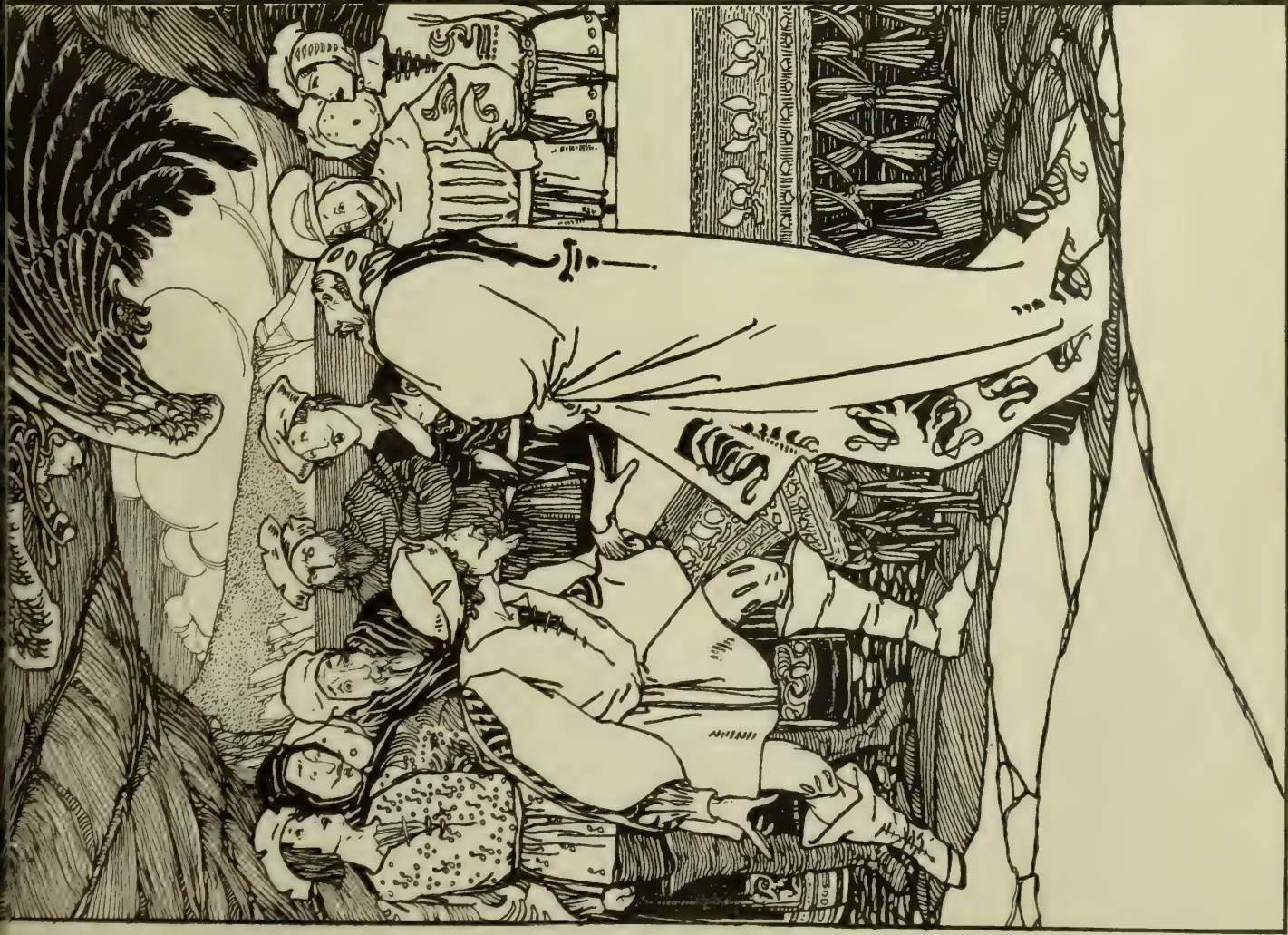












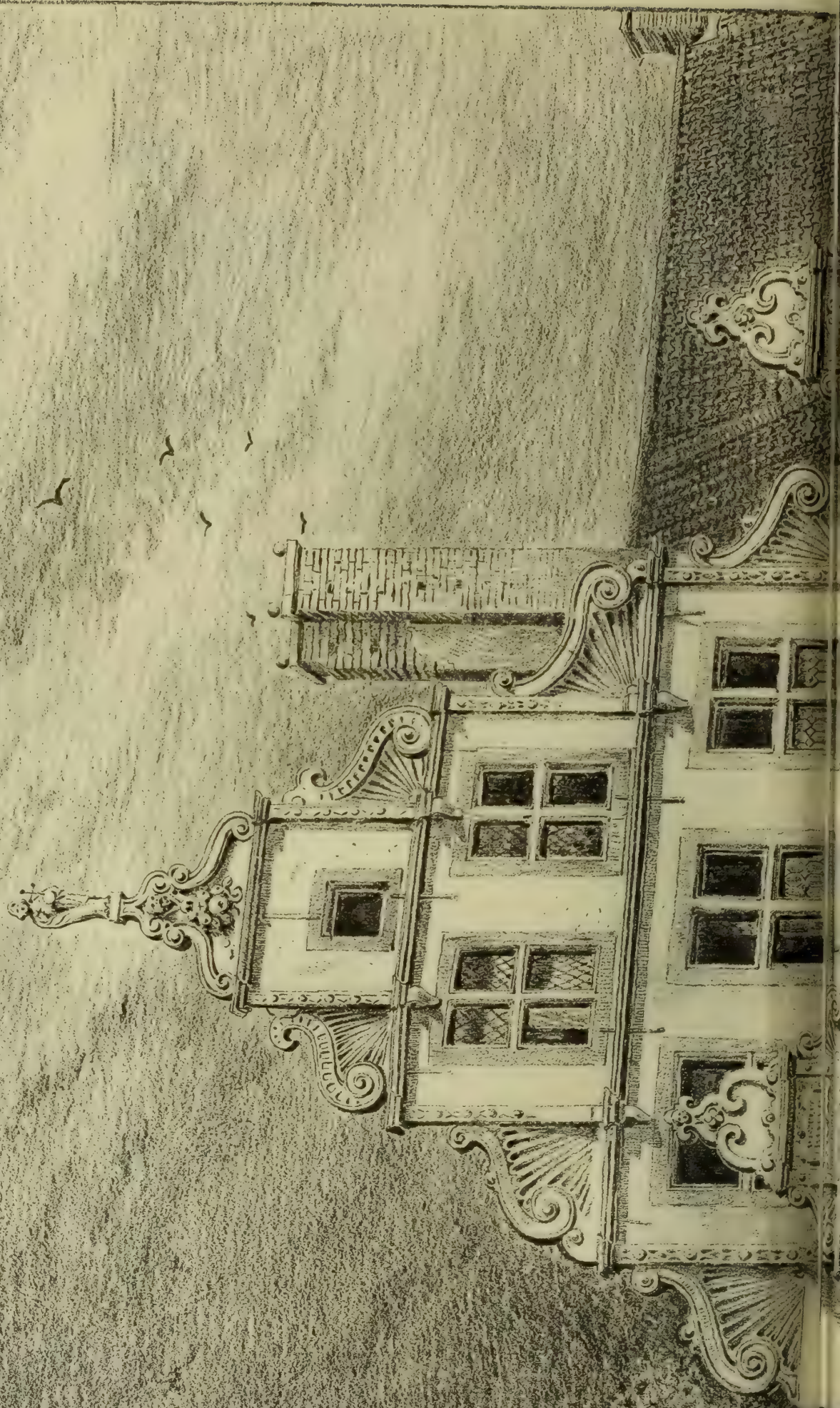




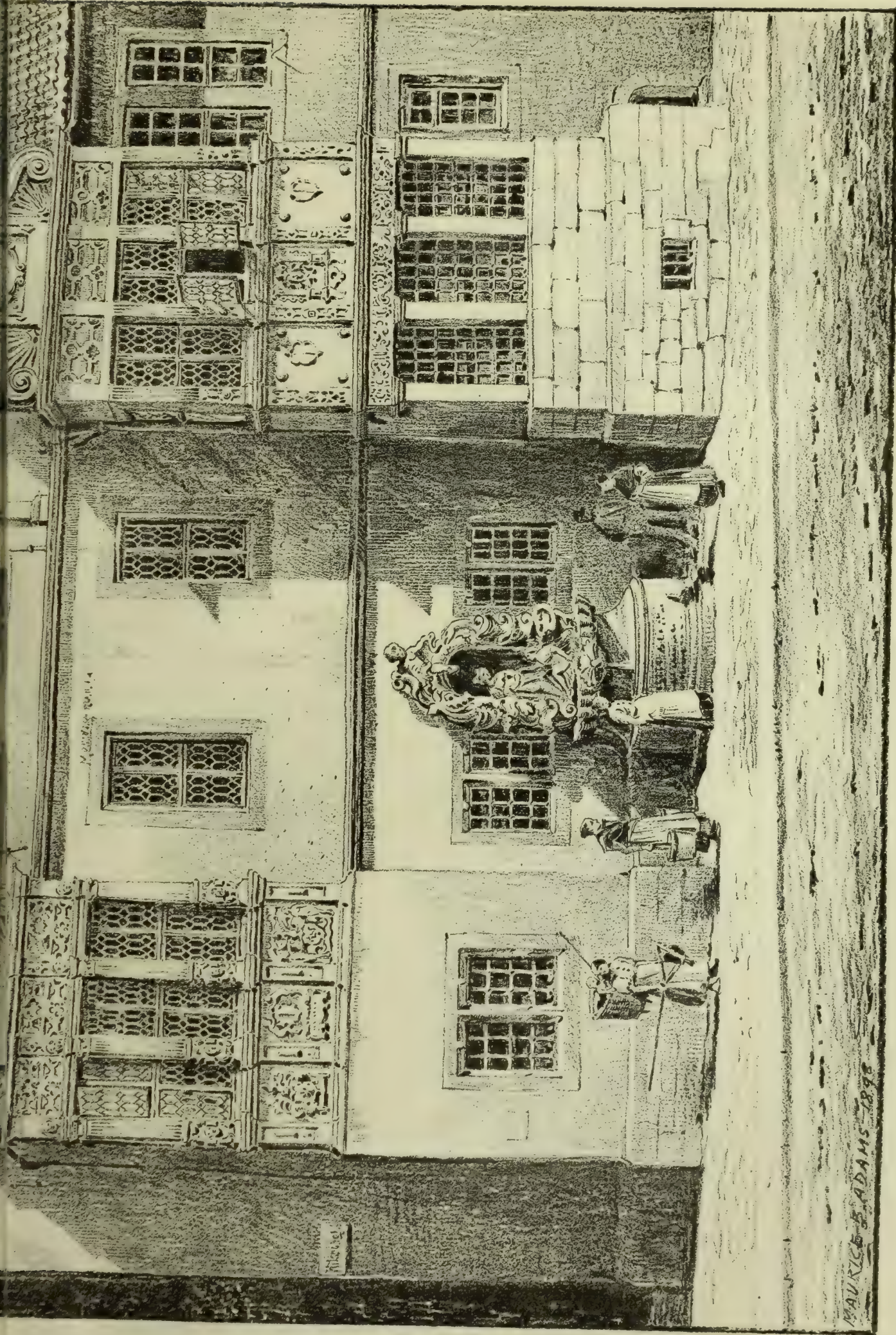












THE CANONS' HOUSE GANDERSHEIM  
HENRICH VON OEVEKATE ARCHITECT AD 1599

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MAURICE B. ADAMS 1898

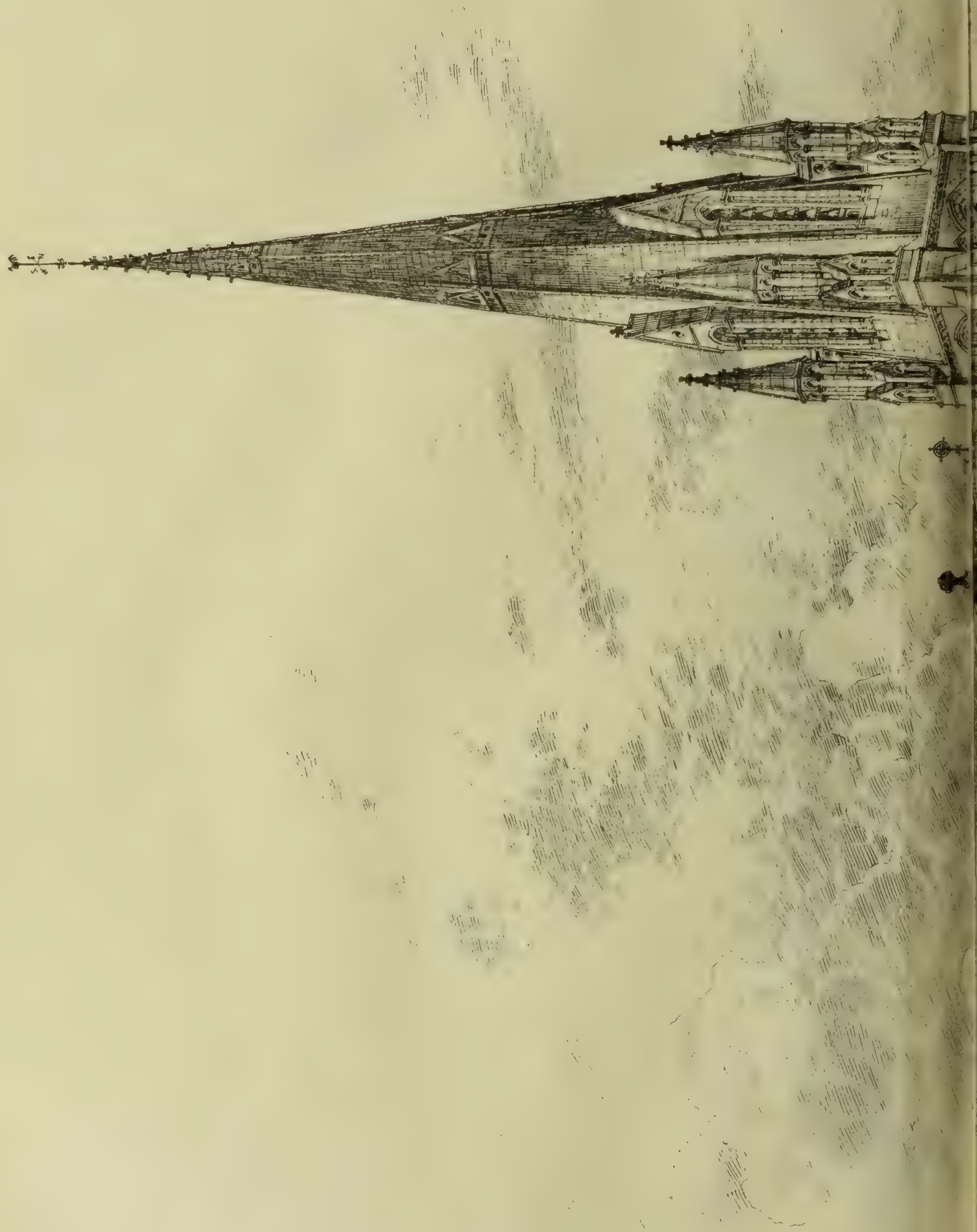




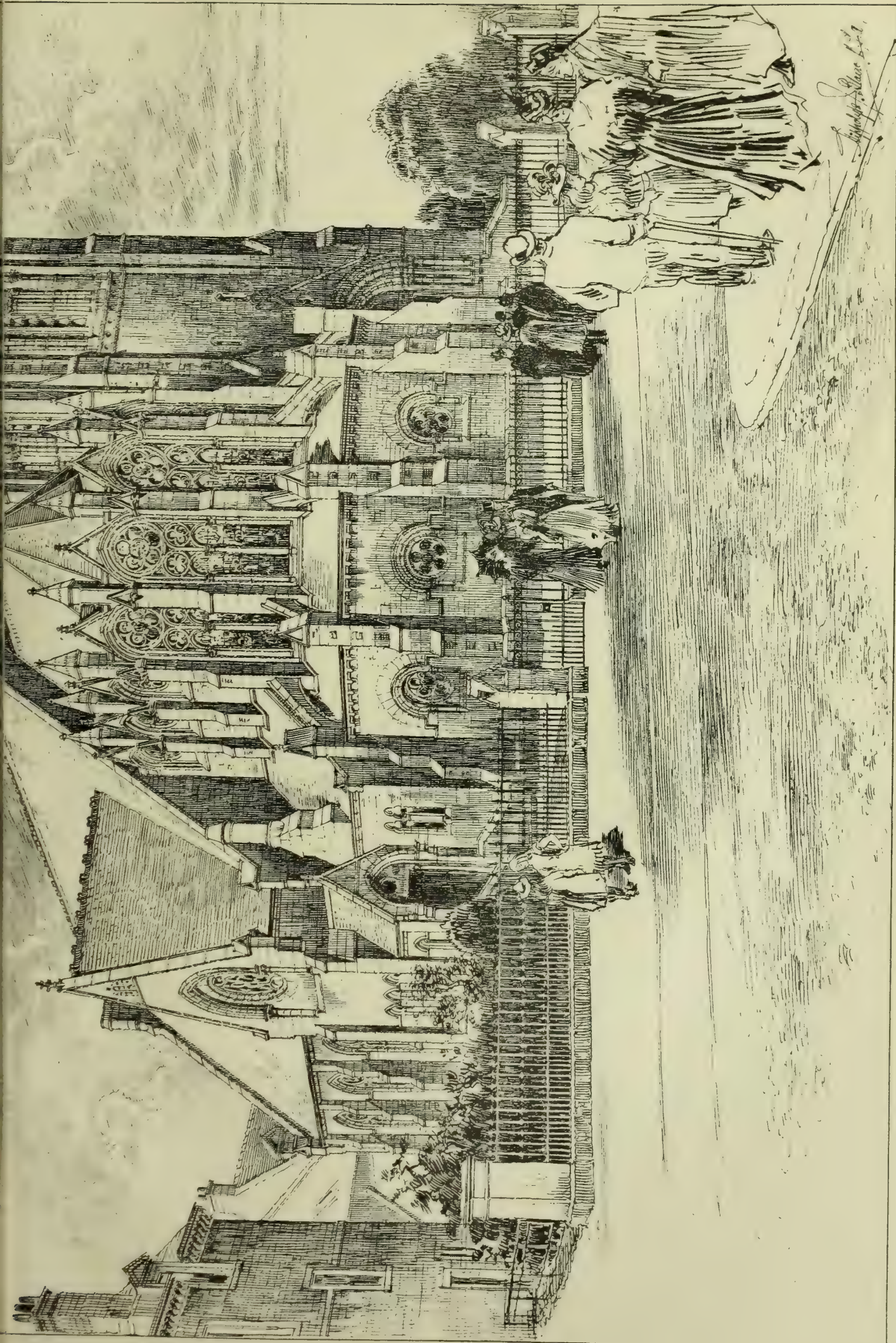












CHRIST CHURCH, MORNINGSIDE, HIPPOLYTE J. BLANC, R. S. A. ARCHITECT.

Photo. lithographed & printed by "The Glasgow Press," Glasgow.

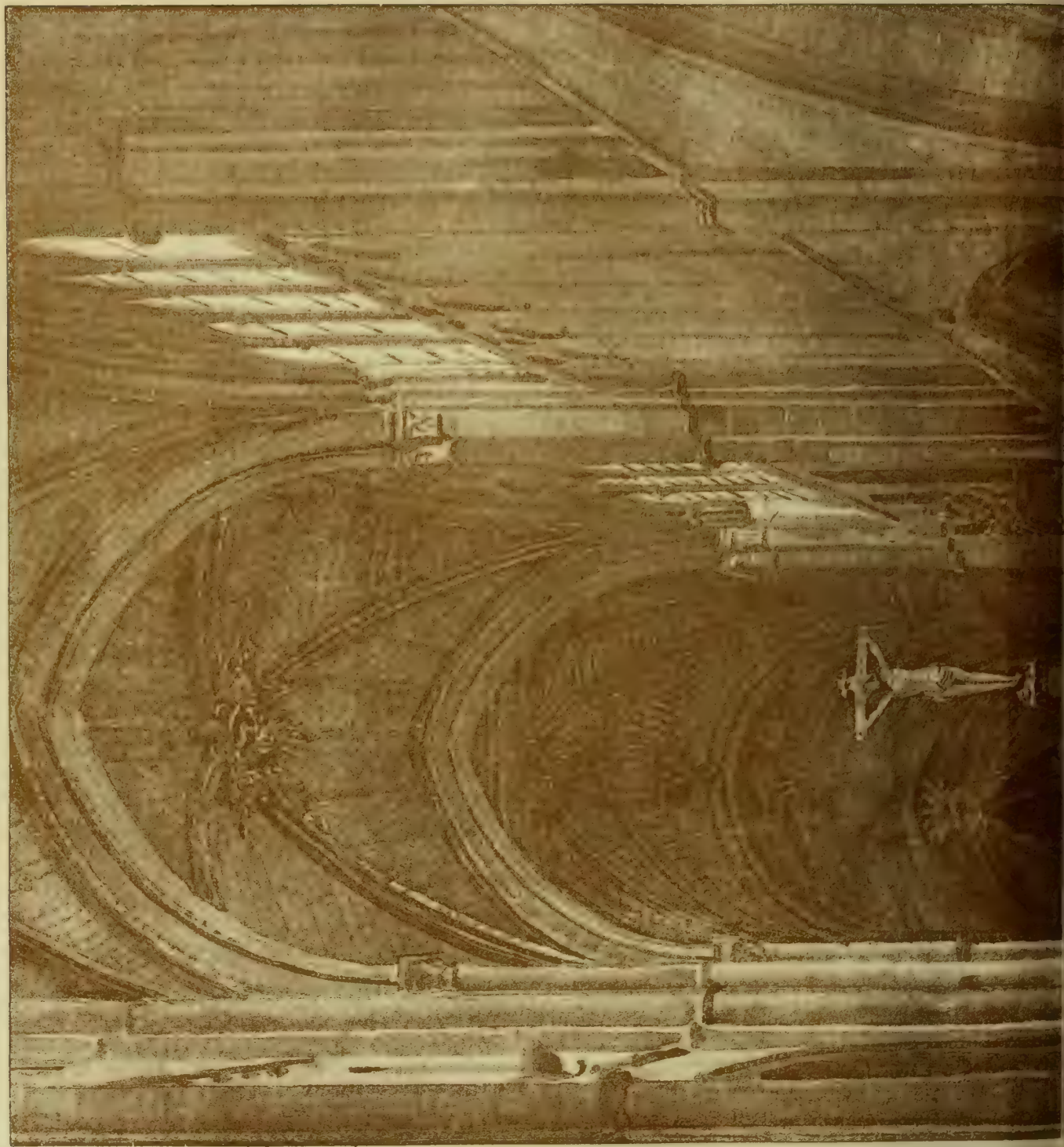














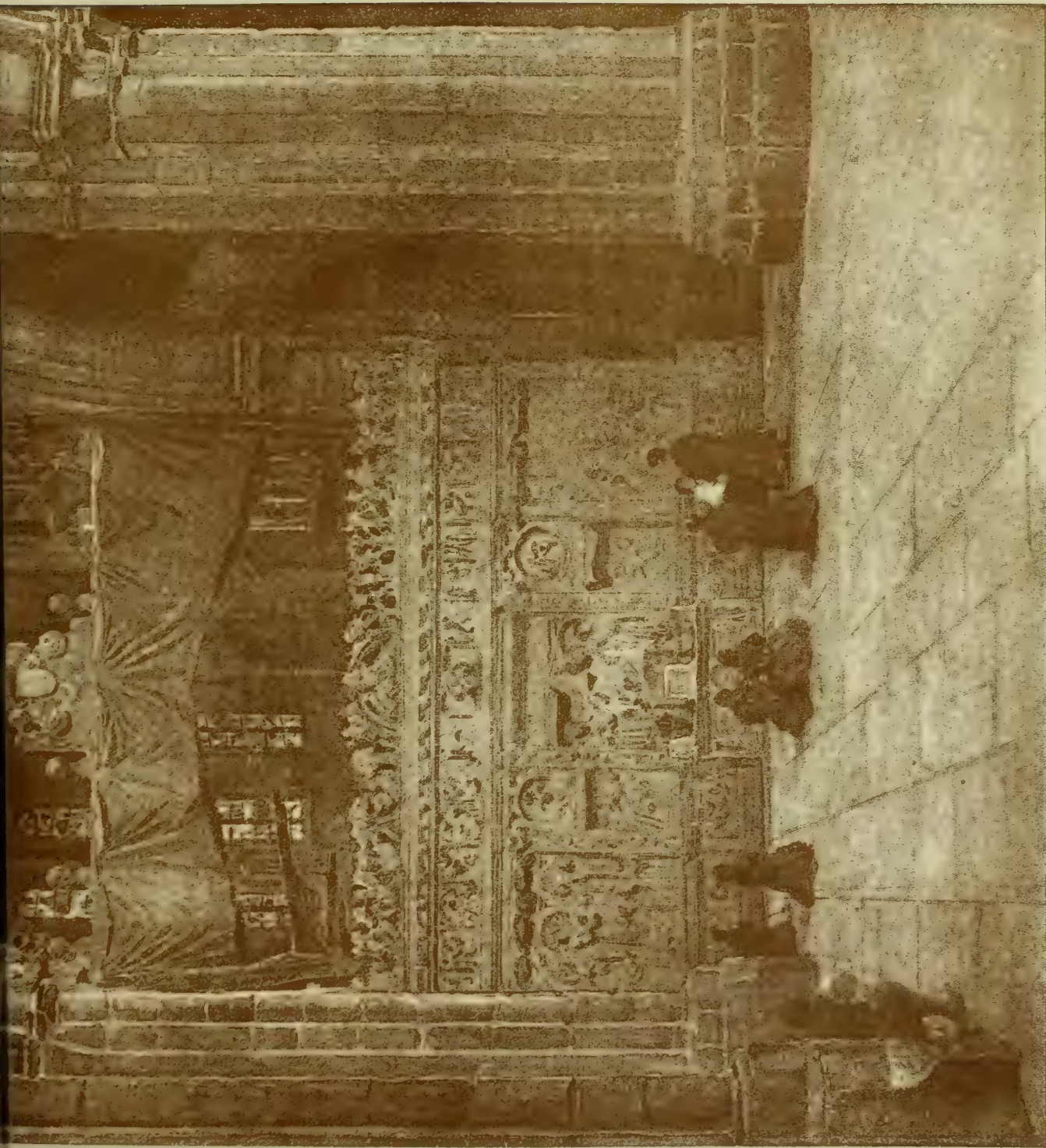


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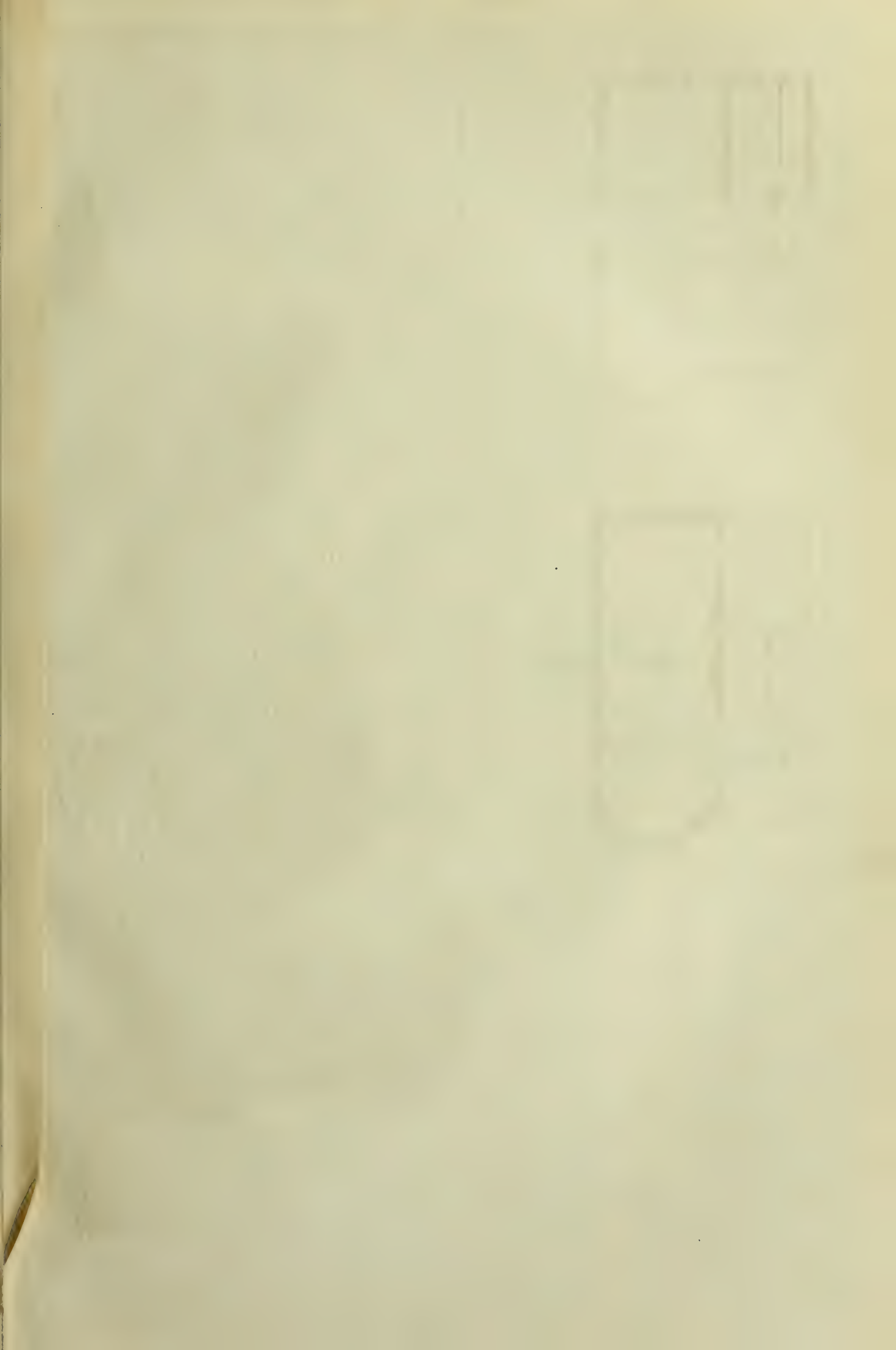
AVILA CATHEDRAL, SPAIN.

DRAWN BY A WALLACE RIMINGTON R.P.E



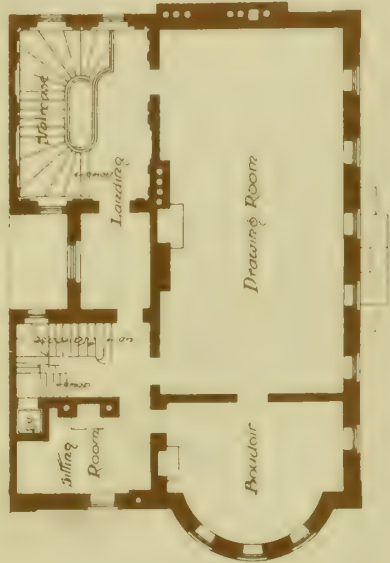




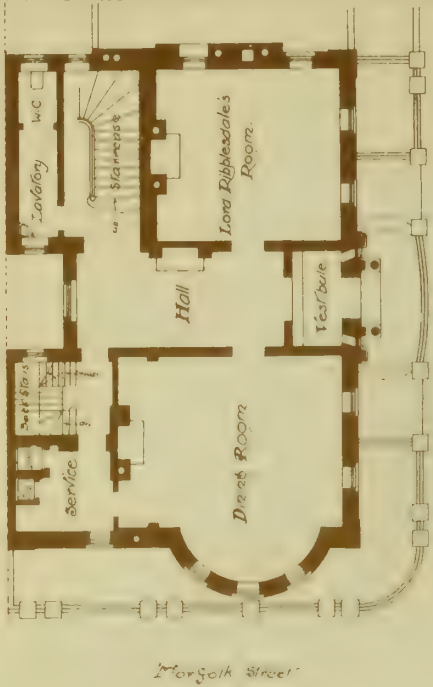




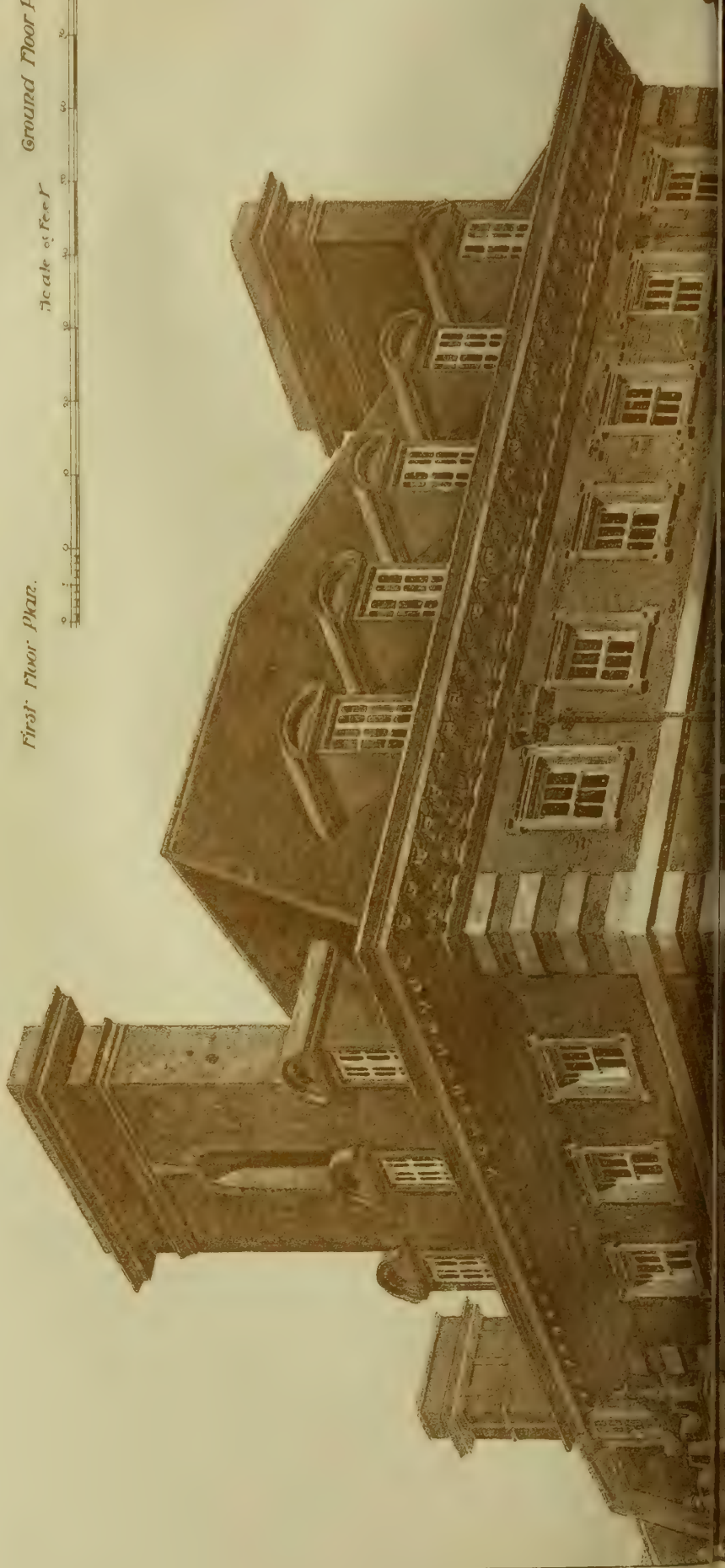
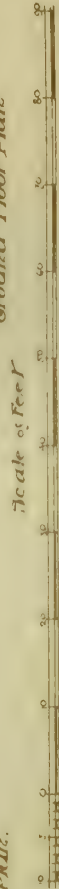
NEW RESIDENCE  
FOR THE RT HON LORD RIBblesdale  
GREEN STREET, PARK LANE, W.



First Floor Plan.



Ground Floor Plan.







THE RESIDENCE

FOR  
THE RIGHT HONORABLE LORD RIBblesDALE

Queen Street, Park Lane, W.

SIDNEY R. J. SMITH, F.R.I.B.A. ARCHT.

PHOTO-TINT

SIDNEY R. J. SMITH, F.R.I.B.A.  
ARCHT.

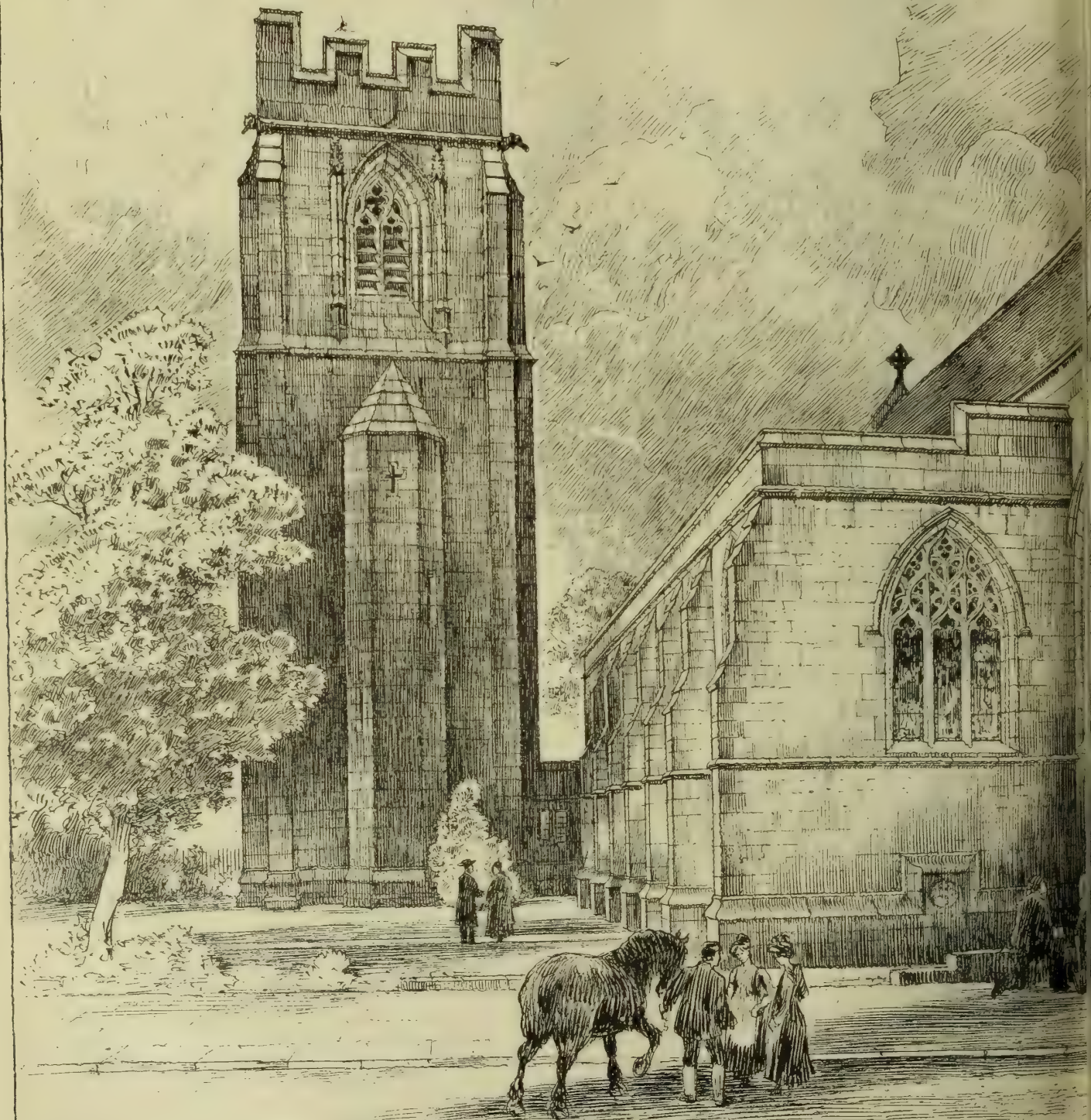








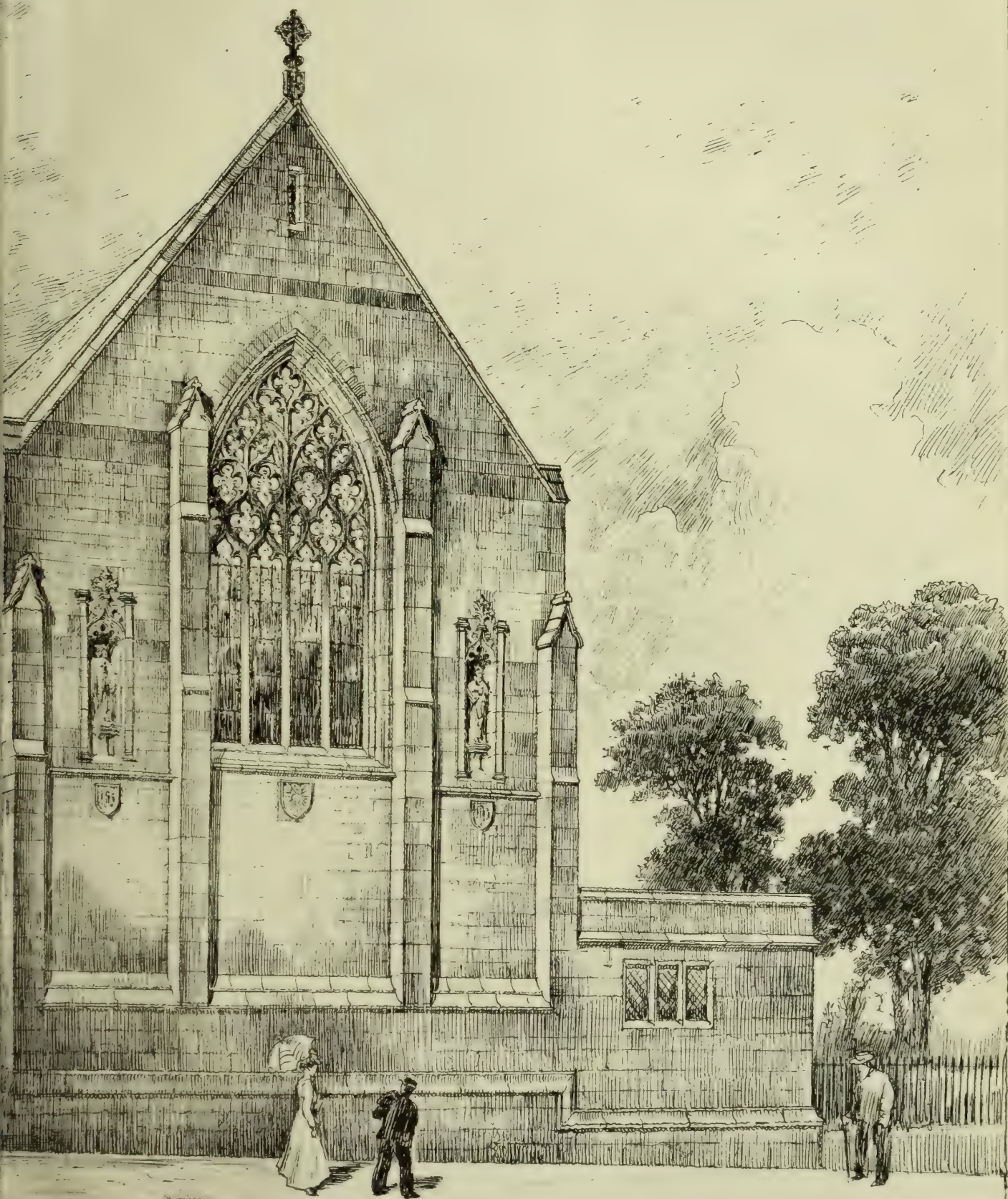






CHAPEL ALLERTON CHURCH, LEEDS.

G.F. BODLEY, A.R.A. ARCHITECT



G.F. Bodley A.R.A.  
Architect

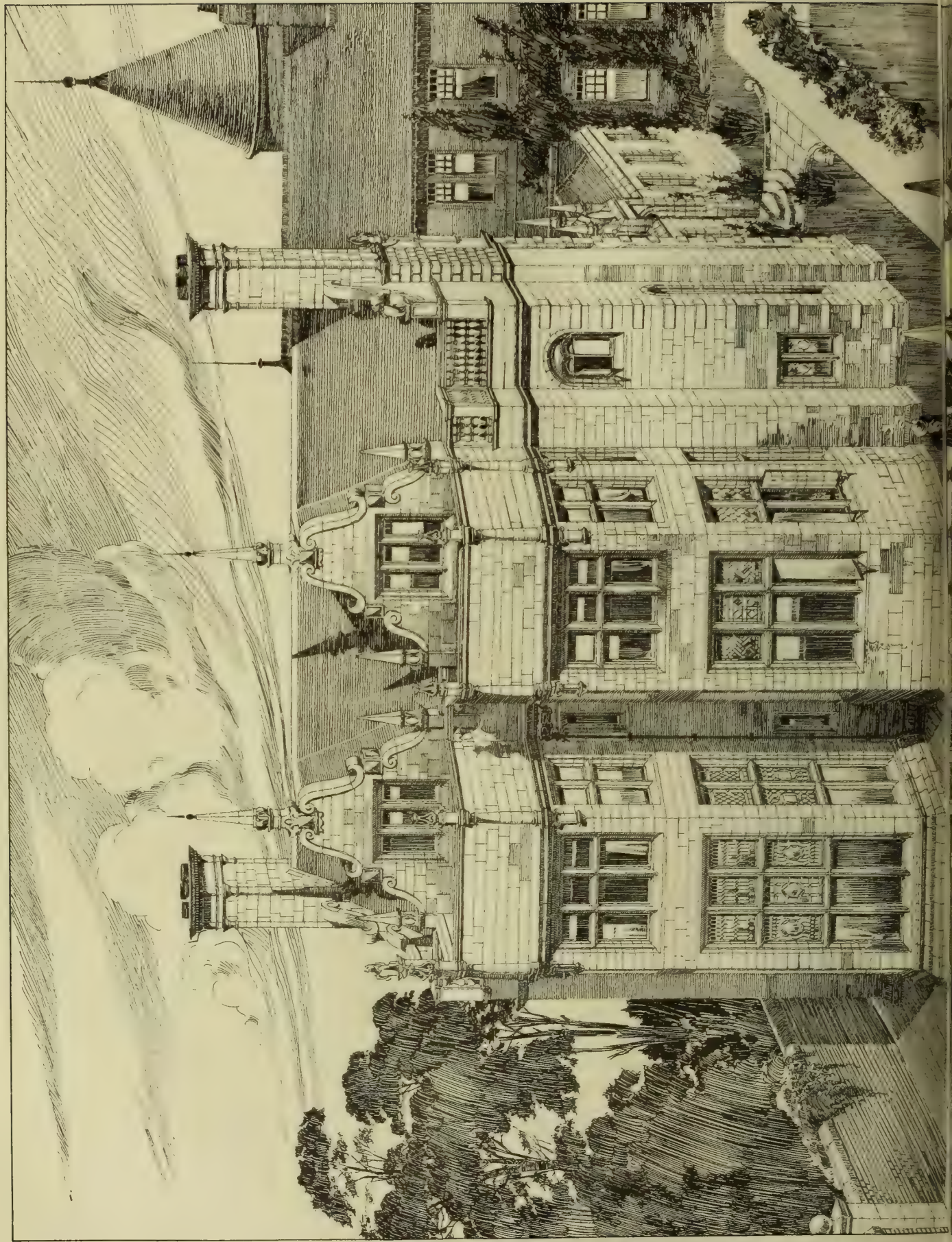




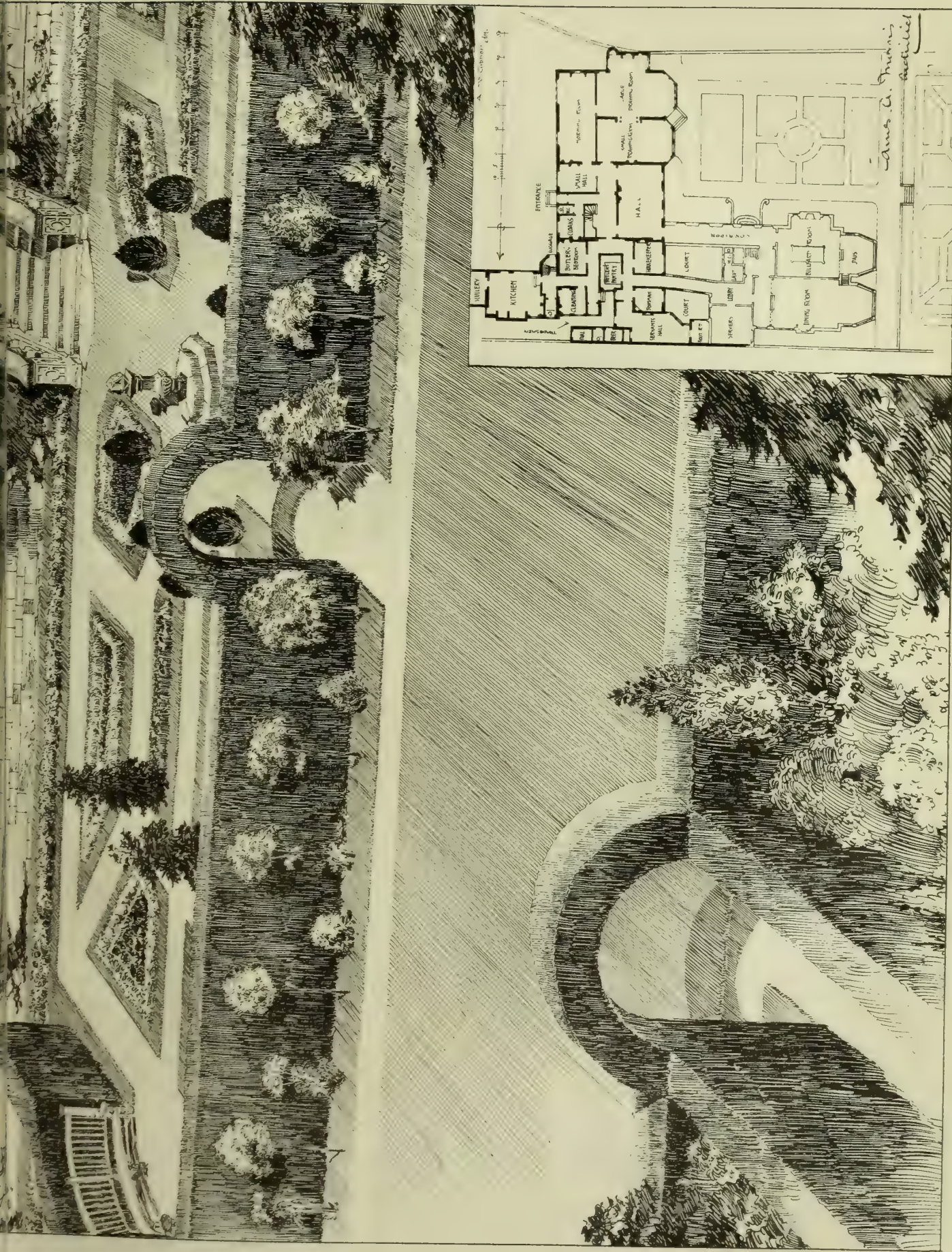












GARDENS & PROPOSED ADDITIONS TO RED HOUSE, AYR, FOR E. S. ORR EWING, ESQ. R. M. P.  
JAMES A. MORRIS, ARCHITECT.

Photo. Lithographed & Engraved by James A. Morris, Ayr.

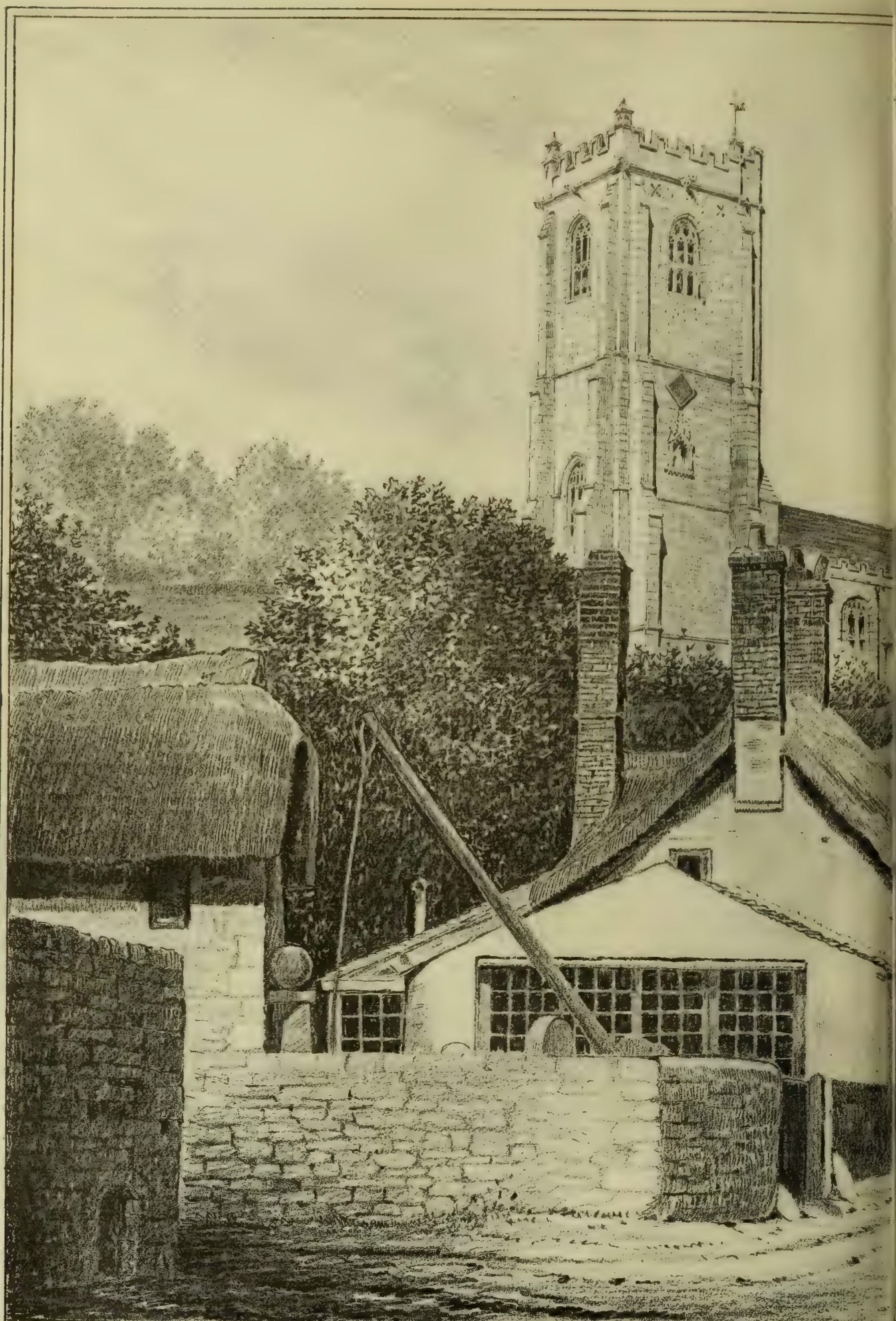






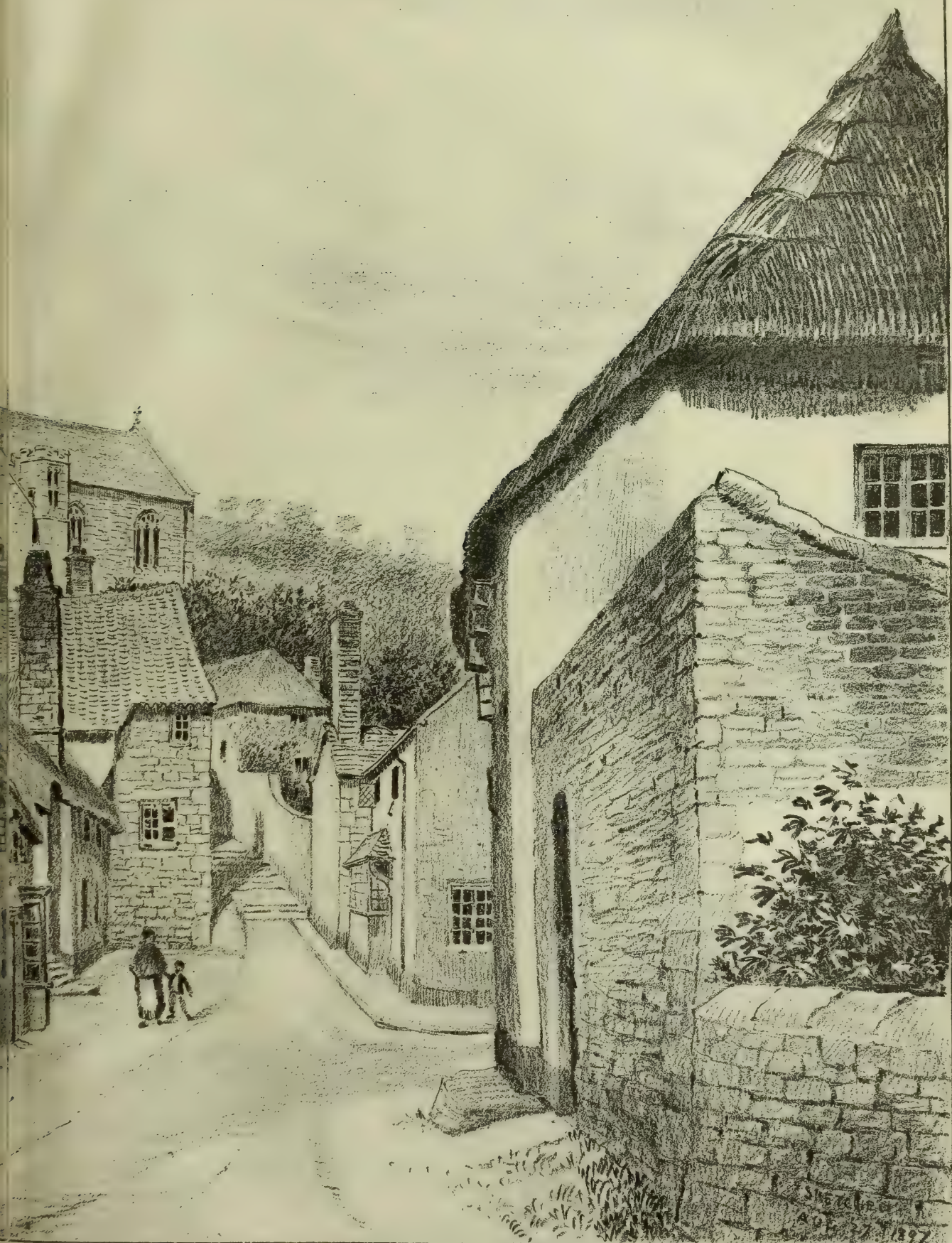






THE UPPER TOWN MINEHEAD SOMERSETSHIRE. VI





LOOKING TOWARDS THE CHURCH BY MAURICE B. ADAMS







# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2297.

FRIDAY, JANUARY 13, 1899.

### BUILDING PROGRESS AND IMPROVEMENTS.

IF our architectural progress were to be gauged by the extent of demolition that has taken place during the last year, we should indeed have little to complain of. During the last two or three years there has been a vast clearance made of old houses, and in their place have arisen rows of shops or offices, new, and with better sanitary arrangements, but depressing in their monotony, and wanting in character. These newly rebuilt neighbourhoods represent to the eye of the spectator the origin and intention of the promoters—a scheme of demolition and reconstruction in the speediest and most economical manner. A vast area of old buildings is cleared without any discrimination or sympathy by Act of Parliament, and the area is as quickly built over by regulation buildings. It is an Act of Parliament scheme, and when completed it looks nothing else.

We may mention as instances of demolition and reconstruction the areas round Covent Garden, Clerkenwell, Cripplegate, the scene of the late fire, the demolition of houses in Parliament-street and Whitehall for the New Government Offices, changes that have completely altered the surroundings of these places, as in the setting back of Parliament-street, and the better approach to the Abbey and Houses of Parliament. Simply as works of opening out and removal of crowded and insanitary areas, these demolitions are in most cases beneficial. The buildings pulled down were generally of no historic interest or architectural value, and London is none the worse for their removal. Demolition, however, does not mean improvement; it often leads to stagnation or devastation simply because no well-considered scheme takes its place.

Within our time we almost despair of seeing any comprehensive scheme of new arteries or widening of old streets, like the Strand, Fleet-street, and Piccadilly, much less of any new streets traversing London from east to west, proportioned in width to the demands upon them at different parts. Sir Wolfe Barry's paper on the "Internal Traffic of London," we reported in November last, gave a sketch of what all Londoners have been asking for for years—a provision for north and south traffic either by tunnel or overhead so as not to interfere with the east and west traffic, which crossings could take points like Piccadilly-circus, Wellington-street, Ludgate-hill. No mere crossing old by new streets will now be adequate; the subject is one that will require engineering skill to be brought to bear upon it as well as architectural arrangement and planning. Underground and overground structures will alone meet the requirements, which become more numerous and difficult every year.

Several street alterations have been made that are improvements. One of them is the widening of the Oxford-street end of Davies-street, and therefore an improvement of the approach to Berkeley-square, and to a fashionable quarter. The opening of a station in Davies-street for the Central Electric Railway will be an important step towards bringing the heart of the City and its business within easy reach of the leisured denizens of Mayfair, and help to remove another of the barriers that divide the mercantile and business from the fashionable parts of the Metropolis. In quite

another district on the south side of Thames an important street widening has been undertaken—that of Long-lane and Tabard-street, Southwark — by forming branch approaches from the Borough High-street on each side of the old church of St. George the Martyr. The Tower Bridge approaches will entail a large demolition of houses of the working classes. The widening of Old-street, St. Luke's; of Southampton-row from Holborn to Hart-street; and the Albert Embankment widening are a few of the minor improvements about to be undertaken or now in progress. Are we sure that all the new frontages or rebuilt areas will be dealt with as they ought to be? Will the designs be submitted to a committee competent to judge of elevation, and the effect upon existing buildings often at acute and awkward angles with the line of new street? These are questions upon which the result will depend.

It may perhaps be doubted whether the acquisition of more land than is required for making a new street or widening one—the "Recoupment system" is really beneficial, as in some cases the sums realised by the acquired property do not equal the amounts paid for leasehold and trade interests and forced sale. The one advantage of the recoupment plan is, however, that the Council can command the whole frontage, and, therefore, ought to be in a position to require buildings erected of good architectural design. But the fact is that the statutes have only regulated frontages, projections, and heights, and these are somewhat detrimental to bold and effective architecture. Statutory enactments rather favour uniformity and monotony by prohibiting projections and salient features. Every new frontage should have its own appropriate features, to harmonise or contrast with the older buildings. Mansard roofs, boldness of recess, turrets are features that in each case may be decided upon by a committee with advantage, and the elevation should be, as far as possible, intrusted to architects of ability. In this way the architectural features and general design of a street might be preserved from incongruous or commonplace treatment.

If we turn to a few of the new buildings of a public character, we shall find a great variety: two or three large hotels have been erected, rivalling each other in architectural pretensions and luxurious appointments. The new Claridge's Hotel at the corner of Brooke and Davies Streets is a red brick building of pretentious character, and the newly-completed Carlton Hotel in the Haymarket completes the palatial block of which the late Mr. Phipps's theatre forms one wing. These are of stone, and the hotel façade is most elaborately carved. The skyline is broken by cupolas and dormers, gables; but the building lacks both breadth and boldness of detail, and when smoke has done its work the façades will become flat and uninteresting. Another large and lofty hotel is erected next the Empire Theatre in Leicester-square. The Cecil and all the larger buildings of this class suffer from a desire to compete in external splendour at the cost of other qualities. The new block of the Record Office in Chancery-lane is massive, and picturesque in outline, though in a now somewhat defunct Tudor style. In Fleet-street new commercial offices and banks have been erected, but of not very marked character. Further west, the new buildings designed by Mr. Alfred Waterhouse, R.A., for the Institution of Surveyors in Great George-street, the imposing, but too broken, façade of the Institution of Mechanical Engineers facing the Park, show the prosperity of our professional societies, who have now "local habitations" worthy of their names. Some progress has been made in theatre building. The last year has witnessed the erection and opening of several playhouses in the suburbs. At Peckham the Crown

Theatre, recently described by us, evinces a truer conception of theatre planning and design, the architect, Mr. E. Runtz, using red terracotta effectively and broadly in the main front. Of the recently opened Kennington theatre, the "Princess of Wales," the site is exceptional, and a large stone-faced building with two imposing sides has been built, of French Renaissance character, the long flank to the park being the least satisfactory portion, badly harmonising with the plain, red brick Episcopal residence adjoining. Theatres of variety have also been built at Brixton, Hammersmith, at Notting Hill, and other suburbs which prove the rapid growth of those districts and their demand for buildings of this kind. The decentralising influences of separate municipalities, and especially of the effect of increasing distance and difficulties of transit from London, have created the desire for independence. These are influences which ought to benefit the profession. Buildings for technical institutes and municipal offices, like those of West and East Ham, libraries and schools and theatres, will be wanted, and we should like to see local and suburban talent employed more often than has yet been the case.

The completion of the City and Waterloo line and the progress made by the Central Electric Railway are two of the most notable works that have been accomplished in engineering during the year—important as indicating the advancement made in tunnelling by new methods. We have lately described the construction of these tunnels and the excavating machinery. In the new Vauxhall Bridge, designed by Sir A. R. Binnie, segmental concrete arches pivoted in the centre and springings, and of about 150ft. span, with concrete piers faced with granite and rock-faced voussoirs to the arches, are the chief features, and the designer has availed himself of spandrels of the same material, pierced by longitudinal arches, which considerably lighten the arch loads—a method of construction we noticed in this journal many years ago.

### MODEL SPECIFICATIONS.—XLVII.

#### SANITARY AND WATER-SUPPLY DETAILS AND FIXTURES.

AS to sanitary closet-fittings, valve closets with indiarubber seatings are more reliable than brass ground-in seatings. The valve should open sharply and fully to allow the body of water to pass down in one unbroken mass into trap. The overflow should be deep and well trapped so as not to be easily unsiphoned. The best arrangement is to place the overflow so that it may be protected by the valve when it opens. In many inferior closets the valve opens so as to allow the soil to foul the overflow. An air vent-pipe should be taken from the valve-box so as to ventilate the space between valve and trap, and some join the basin overflow into the air-pipe, by which the overflow-trap is protected. The valve closet-trap may be above the floor-line; but care should be taken to make a good connection with the soil-pipe, and the trap is for many reasons better independent of closet. The lead safe-trays should have 1½in. wastes to open air, with copper flap-valves.

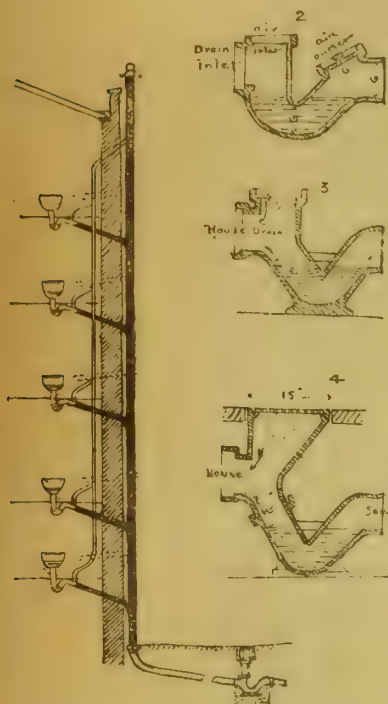
Care is necessary in specifying housemaids' slop sinks; they should not be fixed too near a bedroom. The waste-pipe should be of 10lb. lead at least, to resist action of hot and cold slops; its diameter should be 3in., and be carried into a 3in. down-pipe, the end of which should discharge into a disconnecting trap. The sink may be of glazed pottery or enamelled iron, square shape, with rounded corners and sloped bottom. The housemaid trough should be fixed next the slop-sink, and on higher level, with waste and overflow delivering over top of sink. White enamelled earthen-



ware troughs are the best, about 2ft. 6in. by 1ft. 2in. Some have a can rest hinged over. Lead safe trays should be placed under slop-sinks of 5lb. sheet-lead, turned up 6in. all round, with a 1½in. waste-pipe taken through wall with copper flap. There should be a flushing tap and a rinsing tap.

Many varieties of lavatories are in the market, and these are best selected from well-known manufacturers like Messrs. Doulton, Dentand Hellyer, Young and Marten, Nicholls and Clarke, &c., and the p.c. sum stated. The waste-pipe and trap should be 1in. diameter, and a 1in. round-way cock be provided between grating and trap, with handle and lever brought through the front casing. Provide ½in. hot and cold supplies through special horns on each side of basin, discharging through a flushing rim, and with ½in. lever or screw-down valves, the handles coming through casing. Provide also overflow to open air, and a lead safe tray.

Washstand basins are made in pottery and

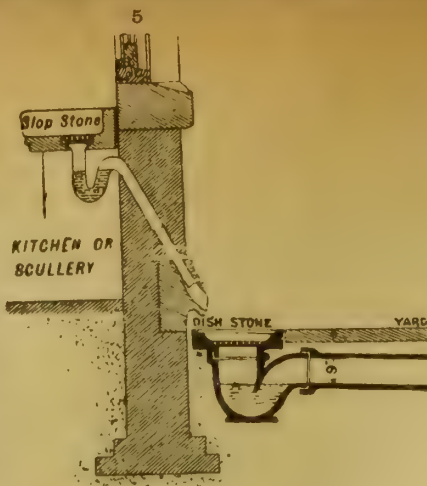


earthenware, round, oval, D-shaped, square. The D-shaped basin is a good form, and is often made for corners of rooms. Some lavatories are placed on hinged iron brackets. Tip-up lavatories are also much used.

There are several kinds of baths—lead-lined, zinc, enamelled earthenware, cast-iron, and copper are in the market, and the architect should consult the catalogues of well-known firms like Young and Marten, Nicholls and Clarke, Doulton, Jennings.

Copper baths are the best and most durable; enamelled earthenware baths are also clean and smooth, but they occupy more room, and are heavy, and cast iron is liable to oxidise, even when japanned, but for cheapness and durability cannot be surpassed. They should be well painted with a varnish paint. The ordinary size for a reclining bath is 5ft. 6in. long at top, 4ft. 6in. at bottom, 2ft. 3in. deep. It is better, writes Mr. W. R. Maguire, if the water companies' rules allow, to bring the hot water supply to one side and the cold water in opposite near the foot, and about 3in. over the bottom, through large brass gratings, the overflow being taken from the foot, about 3in. from the top, with a large grating.

The waste-pipe and valve should be 2in. diameter, heavy of lead pipe, trapped beyond valve with deep siphon with cleansing screw. The overflow to be connected below the valve, and a 2in. vent-pipe be put to protect water-



seal of trap from outgo to open air. Specify that no connection is to be made between the bath waste-pipe and soil-pipe.

In large establishments where there are several baths, a separate supply may be necessary.

Our first sketch shows the connections of a stack of w.c.'s with soil-pipe, also an anti-siphoning 2in. or 3in. lead pipe shown inside wall, with branches to all traps. The other sketches show different kinds of ventilating intercepting traps to be used to connect soil-pipe or house drain to the sewer. Many very efficient traps are on the market, such as the "Kenon" "Disconnecting" trap, Buchanan's, Hellyer's, Duckett's, Winsor and Co., &c.

45. **Lead Supply to Closets.**—Connect cistern with 1½in. brass union, 1½in. above bottom, and take down to upper floor closet, 1½in. lead supply with stop-cock near cistern, and to closet on second floor, thence by 1½in. pipe to valve-closet on first floor, and 1in. pipe to ground-floor valve-closet. Provide a stop-cock to each closet near valve. Connect waste-water preventers with ½in. lead pipe to servant's closet and slop-sink in basement.

46. **Valve-Closets.**—Provide and fix to all floors except basement Doulton's (or Hellyer's) best white-ware basin closets, with copper regulators, with 1½in., 1½in., and 1in. supply unions respectively, with stop-cock to each. Ventilate each valve-box with 1½in. air-pipe, finished at outer end with brass grating. Connect siphon trap to 3½in. pipe arm branched into 3½in. lead soil-pipe, 8lb. to the foot, with "wiped" joints, securely fixed with 6lb. lead tacks to wall.

The soil-pipe to be connected to stoneware drain according to L.C.C. regulations, or as shown, and to be carried up the full bore 5ft. above eaves, with copper rose at top. (For anti-siphonage pipe and branches, see Clause 31.)

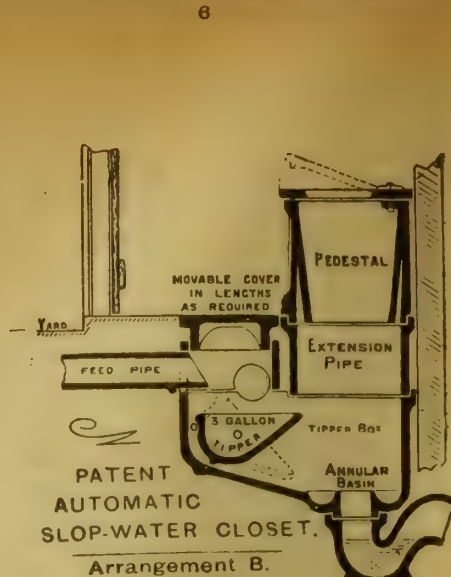
47. **Water-Waste Preventers.**—Provide and fix to all wash-out or pedestal closets an approved water-waste preventer (or Doulton's patent "Paisley"), two-gallon flush (or a siphon-action two or three gallon preventer), with fittings and connections complete, on iron brackets, with galvanised-iron or brass chain, and cased in with deal and felt packing. Carry a 1in. overflow arm through wall, and finish with copper flap, and take a 1½in. lead discharge-pipe to closet pan, with rubber connection or otherwise. Or—

Provide and fix to each wash-out closet Young and Marten's "Eureka" cast-iron siphon waste-preventing cistern, two gallons, with chain and pull galvanised, p.c. £1 9s. 0d.; or "Despatch." Or—

Provide to each closet Nicholls and Clarke's "Premier" water-waste preventer, passed by the New River Co., p.c. 17s. 6d.

48. **Sewer Gas Interceptors.**—Provide and fix in position to receive house-drain one of Doulton's 6in. improved sewer gas interceptors (if white enamelled inside, state); or list No. 21H, with galvanised iron grating for ventilating socket; or Doulton's No. 38 trap for soil-pipe, with easy bend, and outlet from 4in. to 6in. Or—

Provide and properly fix the "Kenon" 6in. interceptor, with long inspecting arm, fitted with movable cap, p.c. 15s. (or Doulton's interceptor



trap, with inspection arm and channel inlet, 6in. diameter, No. 59 in list, with air-tight stopper, complete with Stanford's patent joint to inspection socket, or p.c. 12s. 6d.) Or—

Provide and properly fix at foot of soil-pipe Cregeen's patent air-inlet, to be supplied by Doulton and Co., for 6in. shaft (see sketch 1). Or—

Fix complete, in a workmanlike manner, Hellyer's patent interceptor (see section 4), with 6in. siphon and 16in. galvanised iron grating, properly bedded in concrete to receive house-drain.

The following clauses relating to house-drainage are given in Taylor's "Sanitary Inspector's Handbook":—

49. **Soil-Pipes.**—The soil-pipes to be of the best socketed 4in. cast-iron pipes of the weight and thickness given (or ½in. thick), and of the weight of 1qr. 20lb. per 6ft. length, properly connected to the drain, and jointed with spun yarn and Portland cement if to stoneware drain-pipes, and spun yarn and molten lead if cast-iron drain-pipes, well caulked.

The iron soil-pipes to be coated with Dr. Angus Smith's solution or the Bower-Barff process inside and outside, and afterwards painted outside with two coats of good oil-paint.

The pipes to be screwed to the walls with detachable wrought-iron clips, screwed to 14in. by 6in. by 2in. wood grounds or blocks, chamfered, painted three coats, and nailed to a sufficient number of plugs inserted in the joints of brickwork.

50. **Anti-siphonage Pipes.**—The soil-pipes to be provided with lead anti-siphonage pipes, 2in. in diameter, fixed to top of trap of each w.c., and carried up as provided for soil-pipe ventilators.

51. **Lead Soil-Pipes.**—Lead soil-pipes must not be less than 3½in. internal diameter, and of solid drawn 8lb. lead, with properly wiped joints, wiped full 3½in., and to be socketed ½in. All such pipes to be secured to wall every 6ft. in length by means of a pair of 8lb. lead tacks, having three wall-hooks and plugs to each tack. There must be inserted between the lead soil-pipe and the stoneware or iron drain a brass ferrule; the joint of soil-pipe with the drain to be made as specified in the case of iron soil-pipes.

52. **Ventilation of Soil-Pipes.**—All soil-pipes must be ventilated by means of pipes the same diameter, carried at least 3ft. above the eaves or any window or other opening within 20ft., measured in a straight line from the open end of ventilating pipe. When no soil-pipe exists, a special 4in. cast-iron ventilating-pipe shall be carried up, as provided in the case of soil-pipes, from the highest point of the drain, the open end of such soil-pipe or ventilator to be protected by a galvanised wire guard of the full section of the pipe.

53. **W.C. Connections.**—All stoneware traps of w.c.'s to be connected to lead soil-pipes by means of a brass socket, properly fixed. The joint between the lead branch and the soil-pipe to be outside the wall, and where iron pipes are used, the joint between the lead arm and the iron soil-pipe shall be constructed with a brass ferrule.

54. **Urinal Wastes.**—All urinal waste-pipes to be of good drawn lead, 2in. to 3in. diameter, and to be trapped immediately under the bowls.



55. *Lavatory, Sink, and Bath Waste-Pipes.*—All lavatory, sink, and bath waste-pipes should be of drawn lead, from 1½ in. to 3 in. diameter. Each pipe to be trapped and furnished with ventilating pipes, should the wastes be more than 10 ft. in length. These waste-pipes should be constructed so as to discharge either over or under the grating of a trapped gully in the open air.

56. *Lead R. W. Pipes.*—Lead rain-water pipes to be of solid drawn 6 lb. lead, and secured to the wall with lead tacks of 6 lb. lead, or suitable iron holdfasts.

57. *General.*—The workmanship and material to be the best of their several kinds, and the whole of the work to be done in a workmanlike manner, and to the satisfaction of the architect. Or—

*To be Done to Architect's Satisfaction.*—The work shall be carried out and performed in a good and workmanlike manner, with all true expedition, and to the full intent and meaning of this specification, and in accordance with such instructions as the contractor may from time to time receive, and every drain must be constructed to the precise instruction directed. The decision of the architect upon all doubtful or disputed points shall be final and conclusive.

58. *Stoneware Sink.*—Provide and fix in kitchen (or scullery) Doulton's stoneware sink of strong vitrified ware, with smooth glazed surface of cream colour, with countersunk hole for waste, 2 ft. 6 in. long, 1 ft. 7 in. wide (p.c. 10s.).

Provide in the butler's pantry Doulton's butlers' sink, with black printed ornament, 25 in. by 16 in., and 10 in. deep (p.c. 25s.).

The scullery sink to be supported on Duckett's glazed ware patent sink supports, 17 in. projection from wall, with rebated wood studs for door.

The sinks to be provided with Duckett's sink fittings, with brass grate set in cement, with trap and curved 2 in. waste pipe through wall, jointed with Stanford's joint, and with iron shoe at outer end complete.

59. *Slop W. C.*—Provide and fix complete Duckett's patent "automatic slop-water closet" (arrangement B) in yard, flushed by the slop-water from sink, with tipper and P-trap, and lay 4 in. inlet pipes from dishstone under sink-waste to closet (see sketch 6). Also provide to slop-stone Duckett's slop-stone pipe protector and gully (No. 3 A in catalogue). Or—

60. *Self-Cleansing Gully.*—Supply and fix in yard Duckett's "self-cleansing channel gullies," 28 in. by 11 in., of salt-glazed earthenware, with sloping grates, p.c. 7s. 6d. (There is a 2 in. earthenware waste-pipe and a trap that can be turned in any direction to suit drain. It conforms to by-law of L.G.B.) Or—

61. *Gully Channel.*—Provide and fix Doulton's "gully channel," 2 ft. long, with wire cover, to take waste-pipe from bath or sink, made of glazed stoneware.

62. *Lavatory Basin.*—Provide and fix on fir bearers at corner of lavatory a white or ivory best earthenware lavatory basin, dished for soap tray, &c. (or No. — in Doulton's list), with quick, full-way, screw-down ½ in. brass supply valves for hot and cold water, and 1½ in. pull-up brass quick waste valve and connect to cold and hot-water service with ½ in. branch supply pipes, and insert 1½ in. S trap to waste, connected to main waste with 1½ in. lead ventilating pipe from trap through external wall. Or—

Provide and fix a range of lavatory basins (state size) of white earthenware, of best or other quality (or No. — in list of Young and Marten), on ground or first floors, each to have a supply valve and quick waste of 1½ in., and with anti-D trap, connected to main waste by 2 in. pipe with brass cleansing cap and screw complete. Allow the sum of 18s. for the supply cocks, or state the particular fittings required. Or—

Provide and fix on proper bearers or brackets one of Doulton's (Lambeth) or Samuel Hunt Rowley (Swadincote), earthenware lavatory basins, with dishes for soap and brushes, with skirting in one piece (state No. in catalogue), with pull-way screw-down ½ in. brass supply-valves for hot and cold-water, and 1½ in. brass pull-up quick-waste valve, and connect same to hot and cold-water service with ½ in. supply-pipes, and put in 1½ in. siphon (or auto-D) trap to waste, with ventilating-pipe complete, carried through wall. Or—

Provide and fix in lavatory one of Jennings' (or Nicholls and Clarke's) lavatories with polished mahogany casing, earthenware top, large D-shaped basin, with "hot" and "cold" yellow metal screw-down supply-valves, quick-waste pull, 22 in. by 20 in., p.c. £9. Or—

Jennings' patent "tip-up" and pull-out basins in enamelled slate (or polished marble), with hot and cold supply-cock, and all fittings complete, p.c. £3 3s. to £6 6s.

Allow sum of 12s. 6d. each for two silver-plated supply-cocks.

## THE ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Association was held on Friday evening, the President, Mr. Geo. H. Fellowes Prynne, in the chair. Messrs. F. Mount, H. G. Turner, and J. M. Lethbridge were elected as members. It was announced that Mr. Hampden W. Pratt, treasurer and ex-president, had been appointed by the committee as a trustee of the A.A. Travelling Studentship, to fill the vacancy which had existed ever since the death, in April, 1890, of Mr. Ernest Claude Ayton-Lee.

### HOUSE PLANNING FROM THE ÆSTHETIC POINT OF VIEW.

A paper on this subject, illustrated by a number of plans of English mansions of the 17th and 18th centuries and other houses, specially drawn to large scale, was read by Mr. H. HEATHCOTE STATHAM. The author remarked that there was no branch of architecture more fascinating in its interest than the house, as it was the most intimately connected of all with the lives and characters of men. In an architectural sense, the designing of a house was not merely the arrangement of rooms so as to be comfortable in themselves and commodious in their relation to one another, though these were points of the greatest practical importance. That was a merely utilitarian view of the problem. The object of architecture was to raise the house to the level of a distinct and individual architectural conception or idea which should govern the whole arrangement; to give it as much of interior effect as was compatible with its size and with the practical convenience of internal traffic; to make it something more than a mere dwelling-place, the expression of an artistic thought—whole, complete, and indivisible. The plan was that in which the artistic idea of the house was really embodied; that was the basis of the whole; if there was a good idea in the plan even bad external detail could not entirely spoil it; if there was no idea in the plan—nothing beyond a commonplace collocation of rooms in convenient positions,—the best exterior detail would do little or nothing to conceal the poverty of the main conception. In any case the treatment of the masses of the plan was half the problem; and there had been splendid plans which had not been made nearly as much of as they might have been in regard to exterior architectural effect; but it was mainly the plan which distinguished the house which embodied an idea from that which did not. Now in this respect among others, the Mediæval revival, so vaunted at the time, had left an ill influence behind it. Since the Mediæval revival people had been taught to regard the ordinary-sized dwelling-house plan as consisting merely of the fitting together of so many parallelograms of room-spaces, something like a puzzle map, the end of one abutting on the side of another, the angle of one projecting beyond the wall of another, so as to show where the rooms fitted to each other; the result being a plan that was no shape at all, and which could not be walled and roofed in under the guise of any formal and distinct architectural conception. This way of building was supposed to be "picturesque" and "truthful"; it was said to accord with the irregularities of nature. A house was not, however, called upon to accord with the irregularities of nature any more than a garden; it was an artificial creation, and should be treated as such. It ought to be something more than a mere collocation of rooms; it ought to be a plan conceived as a whole, the rooms designed and placed so as to be subordinate to that governing idea, while retaining convenience of internal position. That was just

### THE CRUX OF ARTISTIC HOUSE-PLANNING;

the mere irregular fitting of rooms together was an evasion of it. He was not arguing necessarily in favour of bilateral symmetry in the average-sized house, though in the majority of cases bilateral symmetry in the main masses at least with diversity in some details would produce the best architectural result. But at all events the house should be modelled on a distinctly conceived and predominating design which moulded the whole of it; not merely put together as the rooms might fit conveniently. In the attempt to give special character and unity of conception and design to houses of average size, both the Americans and the Germans were a good deal in advance of us, although he might add that he cordially hated

modern German architectural style and detail for the most part. He proposed to deal that evening with

### THE "MANSION" PLAN,

the treatment of plan in the largest class of houses—those dignified by the name of "mansions." It was here especially that the taste fostered by the Mediæval revival had injured us. With the commencement of the Renaissance period came the age of the great symmetrically-planned mansions, first in the Elizabethan form of the quadrangle, next in the later Renaissance form of the main central block and the outlying "wings." In the Georgian period the wings disappeared and the symmetrical block alone remained; the accessory buildings, such as stables, laundries, &c., all being relegated to separate buildings at more or less distance from the house. Then after the Gothic revival came the idea that symmetry was not picturesque; there was a reaction against the formal plan, and next followed the taste for the rambling plan, in which the object apparently was to make it appear as if the plan had grown up by accident, or had arisen from the gradual enlargement of the house by successive additions. It was a nuisance to be losing oneself in a great house, and getting into the wrong rooms. But this was a minor consideration in comparison with the æsthetic one. It was often urged that the rambling and irregular house was the more homelike. But a mansion on the largest scale should aim at something more than homeliness. It was, to some extent, a house of state; it should aim at the qualities of stateliness and dignity. And it was here that the great charm of house architecture came in. Here there was the opportunity of combining architectural dignity with novelty and originality of grouping; the interest of arranging and shaping rooms so as to combine architectural effect with convenience. To adopt the rambling plan was to throw away a great deal of this opportunity. The lecturer sketched in some detail the house imagined by Bacon in his essay "On Building"—a quadrangular mansion approached by the courtyard, and suggested that it would not be a bad study for the Academy or the Institute to set as the subject of one of their prizes—the Travelling Studentship or the Soane Medalion—to

### RESTORE BACON'S MANSION

in plan, section, and elevation. Mr. Statham continued: Bacon deals only with the superior portions of the mansion: "as for offices," he says, "let them stand at a distance, with some low galleries to pass from them to the palace itself." This is really much the way they were placed by Vanbrugh at Seaton Delaval, only that Vanbrugh had them flanking the front or entrance courtyard of the house; masked by the colonnades, it is true; but still pretty well in evidence; whereas Bacon wanted them out of the way of notice altogether. The kitchens, he rather implies in his essay, would be in the basement of the main building. The quadrangle system of plan is no doubt one of the best for combining a considerable degree of architectural effect with a certain degree of retirement and domestic feeling. It is not the most effective for an exterior view, as in most cases one only gets the architectural impression of the front; nor is it the most wholesome form of plan in a sanitary sense. The E plan, with or without the centre shank of the E, gets over two of these objections, and, especially with a low screen or colonnade across the fourth side, is highly effective architecturally; but it introduces the new objection, for internal convenience, that each end of the returns is a *cul-de-sac*. Hatfield is a good example, and contains also a fine interior point in the long and wide gallery running from end to end of the principal mass and connecting the two largest rooms. Before long, however, the quadrangle plan was destined to give way almost entirely before that of the centre block and wings, and as a system of house-planning on a great scale nothing so grandiose has ever been devised. Vanbrugh, though he did not actually invent it, was the great high priest of this movement, the leading motive of which was, instead of hiding the offices away, as Bacon suggests, to make them contribute to the show. Vanbrugh had a great deal of the feeling of those who have been called sculptor-architects. At Castle Howard the lines of the balustrade fence on each side of the courtyard are modelled in and out in breaks and curves. This same modelling of wall lines is a point also with Wren.



Vanbrugh's great work is, of course, Blenheim, a plan of the grandest type, with its great terraced and cloistered forecourt, 350ft. long by 300ft. wide, and the kitchen and stable courts, each (with their surrounding buildings) about 250ft. by 200ft., opening from it to right and left. The plan is absolutely axial in both directions, two great longitudinal corridors running in parallel lines from wing to wing. The use of internal courts to light the corridors, which is sometimes regarded as a very modern expedient, is used here for the principal corridor at all events. The quadrant treatment connecting the wings with the centre is another example of Vanbrugh's modelling. It is one defect in the plan that the extreme right wing is one great gallery (180ft. long), and the corresponding left wing is divided up into rooms, though the exterior architectural treatment is identical in both cases. That is one of the pitfalls of absolute symmetry.

#### THE PRINCIPAL DEFECT OF BLENHEIM

is the want of a grand staircase appropriate to the grandeur of the plan. The main staircases, in two side halls, on each side of the great hall, are convenient enough, but these halls are only 11ft. wide, leaving only about 5ft. for the width of each flight; a miserable proportion for so great a house. At Castle Howard the staircases are planned in just the same way and of the same size. The architectural glory of a great staircase does not seem to have dawned on the mind of Vanbrugh. Turning to the most interesting and varied English Renaissance plans collected in the "Vitruvius Britannicus," we find all kinds of variations played on the idea of outstanding wings connected with the centre by colonnaded quadrants. At Roehampton House, by Archer, the quadrants are convex, and the front walls of the forecourt show that same kind of modelling in curves which seems to come naturally from Wren's pupil. In the plan of Eaton Hall, the general square lines of Seaton Delaval predominate, the stables and other offices flanking the courtyard without even being masked by arcades. At Beaconsfield (Millner), where the concave quadrant is again employed, the stable openings are round on the outer side, not towards the courtyard. In that remarkably stately modern plan, Mentmore, in like manner the kitchen wing fronts away from the house, and the back walls of kitchen and conservatory blocks, facing each other at each side of the forecourt, are made use of as decorative screens with niches for sculptures. The quadrant connection at Beaconsfield is badly managed, as it does not butt against the house block, but returns on itself, leaving an open end. At Hopeton House, Scotland (Sir William Bruce), the convex quadrant is again employed, this time better managed in its connections; the staircase occupies a fine position in an octagon hall in the centre of the house. At Lowther House, Westmoreland, we have an entirely original arrangement, the advanced wings ending each in an elliptical hall (the chapel on one side, the library on the other), the forecourt slightly raised and protected by a balustrade, and reached by a semicircular range of steps projecting outward at a 40ft. radius; the whole embraced by a range of arcaded cloisters on each flank, projecting beyond the forecourt. Braman Hall, one of Colin Campbell's own designs, shows a square block with two small wings connected on each side to the house by a lofty colonnade of three bays, with very bold effect; here, as at Blenheim, the outer blocks are the chapel and kitchen, treated identically. Castle Ashby, a courtyard plan by Inigo Jones, takes us back a generation, and has the staircases placed in projecting turrets at the re-entering angles of the courtyard. Eastbury, by Vanbrugh, is very much on the same lines as Seaton Delaval, with the square forecourt with arcades down each side to mask the stable and kitchen wings, and the same vast rusticated order to the house. Here Vanbrugh again uses his favourite arrangement of the two staircases one on each side of the central hall, but in this case he is more liberal to the stairs. At Seaton Delaval the stairs are provided in a projecting tower at each end of the main longitudinal corridor, the towers being square externally, but the stairs elliptical on plan. At Grimsthorpe Vanbrugh goes back to the quadrangle plan, and for once aims at a fine effect with his staircases, which are 8ft. 6in. wide in the lower flights and 7ft. in the upper, and placed within a double screen of columns at each end of a hall 125ft. long. At Burlington House the stable and

kitchen wings occupied the middle portion of each flank of the courtyard, and the court was closed by the two quadrant colonnades at the end opposite the house. At Houghton (Colin Campbell) the kitchen and laundry wings, connected by the habitual quadrant, are set back into the rear instead of being brought to the front, and the same is the case with the stable and offices wings at Duncombe Park (W. Wakefield), in which the quadrant is dispensed with. In "Mereworth" Campbell contrives a square house with a portico on each face and a central domed hall, which might be capable of charming treatment; unfortunately, his staircases are mere corkscrews in the piers of the dome. The plan of Kedleston (as shown on paper, but never finished), with its outlying pavilions connected by quadrants, is a kind of plan which looks more effective on paper than it ever can look in reality, as you can never see it all at once; moreover, the quadrants are badly managed. At Nostel (Paine) the same idea is better carried out, though the interior plan is very commonplace compared with Kedleston. At Holkham Hall (by Kent) the pavilions at the angles are rectangular and more closely connected with the house; but the main idea is the same as at Kedleston. A remarkable plan, standing quite alone in character, is that of Buckland, by Wood, of Bath. In this case the two end octagons are the chapel and the library; the basements under them are respectively wine and beer cellars. Stanlinch, also by Wood, shows somewhat the same general idea; but the arrangement of the doors in the central portion of the house is such as lose the vista from end to end. Moor Park (Thornhill) is a remarkable example of a stately approach, in which the quadrant colonnades are extended so as to form a mask to the wings, leaving the planning behind them rather inconvenient.

#### THERE ARE FEW THINGS MORE FASCINATING

than the study of this collection of plans, so full of fine suggestions of effect, so uniformly stately and dignified in their variety. One cannot help thinking what one could do with them in actual architectural treatment. It is true that our enthusiasm, in a sense, is damped on turning to the elevations. Now that we have shaken off the deadening influence of architectural scholasticism and red tape, what splendid things we could do if we could only get the chance of treating some such mansion plans as these with the freedom and the richness of detail which we could impart to their treatment in the present. Surely we could make something finer of this type of plan than of the irregular and so-called "picturesque" plan? But then there is the question of convenience—a question which will not be shirked. What does the inconvenience of these Renaissance plans really amount to? It lies mainly in one point—the position of the kitchen. You will find again and again in architectural books, the kitchen was 100ft., 150ft., 200ft., from the dining-room, &c. Even in the modern example, Mentmore, the distance from the kitchen door to the dining-room door, taking the line along the passages, is 147ft. That is a real inconvenience; but there is no occasion to revive that. In these days of lifts the kitchen might be in the basement, or it may even be in the attic—perhaps with greater advantage. Apart from that kitchen question, the wing system of plan may retain all its architectural attractions, not only without any sacrifice of convenience, but even a certain convenience and suitability.

#### LET US SUMMARISE THE PROBLEM.

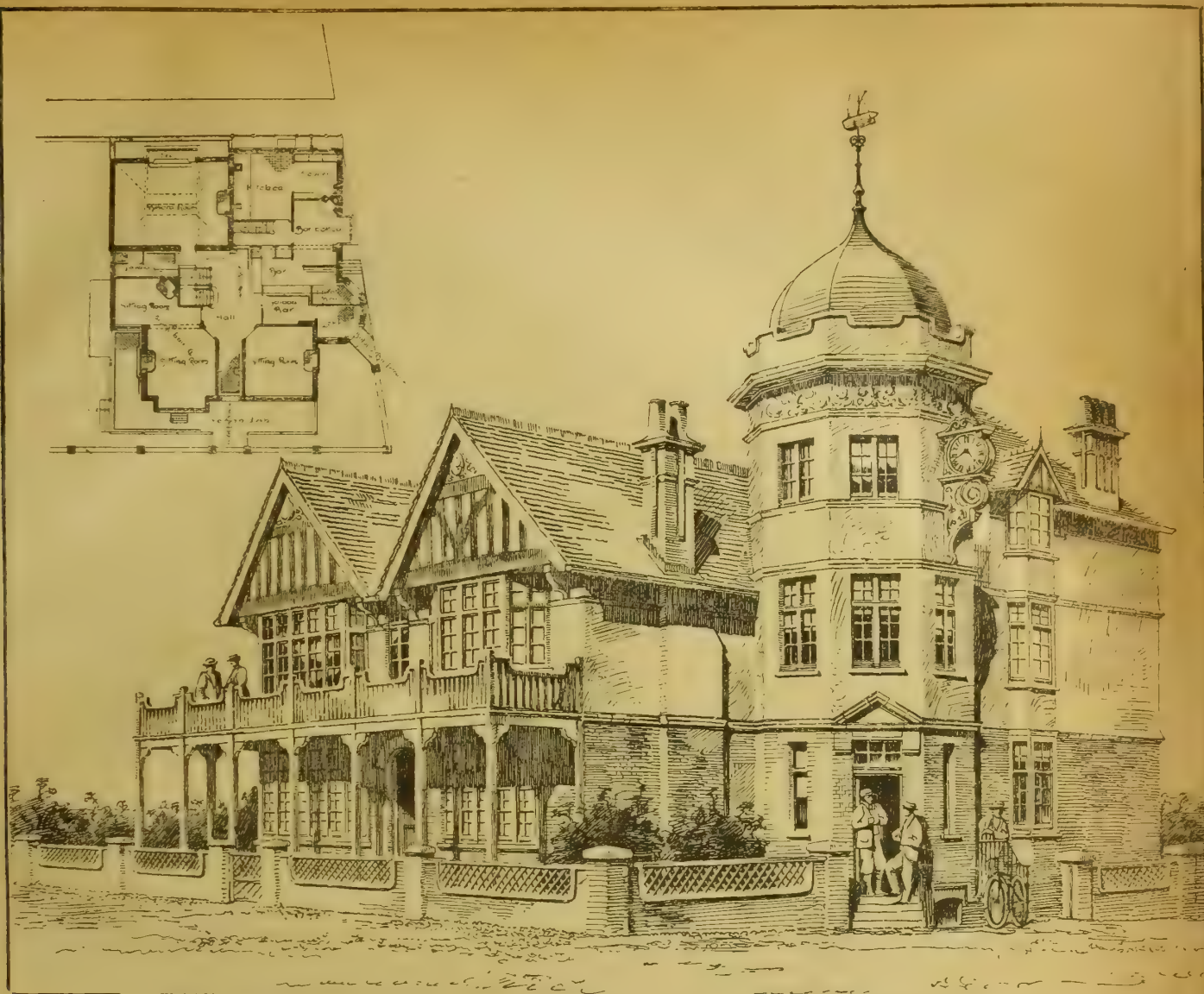
from the present point of view. In a mansion of the largest class we have to provide for two distinct departments, very different in their architectural requirements, and yet which must be in tolerably close relation with each other. We have the owners and their family and visitors on the one hand, with the rooms in which their life is to be lived; and on the other hand the servants and the rooms in which the work and supply of the house have to be carried on. Granting the principle that the mansion should be treated architecturally in a symmetrical manner, how are we to treat these two departments? If you wish for one great block, it is possible to divide the two departments vertically, to have a lofty two-storied basement, with a very wide sunken area for the lower windows, and place the state-rooms and living-rooms on the first-floor, with a great staircase up to their level. That is the old system of the Italian Renaissance palaces; it has been little if at all tried in England, but it naturally suggests an architectural treatment

which would be very fine and effective indeed, and is worth thinking of. Another method is the favourite one of the Renaissance architects, of the wings connected to the house by corridor buildings. Then we may have, what is the more favourite scheme now, the servants' quarter and offices rather more closely attached to one angle of the main building, forming a second parallelogram placed *en echelon*, or a long wing stretching away to the rear. But in this case it is difficult to make it part of the main architectural design; it must be retired and planted off out of sight. In regard to the house itself, there are three main points to consider—the approach and entrance, the hall and staircase, and the entertaining rooms. A forecourt of some kind, if possible flanked by a colonnade or cloister on each side, always adds to the dignity of the house. And for the access to the house there is nothing so fine as a flight of steps—still more a double flight, in two curves, provided the basement is high enough to afford opportunity for it. Inside the house you must have a large central hall, lighted from above, unless it goes right through the house with a great window at each end; and you must have, above all things, a spacious and noble staircase, not hidden away out of sight. Where there is a very large hall, the stateliest staircase will probably be one which is in the hall, and forms part of it. The difficulty in such a case is to plan it so that it will not interfere, above, with the integrity of the gallery or loggia which you will certainly have round the hall on the upper level. The weak point in a staircase is the raking soffit, and it is well, where it can be designed so, that this is hidden, and only the steps themselves are visible. Where the general plan allows of it, a flight of stairs on a long curve is nearly always fine; not a circular stair, but an elliptical hall, with a stair following its curves up on each side. As for the entertaining rooms, the great desideratum for them is that which applies also to the whole ground-plan of the house—viz., that they should represent an architectonic conception in the configuration of each room, and in their relation to each other. The great thing is that there should be an idea, and not merely a space divided into rooms by walls. In conclusion, the author observed that he would encourage those who have the chance of building large houses to endeavour to revive in them some of the old stately character which has been sadly lost during the present century through a mistaken craving after the picturesque, and not to be afraid of trying new and original dispositions of plan merely because they were new and original.

Professor G. ARCHIBON, R.A., P.R.I.B.A., in proposing a vote of thanks to the lecturer, echoed his plea for making the plan govern the arrangement of the house, and not allow the building to group itself in a rambling and haphazard fashion. The fault of Castle Howard was the absence of a grand staircase; but probably the fact that the two existing staircases were small, and indeed ridiculous in scale, was due to the fact that all the state rooms were on the ground floor. In most town houses the principal reception rooms were on the first floor, and thus an imposing staircase was one of the greatest desiderata. At Lord Leonfield's town house in Chesterfield-gardens a double staircase was arranged with very fine effect. A large circular staircase was imposing, provided the steps could be made continuous, and in the Later Italian Renaissance an elliptical stairway was used with beautiful results. At Blenheim the general effect of the building must be pronounced good, although the treatment was heavy, and the details were abominable. Sir Charles Barry was a great planner as well as designer: his houses were harmonious in proportion, but his staircases were too often inclosed between walls.

Mr. HALSEY RICCARDO agreed with the lecturer that an architectonic idea was what made a plan interesting to those who came afterwards. The English Renaissance plans were interesting historically, but they were not truly responsive to our national character. Blenheim was attractive from its historic associations, but it was rather depressing in effect, and it did not appeal to our sympathy and sentiment, whereas good architecture of any period should do so. Typical modern buildings were hospitals and board schools, and modern architecture should embody present humanitarian ideas. We should no more attempt to reproduce Renaissance mansions than Medieval castles. He seconded the vote of thanks.





NEW HOTEL, PEVENSEY BAY, SUSSEX.—FRANK J. BREWER, F.R.I.B.A., Architect.

Mr. BERESFORD PITE thought the author's survey was more restricted than usual; the lecturer had evidently been fascinated by Colin Campbell and his "Vitruvius Britannicus." They should not forget that Norman Shaw long ago delighted them with his charming and artistic Gothic plans quite as much as by his later and more methodical work. The interest of the subject was, after all, historical, and not practical, for in actual practice the architect must adopt, to a large extent, his clients' views. Economy guided his pencil, and the architect had to do his best to transmute the prosaic instructions into architecture.

Mr. FRANCIS HOOPER remarked that Ernest George had shown them, in his cottages for Lord Lonsdale at Guildford, that it was possible to give dignity and symmetry to small houses, and to avoid the usual barrack-like effect.

The PRESIDENT, in putting the vote of thanks, which was cordially agreed to, and was acknowledged by Mr. STATHAM, said they had been hearing that evening of large mansions, where regularity might be called for; but in their small houses picturesqueness was a desirable quality.

#### NEW HOTEL, PEVENSEY BAY.

THIS hotel is now being erected fronting the sea in Pevensey Bay, near Eastbourne, for Mr. C. E. Holmes. The exterior walls are to be faced up to the first floor with red bricks from Tunbridge Wells, and the upper portion is to be rough-cast. The dressings are to be in Portland stone and fine rubbed bricks. The roof is to be covered with sea-green slates. The internal walls and partitions are to be plastered with Serapite plastering, and all the woodwork in public rooms

is to be finished in green oil-stain, varnished. All external walls are to be built hollow. The billiard-room is to have an open-timbered roof. There are to be fifteen bedrooms, with bathrooms on the first and second floors, besides three public sitting-rooms, convertible, by the removal of sliding partitions, into a large ball- or concert-room on second floor. The accommodation on the ground floor comprises large dining-room, private sitting-room, private bars, saloon-bar, bar-parlour, billiard-room, kitchen, &c. The basement is devoted to rooms for servants, and for cellars, &c. The hotel will be fitted with all modern requirements, including lifts, electric bells, salt-water baths, &c. A large piece of ground between the hotel and the sea is to be laid out for tennis, &c. The hotel is being erected to supply a long-felt want in Pevensey Bay, which place is visited by increasing numbers of visitors during the summer months, and has been designed to harmonise with other houses now being erected in the bay by the architect, Mr. Frank J. Brewer, of Richmond, Surrey, and Buckingham-street, Adelphi. The contractor for the building is Mr. James Martin, of Eastbourne.

#### THE LONDON BUILDING ACT, 1894, AND THE OFFICIAL SUPERVISION OF BUILDINGS.

THE discussion on the paper read at the previous meeting of the Surveyors' Institution by Mr. W. Weaver was resumed at the meeting of Monday last by Mr. Douglass Mathews, who said that he took it that the author's object was to point out that under the present dual system of district and vestry surveyors, with areas and powers overlapping, anomalies and

inconveniences occurred which might possibly be avoided by some better arrangement. He did not agree that either the one or the other of these officers could alone fulfil all the duties required, as he thought that in most districts the time of each was already fully occupied, and he thought that before any alteration was made it was most desirable to consider carefully whether it was needful. He thought that if the word "engineer" instead of "surveyor" had been applied to the controlling local official, there would be less confusion as to his duties and qualifications. The position of district surveyor was rightly regarded as one of great responsibility, and was not, he thought, sought as a means of increasing private practice. Whether the new regulations prohibiting private practice were wise, he did not presume to say; but the candidates for district surveyorships were undoubtedly less numerous now than formerly. A borough surveyor, he thought, should have been trained as an engineer, while a district surveyor in London must have an architectural education, but not necessarily as an art architect. The examination for district surveyors, he thought, was a very thorough test of their suitability for the position.

Dr. Longstaff, L.C.C., seemed to think that the true path lay between the two extremes expressed in the views of the author and the criticisms of Mr. Blashill, both of whom were shortly to sever their connection with the active duties with which the paper dealt, and so spoke from an independent standpoint. It was, he thought, one matter to consider how building in London should be regulated, and another thing to determine how the regulations should be carried out. In most cities buildings were under the control of the municipal authority; but



London was an exception, and the Building Act, being law, must be carried out. He had had much to do with the framing of the Building Act, and should it ever be superseded, he could only pity the man who attempted to frame the next Act. The present Act was, he thought, in parts too weak and in parts too meddlesome. With regard to the prohibition of private practice by district surveyors, there was much to be said on both sides; but he was inclined to think that, on the whole, the rule had worked well. He thought that a great improvement might be effected if it were possible to make the jurisdiction of the district surveyor co-terminous as to area with that of the vestry surveyors, for it was undoubtedly a grievance that a builder should be erecting a building in one district, while the control of, say, the drains was in the hands of the surveyor of another and overlapping area.

Mr. H. Lovegrove said he hardly agreed with the author of the paper that district surveyors did their work of scavenging, paving, and such things less completely than parish surveyors. Anyone who would compare the road under the vestries with those in the City of London would agree with him. He also could not see that a mere acquaintance with the practical details of building construction was a better qualification than an experience gained in general practice, or that a surveyor who was merely a surveyor and engineer was competent to criticise the work of an architect. He thought that neither the general public, the County Council, nor Parliament itself would approve of relegating the duties now placed on the district surveyor to an officer under the immediate control of the vestry. As to delays, he had frequently heard expressions of surprise by country architects at the speed with which plans were passed and work commenced in London. He did not think the proposed change would in any way diminish the serious evil of wooden buildings in back yards, &c.; and he thought that the present treatment of dangerous structures was as nearly perfect as it could well be, while if the control of them was placed in the hands of the vestry, they would frequently have to be condemned or otherwise by men who, as owners or builders, had a direct interest in them. Mr. Weaver had said that a district surveyor often took the position for the sake of the practice to be gained; but he thought that extra practice might fairly be accounted for by the confidence of the public in a man whom they knew must be well qualified in order to attain to such a responsible position.

Mr. G. Livingstone said the subject was one which had been under the consideration of the vestries and their surveyors for some time past, and was one on which much might be said from both points of view. It had been argued that the system which prevails in most country towns might, with equal success, be adopted in London; and it seemed to him that the ordinary training and the necessary examination in building construction through which nearly every young man aspiring to become a borough engineer or vestry surveyor passed, attested his fitness to at least undertake the work of supervision of buildings without his necessarily being an architect in the full sense of the term. Many of the district surveyors were fully qualified architects, and as such in their practice gained experience which was invaluable in their duties as officials. If the assistant of a busy architect acting as surveyor was competent to attend to his official work, surely a well-trained municipal engineer could do the same.

Professor Roger Smith said he took the paper as an expression of opinion, and could not find that it was based on any cogent arguments; but even an opinion coming from a man of Mr. Weaver's experience was entitled to all deference. He did not agree that surveyorships were sought with a view to increasing private practice. The advantage of the present system was that the surveyors were under the County Council, and any indignation caused by their decisions went up to that body, and there probably evaporated, while a local surveyor must report to the committee of his board.

Mr. H. Gundry said that he had thought that, living in London, he was in the centre of the Empire; but he found that, from the remarks of the author and previous speakers, Kensington really seemed to be in itself the Metropolis. He took it that the question was not whether either the district or the local surveyors were competent

or otherwise, but rather between the district surveyors and the building committees of the vestries, to whom their surveyor must refer any case in dispute. The members of these committees were sometimes, as was well known, interested parties in the matters referred to them.

Mr. P. E. Pilditch said he agreed with the first proposition of the paper—that the present system was defective; but he was not so sure that the remedy was to be found in the absorption of the municipal surveyor by the district surveyor, or *vice versa*. The present system certainly led to a great deal of friction and loss of time and money to owners and builders, and, so far as the London County Council were concerned, he believed that much of the delay was due to the failure of the different committees to act together. Many points, such as the widening of streets, frontage-lines, sites of new or substituted buildings, &c., could, he thought, be best dealt with by a short amendment of the existing Act. It was, no doubt, possible in many smaller and suburban districts to find men capable of filling the two offices; but in large or densely populated districts the work would be too onerous to be left to one man, unless he were allowed to relegate it to assistants.

Mr. J. M. Knight agreed with Mr. Weaver that it would be desirable to enable men trained as architects and qualified as district surveyors to undertake the duties of local surveyors. He had himself practised as an architect while filling the position of local surveyor for the last thirty years, and he believed the arrangement had been to the advantage of his board. He did not think any argument as to London could be drawn from smaller committees.

Mr. R. A. Robinson, L.C.C., referring to the policy of the County Council in appointing surveyors on the condition of their not engaging in private practice, said the matter could be regarded from two points of view; but up to the present time the arrangement had worked most satisfactorily.

Mr. A. King thought the dual duties of surveyors could not be satisfactorily carried out under the suggested scheme, as each had already quite enough to do.

Mr. Wheeler, Q.C., did not agree that it was advisable that the present system of fees should be maintained. These fees came, in fact, on the building owner, and thus on the rent, and so on the ratepayer; and it would, he thought, be better to pay them direct in the shape of a salary chargeable on the rates.

On the motion of Mr. E. W. Hudson, the discussion was adjourned to the meeting of February 6.

### RETAINING WALLS.\*

By A. T. WALMSLEY.

THE centre of pressure should in the case of all banks and retaining walls not be nearer the outside edge than one-third the width of the foundation, or, in other words, should fall within the middle third of the base. The mean thickness of brick, masonry, or concrete retaining walls in ground of an average character should be equal to one-third of the height from the top of the footings, and as experience shows that under no ordinary conditions of surcharge or heavy backing it is necessary to make such a retaining wall on a solid foundation more than half the height of the wall in thickness, we have a mean thickness of five-twelfths—i.e., the mean between one-half and one-third—to provide. A margin of one-twelfth usually is assigned to a batter of an inch to the foot. Too great a batter is not desirable, as the wet gets into the joints and tends to weaken them. Earth pressure is different for every varied kind of soil, and is also greatly influenced by the dry, wet, compressed, or loose condition in which the soil is found, absorption of water tending to increase such pressure, but it is found by experience that the average actual lateral thrust of good filling may be approximately taken as equivalent to a fluid weighing 10lb. per cubic foot, and if, as a factor of safety, we double this unit pressure so as to allow for contingency of vibration and variation of soil, it follows that a wall should be able to resist about 20lb. fluid pressure, for which it needs to have only a theoretical thickness of one quarter of the height. There is, however, a line of fracture, along which the earth that is retained by a wall surcharged with earth has a tendency to slide, and

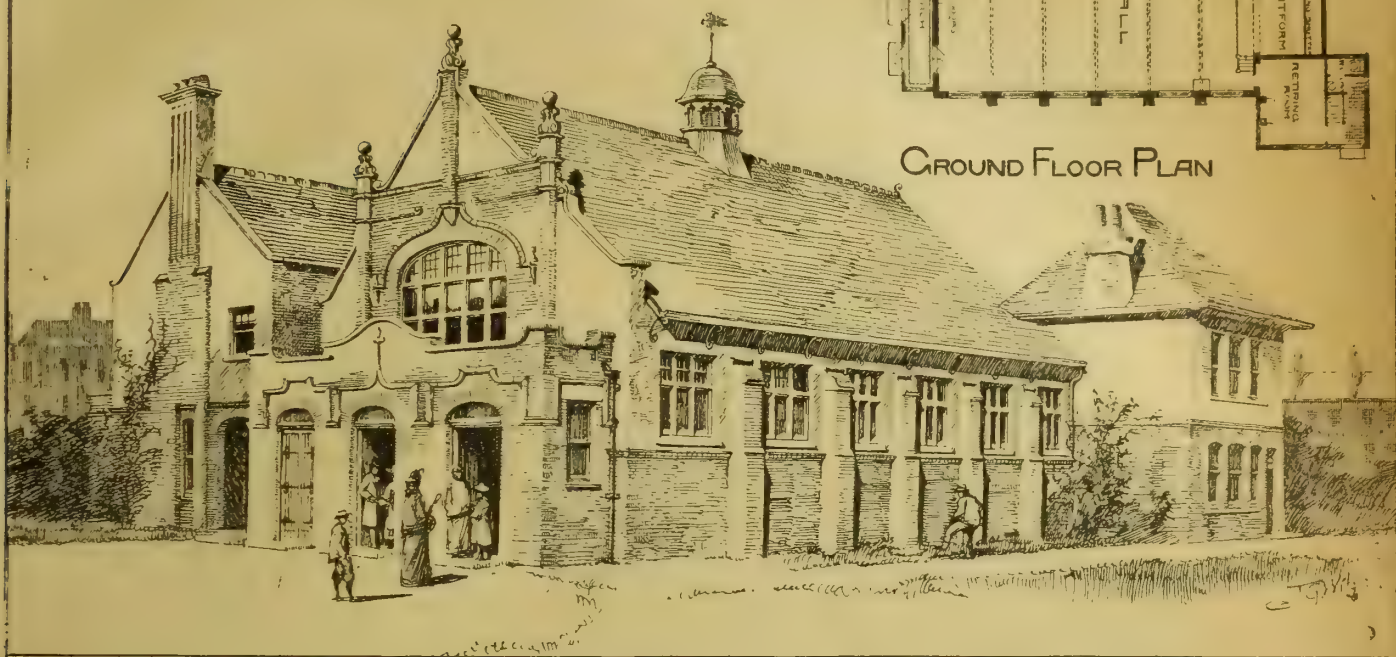
this line has been found by numerous trials to practically bisect the angle formed by the natural slope of the material of which the soil is composed, and the line of the back of the wall. This element forms an important consideration in the calculation of retaining walls, as it enables us to arrive at the weight of a mass acting vertically, which is prevented from sliding on this line of rupture by the wall. Though this gives the back pressure to be dealt with, accidents may occur from the want of due care in the back filling. As a rule, the earth backing should not be tipped in. If the backing be of clay, great care must be taken that it is not too dry, or it will swell on becoming moist, and produce pressure on the wall that may not have been foreseen. For this reason mixtures of sand and clay are bad, the sand admitting water and the clay retaining it. That the generally accepted natural slopes of material are more or less empirical is evident from an inspection of certain large clay-pits, where the clay is seen to stand more vertically than is usually estimated in the calculation of earthwork pressures. Weep holes for drainage should be provided in a retaining wall, and the weep holes should not be under 7sq.in. in section, or they will soon choke and become ineffective until cleared. They may be inserted at different levels, and in order to convey the surface water, which necessarily drains into the earthwork, to these points of escape, it is advisable to back up the wall with dry stone or rough angular material. The author was consulted in 1884 upon a concrete wall built in front of some meadow land at Fulham, where the wall was designed perfectly strong enough for the work it had to perform in protecting the meadow abutting on the River Thames, but where failure resulted by the concrete being improperly mixed, it being found that it could be as easily broken up as an ordinary macadamised road. Great care is needed in joining concrete to concrete. The surface needs to be well washed, scraped with a wire brush, and dusted with neat cement before another is built over it. It is not always by overturning that walls may fail. They may give way, as above described, from bad workmanship, or they may slide bodily forward on their base, or their foundation may subside. It is a common rule to allow from one to one and a half tons per square foot on a foundation of ordinary firm earth. Slipping may be obviated by benching out, so as to provide a base at right angles to the direction of the line upon which there is a tendency to slip. In this way dwarf-walls have been built with inclined tops and bases at the toe of the slope to a railway embankment. Such retaining-walls, though only about 3ft. or 4ft. in height, hold up the slope, and may be arranged so as to provide sufficient clearance for an additional line of rails to be laid. A form of retaining-wall frequently met with in practice, especially in brick structures, is that with a curved batter stepped in off-sets at the back. The curve usually adopted is the arc of a circle, the radius of which is from two and a half to three times the wall's height, and the centre of the curve is, as a rule, in the same horizontal plane as the top of the wall. In such structures the courses are built to radiate from the centre, and the result is that the joints of the brickwork at the back are thicker than is expedient. When the radius of curvature is large, the increase of thickness may be inconsiderable; but it becomes large when the radius of the curve is a short one, since the thickness of the wall cannot be reduced in the same ratio as the height or as the radius. Retaining-walls are frequently employed upon railways in which buttresses connected by horizontal arches are introduced. The chief advantage of a curved form of construction is that the curvature brings the centre of gravity further in towards the bank, and although it conveys the idea of greater strength than a straight batter, it is more expensive, and care must be taken that in the end bay the horizontal arch is not left with a single abutment. Curved batters cannot be universally recommended. Even when curved vertically, as in a sea-wall, the foundation is more difficult to get in, and the bed-joints have usually to be set out at right angles to the face of the wall. Counterforts constructed at the back of a retaining wall are usually preferred to buttresses, on account of the encroachment made by buttresses upon the roadway, whereas counterforts help to oppose more friction to the earth at the back of a wall. There are two main points of importance relative to counterforts always to be

\* Read before the Civil and Mechanical Engineers' Society, Jan. 5.



# NEW HALL AND MISSION HOUSE ST. STEPHENS · SHEPHERD'S BUSH · W.

FRANK · J · BREWER · FRISA · ARCHT.



remembered. They should not only be built simultaneously with the wall, but the wall should be well bonded with each counterfort, otherwise they tend to detract from the wall's strength, and the material employed in their construction might be more profitably added as a uniform increase of thickness in the wall. A judicious increase in the theoretical thickness of a wall should always be provided. The pressure of water in front of a wharf will doubtless help to sustain it; but this pressure may be reduced or removed, or, upon the other hand, the internal pressure upon the opposite side of the wall may likewise be reduced or removed. All such contingencies should be provided for at the outset. The width at the top exercises a considerable effect on the transverse section. When the surface supported is level with the top of the wall, the thickness at the top may be one-tenth of the height, up to 30ft., the minimum thickness being 18in., and the maximum 3ft. The back of a retaining wall should be rough, in order to resist any tendency of the earth to slide upon it. This object is promoted by building the back in steps. A catch-water drain behind a retaining wall is frequently expedient. It may either discharge its waters through pipes into an outside drain in front of the base of the wall, or it can be provided with an independent outlet. In calculating the section of a wall, and providing for the distance of the centre of resistance from the compressed edge to be no nearer than at least one third of the thickness throughout which the pressure is distributed, it is, of course, assumed that the mortar exerts no appreciable tension, as such action would invite cracks. The coping of a retaining wall should consist of large flat stones, preferably laid as headers. In cases where it is necessary to anchor the face of a wall by introducing tie-rods, the level of tie-rods depends upon their object. If the retaining wall is to depend mainly upon the tie-rods for its security against sliding forward, the tie-rods should be fastened to plates upon the face of the wall in the line of the resultant pressure of the earth behind the wall—that is, at one-third of the height of the wall above its base; but if the resistance to sliding forward is to be distributed between the foundation and the tie-rods, they are to be placed at a higher level. Thus, supposing the tie-rods to be fixed to the face of a wall at two-thirds of its height above the footings, the horizontal thrust will become equally divided between the

tie-rods and the foundation. In the case of a continuous concrete wall with an exposed face, it is well to assume that cracks will appear, and to form a straight joint, say, every 30ft., whereby the tendency to crack is obviated, and there is no defacement. In the case of a concrete wall against which there is a shifting foreshore, it is well to face the concrete with masonry. Precaution should also be observed to extend the concrete base of the wall both forwards and backwards as to cause the line of resultant pressure to be central over the space of ground upon which the footing is laid, and the concrete toe must be made sufficiently thick to obviate risk of breaking across. About the year 1869-70 the last cliff reachment at Dover was built of American elm piles and planking backed with concrete. The term "reachment" is a military one, and is equivalent to "retaining-wall." In 1873-75, the planking was removed, and the concrete was cut away to receive a facing of Kentish rag stone.

## SAINT STEPHEN'S HALL, SHEPHERD'S BUSH, W.

THESE buildings now being erected are situate in the Ellerslie-road, Shepherd's Bush, on land given by the Ecclesiastical Commissioners. The hall, intended to seat about 450 persons, is to be used for parish purposes, mission work, entertainments, &c., and the adjoining house for district visitors' rooms and parish work in connection with the church of St. Stephen, Uxbridge-road. The hall, about 60ft. by 30ft., has a height of 16ft. to the wall-plates, with a roof open to the collar level. The external walls are faced up to the string levels with Lawrence's orange-red bricks, and are rough-cast above. All the stone dressings are in Monk's Park stone. The roofs are covered with Westmoreland green slates. The internal woodwork in the hall is stained a grey green, with oil-stain, and varnished. Boyle's ventilators have been used for the ventilation of the hall. The contractors for the works are Messrs. S. N. Soole and Son, who are carrying out their contract in a very satisfactory manner under the superintendence of the architect, Mr. Frank J. Brewer, of Richmond, Surrey, and Buckingham-street, Adelphi.

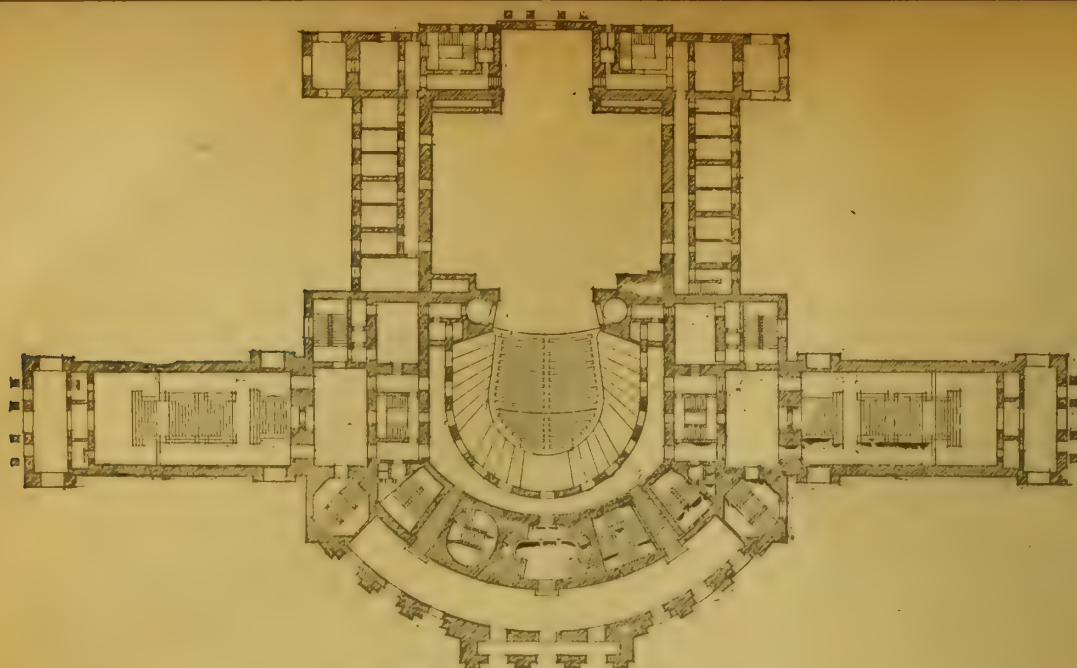
The urban district council of Ashford, East Kent, have raised the salary of their surveyor to £250 a year.

## NOTES FROM EDINBURGH.

THE year just passed away has ended as it began, with a record of work accomplished and a prospect of unprecedented magnitude. It has seldom happened that so many enterprises of such great expenditure have been all in course of their progress simultaneously, and to this circumstance, no doubt, the good prospects for the coming year for all connected in any way with the building trades are due, and may safely be relied upon. For many years back there have always been at least one or two schemes for the improvement of the city as regards its streets or public buildings, and these tided over the depression in speculative work prevailing in other large centres. These comprise the improvements made in the Old Town under Act of Parliament, the rebuilding of the Royal Infirmary, the new University Buildings, and the numerous and costly buildings erected for the school board; and last, but not least, the reconstruction of the North Bridge. These are now all accomplished works, but will not stand comparison for their yearly volume with what will have to be in progress for the coming year. The reconstruction of the N.B.R. station is still far from its completion, although its arrangements for the convenient arrival and departure of the passengers are vastly better than they have been for so long a period. The removal of the railway offices to Waterloo-place will add to the work originally contemplated in the building, now altogether reserved for the hotel. The rebuilding of North Bridge-street is an undertaking of greater magnitude, if on a scale of less expensive character. The new hotel at the west end of Princes-street, to be erected at the Caledonian Railway Station, has been estimated, and will no doubt shortly be commenced. Two larger and one lesser insurance buildings are still far from completion. The new Infectious Diseases Hospital at Colinton has been making tardy progress for the year, and four out of five pavilions remain to be built, only one and the nurses' home having been roofed in. The cabling and extension of the tramways, and the increasing demand for the electric light, have made new stations necessary, and two new large schools have been reported as required for northern districts of the city.

The demand for small houses of from two to four rooms still continues to be unsupplied,





COURT THEATRE, VIENNA.

speculative building in this department continuing to have its plans before the Guild Court. The ground available for houses of the better class, to the east of Donaldson's Hospital, has for many years been taken up; but that set aside for similar buildings on the north side of the Water of Leith, and along the Queensferry-road, has of late years been neglected. Suburban villas appear to have the preference, for which there is ample scope in the southern and western and northern sides, and it is in this department only that much has been done in the way of better class of buildings.

In all the recent additions to the city architecture, nothing of much novelty has appeared, if exception be made of the Prudential Assurance building in St. Andrew-square. This building has recently been decorated with a statue of the cardinal virtue from which the association takes its name. It is placed in a niche in the projecting corner turret of the first floor, and looks more in proper place than the panels of carving on the north side, above circular windows on the ground floor.

The Standard Insurance will have the most extensive frontage of the four insurance buildings now in course of erection, and is nearly completed in its cornice, and will be an imposing edifice in the old Classic style (now a novelty), depending more for its effect on the magnitude and elegance of its proportions, than on any picturesque variety of decorative detail. Preparation, however, is being made for a decorative frieze. The Usher Hall, having got a site at last, has not been heard of for some time, and probably this work will not be started during the present year.

The sudden death of Mr. W. Hamilton Beattie has removed an architect who has left more numerous memorials of his energy and skill in the civic architecture than any other. He was architect, engineer, and surveyor, and must have had extraordinary aptitude for all departments of work. It is thought that he had overtasked his strength. He seems to have made the French Renaissance his model as to style in his larger edifices, such as Jenner's Buildings and the new N.B.R. Hotel.

The late Dean of Guild, Mr. Miller, C.E., has resigned, having held the office for the long term of seven years. His successor, Mr. Ormiston, is a surveyor of large practice, and has long been conversant with all details having reference to the construction or valuation of property, and enters on the duties at a time when there will be plenty of work cut out for him to dispose of. The sanitary requirements, as well as the legal questions often involved in the decisions of this court, require knowledge which can be acquired only by some experience.

Not much in the way of church architecture has been in hand in Edinburgh for some years. This year a new church for the Free Tron is nearing its completion. This, however,

is not one added to the city churches; but only a city church migrating to the Mayfield suburb, the old church being now a warehouse. It is constructed with a deep west gallery, and spacious vestibule below. The entrance is by a doorway in the tower built on to the North side up to wall-head level, to be finished with a spire. It has a short and narrow passage aisle and arcade of three arches, with clerestory and two narrow transepts, and apsidal east end to the nave. This appears to be the popular style with parties who affect the Anglo-Catholic arrangements of a church interior. The nave arcade, in nine cases out of ten, is far too short for the width, where transepts are required, and the interior in this case would have been much better without them. The arcade is very nicely moulded, with pillars, capitals, and bases of good proportion and details. The roof and ceiling are designed apparently in imitation of old carpentry—i.e., a massive beam with decorative cornice stretches from wall to wall, carrying a pillar in the centre, which is connected with the collar-tie. The effect of this, with the boarding on and under the constructive timbers, is still concealed by scaffolding. Externally, the decorative detail is confined to the west front and the tower. The design is interesting in its attempt (not very successful) to combine Flamboyant and Perpendicular details. The large west window is subdivided by two larger mullions, but running straight into the arch without any member corresponding to the arch. The mullions in place of the tracery have only the flat arch cusp on the arching, and the upper part of the window looks naked without the tracery usually put into the arched head of such windows. The transom bar, with its soffit cusp, does not follow the line of structural stability as usual, but is stepped from the centre down to the sides. There is a fair amount of merely surface decoration in the way of Flamboyant tracery with, what will be when finished, crocketed moulding. This, however, requires for itself large masses of the red stone used only for the dressed work, and gives to the front a rather patchwork look. The tower has a good band of narrow pointed arcading of simple character; but the quatrefoil decoration of the base is somewhat out of place, though it might adorn a parapet.

A new church for the U.P. congregation has been begun at the junction of the London and Easter roads, and some others are being talked of.

There is no symptom anywhere of the New style even beginning to be, and a recent contributor on the subject in the BUILDING NEWS has completely and satisfactorily settled the matter when he postpones the advent of the New style to the days when iron shall supersede the use of stone or bricks.

The police commissioners of Stirling have accepted tenders exceeding £3,000 for the erection of a corporation electric-lighting station.

## MODERN OPERA-HOUSES AND THEATRES.\*

[WITH ILLUSTRATIONS.]

MR. EDWIN O. SACHS has completed his veritably monumental work on this subject in three folio volumes, and undoubtedly must be congratulated on the cosmographic character of his useful and successful undertaking. It is illustrated by 220 plates and over 1,000 diagrams. Never before has there been such a development of playhouses as that which the past three or four years have recorded, and, till Mr. Sachs embarked upon his big book now finished, the planning and construction of theatres had never been adequately described and illustrated. Theatre architects were few in number, at any rate in England, and somewhat naturally they endeavoured to keep their knowledge to themselves as a speciality. Mr. Sachs has gathered an immense amount of information from all kinds of sources together, and has told us more than we ever knew before about the contrivances of stage construction and the technicalities of theatre design. The preparation of the work has occupied the author more or less over a period of eight years, affording him congenial relaxation, as he informs us, during the hours spared from professional practice. We have noticed the previous volumes as they were issued to subscribers, and to-day we can unhesitatingly commend the concluding folio as heartily as its predecessors, while the completed work is of unquestioned value to all who are in any way associated with the building or conduct of theatres or playhouses. Theatre fires and legislation concern the community at large, and, in the sections devoted to these subjects, Mr. Sachs has done his best to record stern, and even sometimes, unpalatable facts, which are of the utmost importance to all public councils and municipal bodies having authority over the erection of public places of entertainment, and who, therefore, are largely responsible for the safety of the playgoing and sight-seeing portion of the population. Among the new theatres illustrated in the last volume now before us, may be mentioned that at Norwich, the Crown Theatre, Peckham, the Variety Theatre, Middlesbrough, and another at Hastings. The skeleton plans of a great many auditoriums are very useful, and it must have occasioned an almost endless labour to obtain particulars of so comprehensive a series of examples. The same remark applies to the skeleton sections, drawn presumably to uniform scale. Treatments of prosceniums, too, are copiously illustrated, both from at home and abroad. Among the leading foreign houses of course comes the Court Theatre at Vienna, of which Gottfried Semper and Baron Hasenauer were

\* Modern Opera Houses and Theatres. Examples selected from Playhouses recently erected in Europe. By EDWIN O. SACHS, Architect. Vol. III. London: B. T. Batsford, 94, High Holborn. (The work, complete, £15 15s. 0d. net.)



the architects. The frontispiece of Mr. Sachs's book is devoted to a general view of its exterior, and this drawing, by Mr. A. N. Prentice, we have reproduced to-day. The "Hofburg" Theatre, as this edifice is called, is the property of the Emperor, and is managed by his Lord Chamberlain; the auditorium with its grand suite of reception rooms being frequently used for Court ceremonies and the entertainment of the royal guests. The Viennese esteem this building with the greatest pride. So elaborate and costly a monument has never, perhaps, in any country been devoted to drama as distinct from the opera, and in Austria only important national buildings can compare with it for magnificence and display. Its size and proportions are, however, out of scale with requirements of chamber and classical plays. The stage, auditorium, foyers and offices are too large, and its technical appliances are elaborated out of all proportion to the requirements, and, above all, as Mr. Sachs remarks, the architectural treatment, both of exterior and interior, is far too showy and pretentious. For a national opera house such a design might have been admirable; but for the drama, in so vast a place, acting falls into exaggeration, and loses all subtlety and refinement, while the voice, perpetually strained to reach the furthest point of the auditorium, lacks its usual tone, and becomes harsh and unresonant. The building was commenced in 1874, and the opening performance took place on October 14th, 1888. The chief feature of the design is the architect's attempt to give full expression on the exterior to a scheme which is entirely governed by the lines of the auditorium and stage. The cost was nearly £550,000, and the theatre was planned to seat 1,475 persons.

Of the printing, type, paper, and binding of this standard work on theatres we can only speak approvingly, and accord the warmest praise to the whole undertaking. The considerable scale of the plans and diagrams adds very much to their value. Nothing seems to have been spared to render the volumes complete. Mr. B. T. Batsford, the publisher, co-operating with Mr. Edwin O. Sachs, the author, by uniting forces, experience, and infinite care, have produced a record worthy of their reputation, and commensurate with the importance of the subject with which these portly tomes are so usefully occupied.

#### CHIPS.

A stained-glass window has been placed on the north side of All Saints' Church, Bromsgrove. The work was executed by Messrs. Hardman and Co., Birmingham, and represents the Good Shepherd carrying a lamb. The carvings of the corbels and tops and spurs of the pillars at All Saints have been completed by Messrs. Martyn and Co., Cheltenham.

Sir F. S. Powell, M.P., has presented a site for a new church, which it is proposed to build in the Chapel Green district of West Bowling, Bradford. The church will be a memorial to the late E. B. Wheatley Balme, and will replace a mission church. It will provide accommodation for 500 persons, and the estimated cost is £8,000.

The Florid Gothic Cathedral at Cork is being redecorated by Mr. John O'Connell. A mortuary chapel is being added, Messrs. E. and P. Flynn, of Cork, being the builders, and the lighting arrangements are being rearranged and improved by Messrs. Porte, Sykes, and Co.

With reference to the alleged destruction of river scenery on the Thames at West Molesey, caused by the Lambeth Water Company erecting a high brick wall at the side of the Thames in extension of their reservoirs, a letter was read from the company at the last meeting of the Molesey Urban District Council. The company stated that the wall, which was of an ornamental appearance, designed with piers and panels, would be scarcely, if at all, visible from the river. A sloping bank would be erected above it, and when finished the river view would be as pleasing as before.

Abdication House, High-street, Rochester, formerly the residence of Sir Richard Head, Bart., M.P. for the city some 220 years ago, who received James II. there previous to that King's flight to the Continent, has just been brought under the auctioneer's hammer. It was sold for £2,200. The garden at the rear of this house, from which James escaped to the river Medway, still exists.

Mr. and Mrs. Fox, of Staincliffe, have decided to fill with stained glass the east window and the side chancel window of Holy Trinity Church, Batley Carr. The work is to be executed by Messrs. Powell Bros., of Park-square, Leeds, whose designs have been selected in competition with those of several other firms.

#### OBITUARY.

THE death occurred on Sunday of Mr. F. BELL, senior partner in the firm of Joseph Bell and Son, artists in stained glass, of College Green, Bristol. It was some nine months since that the illness which terminated fatally assumed a serious form. Of the many philanthropic and religious works in which Mr. Bell, who was 51 years of age, was engaged may be mentioned Sunday-schools, Sunday morning services for children, temperance work, night schools, and the Boys' Brigade.

Mr. H. HICKS, contractor and brickmaker, of Peterborough, died on Saturday at his residence in Park-road, in that city, at the comparatively early age of 51. For a long time deceased had been confined to his residence by serious illness. He was well known in the city and Eastern Midland Counties by reason of the important contracts he had fulfilled, and the energy and tact displayed in carving out for himself a successful financial career in life from an extremely humble position. A correspondent states that deceased had but a slight knowledge of the alphabet, and was unable to write, and was reputedly worth about £100,000. He had built the railway subway at Peterborough, engine sheds at Bedford for the Midland Railway Company, and many houses and business premises in Peterborough and neighbouring towns. Deceased was the founder and subsequently a partner in the brickmaking firm of Hicks, Gardener, and Co., from which he retired but a short time ago on terms involving a very substantial cheque. Deceased also owned sand and gravel pits at Woodstone, besides considerable landed and house property. He leaves a widow. Of late years the extensive contracting business has been carried on under the style of Hicks Bros., in which his brothers, James and William, were and are interested.

The tombstone to be erected over the grave at Bristol of the late Mr. George Müller for the orphans for whom he did so much, will be placed in position before the end of the month. It will stand at the head of the horizontal stone that now rests upon the grave, and bears the names of Mr. Müller's two wives. The stone, which is being prepared by Mr. H. Craik Smith, of the Old Turnpike Works, Totterdown, is of grey granite, and is massive in character.

The unveiling of a new altar, dedicated to the Sacred Heart, has recently taken place at St. Joseph's, Leigh, Lancs. The altar was sculptured and erected by Mr. Martyn, sculptor, Cheltenham, from the designs of Mr. Edmund Kirby, Liverpool. The design is, in general outline, a pendant to one dedicated to Our Lady, recently erected on the opposite side of the chancel. A tabernacle to harmonise with the rest of the design has been furnished by Messrs. Hardman, of Birmingham.

The heirs of the late M. Puvis de Chavannes have offered to the city of Paris 163 of his drawings on condition that they are permanently exhibited on the line in the new art gallery, which the municipality is about to instal in the Champs Elysées. They will be temporarily placed in the Musée Galliera.

At Raveningham, near Beccles, a new voluntary school and teacher's house, built at the expense of Mr. N. H. Bacon, was opened last week. The new school is of red brick, with Broseley red-tiled roof. A classroom is divided from the schoolroom by a collapsible screen; the teacher's house stands separately. Mr. A. Pells, of Beccles, was the architect, the builders being Mr. T. Hipperson and Sons, Barford.

A Local Government Board inquiry has been held at Chatham, Kent, respecting an application from the parish council for sanction to borrow £2,000 for providing a cemetery. Mr. Bromley, the architect, explained the proposal; and exhibited the plans.

The markets and baths committee of the Birkenhead Town Council have recommended amended tenders for the construction of the north end baths on a less expensive basis than the former plans, and the tender of Mr. James Merritt, Birkenhead, for the sum of £11,000, has been accepted, leaving £2,000 for the salt water and filter installations.

An order has been made by the Light Railway Commissioners, and modified and confirmed by the Board of Trade, authorising the construction of a light railway in the counties of Dumbarton and Argyll between Arrochar and Loch Fyne. The railway will be 18 miles 6 furlongs in length, commencing at Arrochar, in the county of Dumbarton, by a junction with the West Highland Railway, and terminating on the shore of Loch Fyne, in the parish of Strachur, in the county of Argyll, in connection with a new pier to be constructed in that loch.

#### PROFESSIONAL AND TRADE SOCIETIES.

LIVERPOOL ARCHITECTURAL SOCIETY.—A meeting of this society was held on Monday evening, Councillor Willink presiding. A discussion took place in regard to the Architects' Registration Bill, the chairman remarking that its principal object was not to better the standing of architects, but to prevent incompetent men entering their ranks. A resolution was then passed approving the principle of the registration of architects, and suggesting that the Royal Institute of British Architects should take steps to bring the matter before Parliament. The chairman, in introducing the subject of the Liverpool electric tramway system, said that the line from Dingle had been erected in order to give the public an opportunity of seeing how it worked, and everybody seemed to conclude that it was satisfactory. For his part he had at first formed the opinion that the streets were becoming absolutely spoiled, but now that he had got accustomed to things he had modified his views. He still felt that the overhead erection was not a thing of beauty. The wires were too thick, but those to be put up in future would be much thinner, and consequently less objectionable. As for adopting the conduit plan, he was afraid the expense would endanger cheap fares. After some discussion the subject was adjourned until the next meeting.

The improvement committee of the Manchester corporation were informed at their last meeting that 60 cottages built by the corporation at Miles Platting are now almost ready for occupation, and that the rents have been fixed at 5s. 6d. per week. The cottages will replace dwellings which have been pulled down to make room for public improvements. It is intended to give the tenants an opportunity of purchase. Forty more cottages will be built so soon as a suitable site can be obtained.

The contract for the construction of the first portion of the Gifford and Garvald Railway has been placed in the hands of Mr. Joseph Phillips, contractor, of 11, Victoria-street, London, and the whole of the capital of the company has been subscribed. Mr. Phillips was one of the partners of the firm of Tancred, Arrol, and Co., who built the Forth Bridge. The railway, as now to be constructed, extends to about ten miles. It will be a light railway, and the principal stations will be Pencaitland, West Salton, Gilchriston, and Gifford. Parliamentary powers have been obtained for continuing the line hereafter to Garvald. The line will be opened for traffic within eighteen months or two years.

The corporation of Harrogate decided, on Monday, that the borough surveyor be instructed to prepare draft instructions to architects for competitive designs for the enlargement of the Spa, and submit same to an early meeting.

The amount subscribed for the testimonial to Mr. G. H. Small, the late borough surveyor of Penzance, was £171 16s., for which sum a cheque, accompanied by a letter from the mayor, on behalf of the town council and subscribers, was handed him. This method of presentation was in accordance with Mr. Small's own wishes. Mr. Small will send his acknowledgment from Madeira.

The memorial deposited against the London County Council Bill for the construction of reservoirs and works in Wales bears the signatures of over 100 persons who are interested in the property which it is proposed to take for the Yrfon and Wye Valley Reservoirs.

A meeting of the Leeds and Yorkshire Architectural Society was held in the society's rooms, Park-street, on Monday evening, when a paper was read by Mr. A. E. Henderson, A.R.I.B.A., entitled "Byzantine Architecture in Constantinople." The lecture was illustrated by drawings, some of which were reproduced in our lithographic pages last autumn. Mr. George Corson, president, occupied the chair.

The alterations to Willington Dene Railway viaduct, which have been going on for three months, are progressing. One-half of the work has been completed, and since Tuesday all trains have passed over the new portion, while the other half of the bridge is being renewed. The whole work will be completed by the end of March.

Mr. J. Stafford Ransome, M.I.C.E., the foreign representative of Messrs. A. Ransome and Co., Limited, of Stanley Works, Chelsea and Battersea, is severing his connection with that firm on Jan. 19, and starting as a consulting engineer on forestry exploitation and timber conversion at Albion Chambers, Adam-street, Strand, W.C. He has been connected with Messrs. A. Ransome and Co., Limited, for 18 years, and has visited between thirty and forty foreign countries and colonies.



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LIGHT.

## Our Illustrations.

PASSMORE EDWARDS LIBRARY, SHOREDITCH.

This building was opened last year. The group includes the Shoreditch Public Baths. Mr. H. T. Hare, F.R.I.B.A., was the architect chosen in competition, and Messrs. Spalding and Cross were subsequently associated with him in the carrying out of that part of the undertaking. The main portion of the façade is occupied by the library, which is inscribed with the name of Mr. Passmore Edwards, who gave largely towards its cost, besides bearing the expense of the branch library at Kingsland-road for the same commissioners. The building now illustrated is in Pittfield-street, and the drawing which we have reproduced was shown at the Royal Academy last summer.

MODERN OPERA HOUSES AND THEATRES.

(For review and sketch-plan see page 58.)

LIBERAL CLUB AT HERDEN BRIDGE.

THESE premises are approaching completion. The first floor provides a public or concert room. The walls are faced with Yorkshire straight-cut parpoints with local grit-stone dressings, and the roofs tiled with Staffordshire tiles. The works are being carried out by local contractors. Mr. Jesse Horsfall, F.R.I.B.A., Todmorden, is the architect.

HOUSE AT FALINGE, ROCHDALE.

THIS house has recently been built for Mr. F. G. Padwick. The walls are of Halifax straight-cut parpoints and local grit-stone dressings. The roofs are covered with grey slates. The work was satisfactorily carried out by Mr. Samuel Nicoll, general contractor, and Mr. T. Wilkinson, carpenter and joiner, from the designs and under the supervision of the architect, Mr. Jesse Horsfall, F.R.I.B.A., Todmorden.

HOUSE AT CROMER.

THIS house was built about three years ago, and the peculiarity of plan is due to its having no view at the back. The ground floor is raised above the general ground-level, and a simple gravel path inclined all ways leads up to the front entrance. The materials are split flint facings with red brick dressings for walls, brindled Broseley tiles for roofs, and lead glazing in many windows. The panels over ground floor windows are filled with a series of carvings in brickwork of birds, beasts, and fishes (not clearly shown in drawing). The architects are Messrs. George J. and F. W. Skipper, of Norwich and Cromer.

COTTAGES AT PORT SUNLIGHT.

THIS is a group of seven cottages, inclosing three sides of a quadrangle. The treatment is exceedingly simple, with rows of wooden casement windows, and with rough-cast walls above a plinth of red brick. The rooms are more ample in their accommodation than in the majority of cottages, and each house has the exceptional

luxury of a bathroom, which Messrs. Lever Bros. wish provided for all their tenants. Messrs. Ernest George and Yeates are the architects of this block.

## COMPETITIONS.

**BELPER.**—The competitive schemes for concentrating and disposing of the sewage from Belper have been submitted to Major Tulloch, C.B., R.E. In his report to the council he dealt with the question of the Derby water supply and the proposal to erect sewage works on any part of the river above the water intake. He has awarded the first premium to Messrs. Lomax and Lomax, 37, Cross-street, Manchester, who submitted a scheme under the *nom de plume* of "Valves."

**PLYMOUTH.**—At the meeting, on Monday, of the town council, Alderman W. Law presented the minutes of the Special Works Committee, and stated that the award of Mr. Sidney R. J. Smith, F.R.I.B.A., F.S.I., of London, upon the competitive plans in relation to the improvement of Tavistock-road, had been received, but not in time to present to that meeting. It would appear in the next agenda that was issued.

## CHIPS.

Mr. N. Staniland has been appointed electrical engineer to the city council of Canterbury, at a salary of £200 a year.

A new Wesleyan Sunday-school at Greengate, Wortley, near Leeds, was opened on Saturday. The old building, erected 40 years ago, had to be demolished owing to one of the walls having been condemned as unsafe by the corporation. The designs for the new and larger school were prepared by Mr. Wilkinson, of Park-square, Leeds, and the contracts were let for about £900.

A company, with a share capital of £20,000, has been formed in Dublin under the title of the Association for the Housing of the Very Poor (Limited). The undertaking is described as an earnest endeavour to benefit the very poor of Dublin by improving their buildings; inculcating sanitary habits, stamping out infectious diseases, and encouraging thrift and industry. The directors expect a return of 4 per cent. on the capital.

At the Guildhall, Gloucester, last week, Mr. W. W. E. Fletcher, Local Government Board Inspector, held an inquiry into the Corporation's proposal to borrow £15,000 for the purposes of a new infectious diseases hospital. The plans and the site, at Vineyard Hill, on the western confines of the city, have already been approved by the Board. Provision is made at present for 32 beds, and small-pox is not to be treated on the site.

On Wednesday week, the Mayor of Cardiff formally opened a new chapel for the Bible Christian Connexion, near Victoria Park, Cowbridge-road. The building is 60ft. by 38ft., and gives accommodation on the ground floor for 356, and in the galleries for 238 worshippers, exclusive of the choir. There are a vestry and small library attached to the chapel, and behind is a schoolroom about 46ft. by 25ft. on the ground floor, with a second schoolroom of equal dimensions on the first floor. The contractors were Messrs. Knox and Wells, of Cardiff, and the architects Messrs. Veall and Sant. The buildings are Early English in style. The contract price was £4,100.

The Leeds Board of Guardians adopted, on Monday, the plans of Mr. J. H. Morton, F.R.I.B.A., of South Shields, for a new workhouse at Hunslet, Leeds. The building is to be similar in design to the workhouses at present in course of erection at Doncaster and at Stamford, Lincolnshire, from plans by the same architect.

An Accrington correspondent of the *Yorkshire Post* states that negotiations are proceeding for a great brick and tile and terracotta combination. The initiatory steps are being taken among the Accrington brick and tile and terracotta companies.

Mr. H. P. Boulnois, C.E., an inspector for the Local Government Board, held an inquiry at Crewe on Wednesday week into an application made by the town council for sanction to borrow a sum of £26,000 for the purpose of electric lighting, and £980 for works of private street improvement. Mr. G. Eaton-Shore, borough surveyor, and Mr. B. Hopkinson, of Manchester, electrical engineer, explained the proposals.

In the case of the application of Thomas Axtell, jun., Oxford, builder, an order of discharge has been suspended until a dividend of not less than 10s. in the pound has been paid to the creditors, with liberty to the bankrupt at any time after the expiration of two years to apply for a modification pursuant to section 8 of the Bankruptcy Act, 1890.

## LEGAL INTELLIGENCE.

**A QUESTION AS TO ARCHITECTS' CERTIFICATES.**—Sheriff Gillespie has issued an interlocutor in an action recently raised in the Kirkcaldy Sheriff Court affecting the question of architects and their granting of certificates. Mr. Waddell, joiner, Burntisland, sued Rev. Mr. Dobie, Kinghorn, for £73 8s. 9d., as the value of joiner work he had done under a contract. Mr. Little, Kirkcaldy, was the architect under the contract, and the work had to be completed to his satisfaction. Mr. Little refused to grant a certificate for the work done, and insisted on certain conditions being complied with. The pursuer alleged that throughout the whole course of the work he had been needlessly and vexatiously interfered with by Mr. Little, and his demands were fanciful and faddy. Defender intimated that he was prepared to pay for the work whenever the architect granted his certificate. His lordship finds that pursuer has stated no relevant ground which would warrant the court in dispensing with the certificate of Mr. Little as a condition of payment. He therefore dismisses the action, and finds the defender entitled to expenses. His lordship, in a note, adds that the gist of the pursuer's complaint was that Mr. Little had insisted on exact compliance with the terms of the contract—in other words, that Mr. Little had done his duty as an architect; then pursuer went on to say that Mr. Little had been fanciful, but that was a matter of opinion. He was not prepared to say that a contractor would have no remedy if the architect persistently refused to grant a certificate, without stating what was wrong in the contractor's work, and what he required to be done; but it was tolerably plain from the condescendence as a whole, and still more plain from the correspondence, that he knew what Mr. Little wanted, and, after having once stated his requirements, the architect was not bound to repeat them.

**CONTRACTOR V. CEMENT MERCHANTS.**—WELDON V. THE RUGBY PORTLAND CEMENT COMPANY.—In the Crown Court, before Mr. Justice Mathew, at Birmingham Autumn Assizes, last week, a case was tried, in which the plaintiff was Herbert Weldon, contractor, Chamberlain-square, Birmingham, who sued the defendant company for damages for breach of contract. The plaintiff was the contractor for the Coventry main sewage scheme, and he entered into a contract with the Rugby Newbold Cement Company, the predecessors of the present defendant company, for the supply of 900 tons of cement at 35s. 6d. a ton. During the currency of the contract that company transferred their business to the Portland Cement Company. But the cement supplied by the Portland Cement Company was rejected by the engineer of the works, on the ground that it was not in accordance with the specification, and on this being brought to the defendants' notice, they said they could not turn out cement of the fineness stipulated for in the specification, and they could not go on with the contract. The question his lordship had to consider was whether there had been substitution of persons for the performance of this contract. Plaintiff was examined as to the contract and the correspondence which ensued. Mr. Jelf cross-examined to show that the Newbold Company accepted a contract under conditions which their machinery was not capable of complying with. Mr. J. E. Swindlehurst, engineer to the Coventry Corporation, stated that the first delivery of cement passed the tests except that as to fineness, but even on that point it was practically right. The subsequent deliveries were very far from passing the test. For the defendants, Mr. Jelf called Isaac Brooks, their manager, who was present at an interview between Mr. Alfred Walker, one of the members of the firm, and Mr. Wenham, who was liquidator of the Newbold Company, at the time the transfer took place. Mr. Wenham then said that so far as he knew the Newbold Company had no running contracts, and Mr. Hurst, who was the manager of the vendor company, confirmed that statement. Witness did not at the time know of any specification such as the plaintiff relied upon; and, further, neither their machinery nor that which they took over was capable of producing such fine cement. In every other respect the cement was good. It was admitted that the plaintiff had incurred an expense of £387 in carrying out his contract with the corporation, and judgment was given by his Lordship for this amount. Mr. Jelf was given leave to contest defendants' obligations under the contract in a higher Court.

One of the windows in St. Saviour's Collegiate Church, Southwark, is to be fitted with stained glass, representing scenes from "The Pilgrim's Progress," as a memorial of John Bunyan.

The guardians of the East Ashford Union have just completed a long-needed improvement at the workhouse at Willesborough by erecting new buildings, the approximate cost of which, together with alterations and improvements in the administrative block, is put at £6,000.

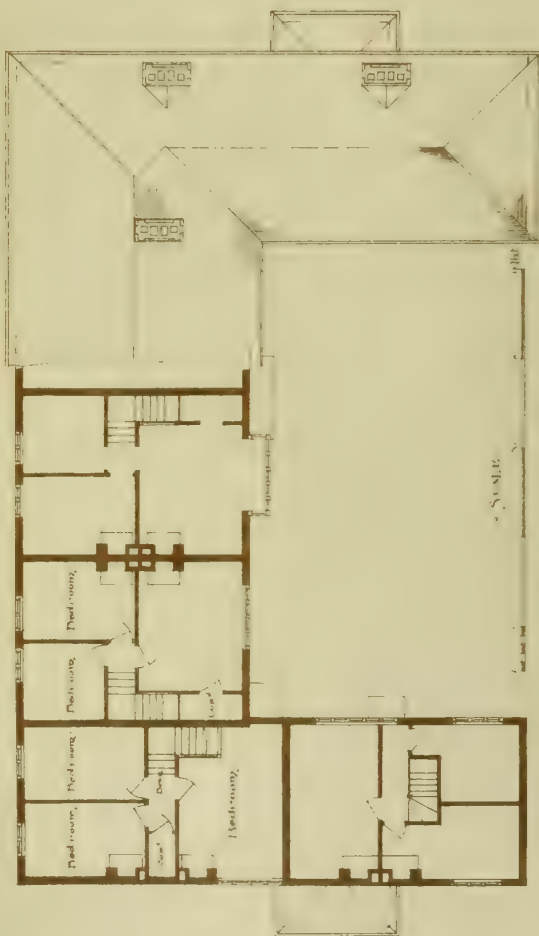






• A GROUP OF 7 COTTAGES PORT SUNLIGHT •

• ERNEST GEORGE & YEATES ARCHTS



• FIRST FLOOR PLAN •



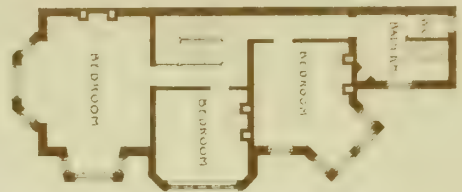
• GROUND FLOOR PLAN •



HOUSE AT CROMER. GEO. N. SKIPPER F.R.I.B.A. & F.W. SKIPPER ARCHT. ECTS.



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.









## Building Intelligence.

**ADDINGTON, CROYDON.**—The chancel at the parish church, which has been restored and decorated as a memorial of the late Archbishop Benson, will be reopened and dedicated on Friday evening in next week, January 20. The work of restoration, which was planned during Archbishop Benson's lifetime, consists of the reopening of a Saxon window which had been blocked, probably, for six centuries, and the construction of an hexagonal oak ceiling on the under side of 13th-Century roof timbers, in place of the lath and plaster ceiling which, at some period, had been substituted for the original boarding. A low reredos, of perforated white alabaster scroll-work, with statuettes of four archbishops, under canopies, has been placed below the eastern window. The walls of the church are adorned with varied diaper work, figures, and escutcheons. On the north side are the armorial bearings of Trinity College, Cambridge, Wellington College, Lincoln, and Truro—all closely associated with the late Primate's lifework. On the opposite wall are those of the five predecessors of Archbishop Benson, all of whom resided at Addington Park. Below the shields are figures of Cosmas on the south wall and Damian on the north wall, dedicated in Addington Church; and on the east wall, the Virgin Mary and St. Catherine are represented, and at the apex of the roof, the Christ in Glory, with adoring angels on either side. The architect is Mr. Arthur J. Reeve.

**AYR.**—A meeting of the town council was held on Monday, to receive a supplementary report from Mr. H. J. Blanc, architect, Edinburgh, relative to the rebuilding of the town hall, dealing with three further proposals in addition to two previously submitted, for the utilisation of the present site in High-street. After referring to the various schemes, Mr. Blanc stated that he was of opinion that a satisfactory and safe hall to accommodate about 1,500 people could not be constructed upon the site, and would not justify the necessary expenditure. The site might, however, be utilised for other buildings. A hall to meet all requirements on an independent site could be erected for about £15,000 or £16,000, exclusive of the site. The report was adopted, and it was remitted to a committee to proceed with the reconstruction of the police-court, and to consider how the rest of the site could be best utilised. The old site has therefore been virtually abandoned.

**BOUNDARY STREET.**—The London County Council has taken over from the contractor another block of dwelling-houses on the Boundary-street Estate, Shoreditch. The Council acquired the estate, of over 17 acres, in 1890, and the first blocks were opened three years ago. The scheme contemplates the erection of 23 blocks, of which 17 have been completed and 15 occupied. Two are nearly finished, and four will be completed during the year. The new dwellings are Domestic and Tudor in character, with tiers of bays and balconies running round. The tenements are in suites of two or three rooms, the rent for the latter, which will accommodate husband, wife, and four children, being 8s. 6d. per week; and for the former, which will accommodate husband, wife, and two children, 6s. 6d. The drainage is carried outside the tenements by iron pipes to the sewers, and the tenants are provided with galvanised iron dust-bins in the yard, and galvanised iron pails. The County Council are supplying their own gas to the dwellings. All the rooms are provided with picture-rails, and trees and shrubs are planted in ground round the building. Shops are provided on the estate for the convenience of the tenants of all the blocks, but only one of a kind, and workshops are let to various tradesmen at rentals varying from 3s. 6d. to 10s. per week. There is also a central laundry, and hot and cold baths are provided at a nominal charge. The estate has a terraced, circular garden, ascended by flights of steps, and in the centre there is a stand for the County Council band.

**CALLANDER, N.B.**—The Callander and Trossachs Hydropathic, which was destroyed by fire about five years ago, and has just been reconstructed, was opened the other day by the Lord Provost Richmond, of Glasgow. The original building was built in 1882 at a cost of £45,000. Two years later it passed into the hands of a limited liability company, by whom it

was conducted until it was burned. The new building, designed by Mr. James M. Munro, architect, Glasgow, is a four-story structure of white sandstone in a domestic type of English architecture. The overhanging oriel windows are finished with half-timbered gables, while the angles of the building are carried up to form towers, and balconies are provided from which the scenery of the Vale of Teith, the Pass of Leny, Ben Ledi, and the mountain range surrounding the Trossachs can be seen. At the main entrance, which, owing to the levels of the site, is on a level with the first floor, is a portico, through which access is gained to the panelled entrance hall and thence to the main corridor, which runs along the entire building, and measures 156ft. in length by 12ft. in breadth. Along the entire front of the first floor is a projecting balcony. The public rooms are spacious apartments, with panelled ceilings, and there are many suites of private sitting and bedrooms. Messrs. Wylie and Lochhead, Ltd., have been responsible for the furnishings. The baths include Turkish, Russian, and other types.

**CARDIFF.**—A new Bible Christian church and schools was opened last week in Cowbridge-road. The buildings comprise a chapel, to accommodate about 625 worshippers, with vestry and small library attached, also two schoolrooms, each 46ft. by 25ft., with kitchen and lavatory accommodation, and a caretaker's cottage. The buildings are carried out in local stone shoddies, with Corsham Down stone dressings, in the Early English style of Gothic architecture. The contractors were Messrs. Knox and Wells, of Cardiff. Messrs. Veall and Sant were the architects.

**HARROGATE.**—The Crown Hotel is undergoing extensive alterations and additions, under the direction of Mr. W. J. Morley, F.R.I.B.A., Swan Arcade, in Harrogate. The exterior of the new block, which will face the Royal Baths in Montpellier-road, will be of stone, having a lofty tower at the angle joining up to the present building and a gable. An entrance hall and lounge is to be made, 42ft. by 32ft., with mahogany wainscoting, round marble columns, and panelled and enriched ceiling. From the hall there will be a passenger lift to each of the upper floors. A dining-room will be constructed, 63ft. by 58ft., with oak wainscoting round, broken up by marble pilasters, with panelled ceiling and marble columns supporting the same. New billiard and smoking-rooms are to be provided, and also lavatories and cloak-rooms. A large recreation and ball-room is also arranged, with a stage and ante-rooms at one end, and a winter garden at the other. A gentleman's needle-bath, with dressing boxes attached, is provided in the basement, and with lavatory adjoining. The kitchens will be enlarged and improved. The public billiard-room will be enlarged. The oldest parts of the present house containing inferior bedrooms will be pulled down, and about fifty new bedrooms provided. A new laundry and washhouse is to be built, and servants' bedrooms provided in the same block. The building is to be warmed throughout by hot-water radiators, &c.; fire appliances will be provided on each floor, and fire-escapes at different points. The drainage is to be entirely new.

**LEITH.**—During the past year the building trade in the burgh has been exceptionally busy. A large number of villas have been erected, especially in the Trinity district. Many large tenements and warehouses are at present in course of erection, the latter including the premises of the Cork Company in Easter-road, of Messrs. R. H. Thomson and Co., wine and spirit merchants, Constitution-street; Messrs. J. M. Scott and Co., wine and spirit merchants, Quality-street; the new Cold Storage Company, Tower-street. The Victoria Public Baths and electric lighting station also have been erected in Great Junction-street; while the construction of the North British Railway Company and the Caledonian Railway Company is proceeding apace. The construction of the passenger station at the foot of Leith-walk for the North British Railway Company is well advanced. The Leith Dean of Guild Court have dealt with 156 applications in the course of the year.

**SOUTHAMPTON.**—At the last meeting of the Southampton Board of Guardians an important report was submitted from Messrs. Mitchell, Son, and Gutteridge, the architects, relative to the proposed new workhouse infirmary on the Shirley Warren site. The buildings proposed to be

erected are for infirmary purposes only, and are placed on the highest portion of the site, and for which about one-third of the entire area is set apart. This will provide space for future additions as may be necessary. The remaining portion of the site will be available for other classes of the workhouse, should it ever be found necessary or advisable to remove them from their present location. The buildings now to be erected comprise the following blocks:—Lodge and entrance-gates, nurses' home, observation block, doctors' and matron's block, with committee room, kitchen and stores block, receiving and central administration ditto, two women's pavilions, three men's pavilions, and small maternity pavilion, laundry, boiler-house, mortuary, workshops, sheds, &c. The accommodation will provide 120 beds for sick women, eight for maternity cases, and 184 for sick men. Covered ways connect the various sick blocks with the kitchen and administrative department. The administrative blocks and offices, as laundry, boiler-house, &c., have been arranged and provided to be of sufficient area to take the further fittings wanted to deal with a considerable increase in the number of sick inmates. As regards elevations, the whole of the blocks were shown to be of the simplest character possible, in red brick with slated roofs. The only buildings that can be said to have any pretension to architectural effect are the lodge and gates, the nurses' home, and the main administrative block. These will have a little stonework used, but very sparingly, and will depend for their general effect principally upon their grouping and outline. The estimated cost for the whole of the works enumerated is £65,000.

**WAKEFIELD.**—The new infirmary and steam laundry at the workhouse will be opened on Thursday, the 19th inst. The new buildings will accommodate 150 patients and the staff and servants. They are situated at the rear of the old workhouse buildings, in Park-lane. They comprise in the centre, administrative block. To the left of this block, 42ft. distant, and connected by covered corridor, is the men's pavilion, having three wards respectively, for 10, 20, and four beds, two day-rooms, separation ward, ward kitchen, and stores, also four sets of baths, lavatories, sinks, and w.c.s, in special projecting buildings with cut-off corridors. There are two stone staircases to the first floor, as well as lifts for the patients. The women's pavilion is on the right, and has precisely the same accommodation. The first floor of the administration block contains large maternity ward, two separation wards adjoining, nurses' sitting-room, ward kitchen, stores, bathroom, lavatory, &c. On an upper story there are 13 bedrooms for nurses and servants. The first floor of each pavilion on the west for males and on the east for females has the same accommodation in each case as on the ground floor, with the addition of outside balconies. The workhouse site, old and new, is now inclosed with brick walls coped with worked stone, surmounted by iron railings. All outside walls are faced with Cookson's red pressed bricks, the stone for the dressings being from Huddersfield. The roofs are covered with blue Bangor slates, the floors are of fireproof construction, and are finished with oak blocks in wards and rooms, while the corridors, kitchens, stores, &c., are smooth granite-faced cement concrete. The projecting bathrooms, &c., are faced inside with ivory-white glazed bricks. The plaster work inside throughout is chiefly in parian, having all external angles rounded and all internal ones hollow. The joiners' work has plain chamferings, with rounded corners. The building is fitted throughout with the electric light. There is also erected in the south-east corner of the site a mortuary and post-mortem room. The laundry buildings are over 200ft. long, by 45ft. wide. At the south end is the boiler-house, with its two Lancashire boilers, engine-house, cumulator room, and stores. Next is the washhouse, divided into three compartments, and a corresponding number of receiving rooms, beyond is the finishing room, the drying closets, with flannel drying-room over, and the delivery rooms, while at the north end, with separate approach, is the disinfecting place. The chimney stack is at the south-east corner, and is 150ft. high. The buildings are of the same design and built with similar materials, and in the same manner as the infirmary block. Local contractors generally have been employed. Mr. William Watson, of Wakefield, was the architect, and Mr. John Kelly, the clerk of works.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 382, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LIX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—J. G. and Co.—S. F.—T. D.—L. M. and Co.—R. O. H.—L. K. and F. Co.—H. A. B.—G. N.

## Intercommunication.

## QUESTIONS.

[12152].—**Architect's Charges.**—May a subscriber to your valuable journal for fully 30 years trouble you with an inquiry as to professional charges on which he would be glad of your experienced opinion? An architect is retained to design and carry out extensive alterations to a large country house of a very troublesome and involved nature. Exhaustive drawings are prepared of every part, showing sections of all rooms with the fittings shown on as working plans; the fittings are afterwards elaborated to 1/4 in. scale with full-size mouldings, consisting only of moulded fibrous plaster ceilings, dados, single fire arches, and chimney-pieces, with overmantels—no furniture. Provisional sums are allowed in estimates for these fittings. The works proceed, and as the time approaches for arranging the preparation of the fittings, the owner, without advising the architect of his intention, or questioning in the least his experience and taste, instructs other firms to prepare these fittings of their own design, and, as the architect thinks, incongruous. Although these firms are well aware of the work being in the hands of an architect, they do not communicate with him to ascertain if their work will harmonise with his intentions in any way. At completion the provisional sums are deducted by the architect in checking accounts, and he makes his own charges on the net contractor's work, 1 per cent. being allowed for the troublesome character of the work. The owner, however, disputes the architect's right to charge 5 per cent. on a low nominal estimate of the fittings introduced, there being no account of their cost to hand—indeed, owner declines to allow any sum whatever, notwithstanding designs were made in detail for all, with perspective sketches of portions for explanation. The house being situated at some distance in the country, a charge of 9s. per hour was made on the time only occupied in journeys, exclusive of the time inspecting works. Can this be considered an excessive charge?—or 1 1/2 per cent. charge on estimated cost of other additions—a wing, apart from former work, for which plans and designs were made but abandoned? The relations between owner and architect are perfectly good, and there has been no misunderstanding throughout the work. The matter of fittings was carried out in all good faith by owner, and just to gratify his own fancy at the time. In fairness to owner as well as makers of fittings, it should

also be stated that in the provinces there are many so-called architects who have been trained purely as engineers, civil engineers, and surveyors, to say nothing of land agents. These blossom into architects if they can only secure work, and the public are not very discriminating as to any difference between any of these and architects proper. As a rule, the gentlemen referred to find difficulties in preparing elaborate and technical details of fittings of pure design, and appeal therefore to manufacturers for what they require, and wisely, no doubt, in such case. It is possible such has been the owner's former experience, and may be some excuse for the makers of fittings. A copy of scale of architect's charges was sent to the owner. The architect concerned in this statement has had abundant experience of the best work, and has been many years in practice, having been articulated in the early "sixties" to a high-class firm of architects—F.R.I.B.A.'s. He is, however, inexperienced in situations of this description.—A.A.T.

[12153].—**Air-space in Cow Byres.**—How much cubic space should each cow have in a shed?—X.

[12154].—**Dictionary of Terms.—Perspective.**—What is the best and most comprehensive architectural dictionary? Also the cheapest and most concise work on bird's-eye and interior perspective?—INQUIRER.

## REPLIES.

[12142].—**Damp Cellar.**—I should advise the cellar to be lined with Callender's Bitumen Sheeting. See advertisement in "B. N."—ANCHTROT.

[12143].—**Payment for Plans.**—For plans without specifications you can charge, say, 2 per cent.; but if the cost of villa is small, "Young Practitioner" would be justified in charging by time. The 2 1/2 per cent. includes generally plans, specifications, and details, but the charge should be regulated by the trouble and time involved.—A. B.

[12144].—**Perspective.**—Several elementary treatises are to be had, and there is one in Lockwood's series. Mr. Middleton has published a concise little book on the rudiments of the subject, and the work of J. H. Spanton, Gold Medalist of the R.A., is a very complete course. It is designed to meet the requirements of the Science and Art Department, if that is any recommendation, and is published by Macmillan.—G. H. G.

[12145].—**Factory Chimneys.**—The chimney stack should be built in two thicknesses, stiffened at intervals by ribs of brickwork. A new chimney in New York for the Metropolitan Street Railway Company is 350ft. in height, and is built in two thicknesses. At the bottom of hollow portion the outer thickness is 24in., and the inner 16in., the cavity being 20in. wide. The ribs divide the cavity into twelve parts. The internal diameter is 22ft. The upper thicknesses are respectively 20in and 8in. for outer and inner parts.—A. Z.

[12150].—**Level.**—I believe Stanley sells a useful and compact instrument that would suit your purpose, consisting of a spirit-level about 6in. between an aperture and cross wires. It can be mounted on a stick or tripod, and made to revolve on a graduated plate divided into degrees. For many years I have used such an instrument for taking levels of sites of buildings, roads, &c. It can be easily carried in a side-pocket if furnished with case. Mine has a graduated vertical arc as well, so as to take slight vertical angles or rises of ground.—G. H. G.

[12151].—**White Flooring.**—White flooring is less durable than the "red," both being the same as regards seasoning. Archangel whitewood is in high repute for flooring, as the fibre is of a soft nature, and the wood is free from knots, and can be more easily worked. Redwood, if good, is certainly harder.—G. H. G.

## CHIPS.

Extensive additions are being made to Eton College, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

Mr. L. O. Lathrop, who died at Plano, Ill., December 25, had studied architecture with Mr. J. M. Van Osdel, formerly a well-known architect of Chicago, and assisted in the building of the Tremont and Palmer Houses. He was afterwards engaged in bridge service for the Government.

New lecture-hall and school buildings, in connection with Wesley Chapel, Birkenhead, were opened on Thursday, January 4. Accommodation is provided for over 700 children, the cost being about £3,000. The contract has been successfully carried out by Mr. James Merritt, from designs and under the superintendence of Mr. T. W. Cubbon, architect, of Birkenhead.

Mr. Joseph Lamb, senior partner of the firm of J. and R. Lamb, died at his home in New York last week, at the age of sixty-five. Mr. Lamb was born in England, but went to New York when very young, with his father, the architect of Niblo's Garden. As he grew up he devoted himself to the study of ecclesiastical decoration, and, with his younger brother, founded the firm which has become well-known all over the United States.

Stand Independent Church, near Manchester, erected some thirteen years ago, and recently decorated internally, has just had given to it an oak font cover. It has been designed by Mr. J. P. Pritchett, of Darlington, the architect who designed the church and superintended the decorations, and it has been made by Messrs. Hems and Sons, church carvers, of Exeter. The cover is octagon and of pyramidal form, about 4ft. high, and has on each face two tiers of canopies, with carved crockets and finials, the whole being surmounted by a larger finial.

## WATER SUPPLY AND SANITARY MATTERS.

CALCUTTA.—A scheme for the extension of the unfiltered water-supply in the town area was carried out during the year 1897-98 by Messrs. Martin and Company, at a cost of £54,000 sterling, the work being completed in March, 1898. This has resulted in an extension of the unfiltered water main by more than 15 1/2 miles, the total length of pipe now amounting to 96-50 miles, with which are connected 1,906 premises, 135 public conveniences, 320 sewer or flushing chambers, and 2,973 ground hydrants; 86 bathing platforms, which were formerly connected, have since been severed and connected with the filtered main. Besides this, a second project for extending the unfiltered water-supply in the suburbs is also being carried out by Messrs. Martin and Company. The length of new pipe is estimated to be 221,700ft., and the cost £50,000 sterling. Some delay in carrying out the scheme has occurred, but pipes have been laid along 175,832ft. A site for the pumping station for the suburban unfiltered water-supply was chosen, and the works are being constructed.

The corporation of Much Wenlock have appointed as borough surveyor Mr. W. E. Woollans, at present assistant surveyor to the urban district council of Whitchurch, Salop.

The exhibition in the City Gallery at Guildhall during the approaching season will consist of works in oil and water-colours by Turner, illustrating the various periods of his art and phases of his genius; likewise a selection of examples by deceased artists of the British School, such as Reynolds, Gainsborough, Romney, R. Wilson, Constable, and Etty.

The urban district council of Handsworth have applied to the Local Government Board for sanction to borrow £17,500 for works of sewerage, £15,030 for the purpose of their depot in Queen's Head-lane, £4,000 for works of street improvement, £2,362 for the purpose of the Victoria Park, £2,200 for the erection of a fire-station, and £770 for their refuse destructor in Queen's Head-lane.

The town council of Batley have resolved to erect a town-hall for the borough, and have appointed a committee to make inquiries as to site, probable cost, &c. The idea which finds most favour is that the site should be that at present occupied by the disused market-hall, and that the hill rising from Commercial-street and Wellington-street should be lowered. It is understood that the cost of the scheme shall not exceed £30,000.

Mr. W. O. E. Meade-King, Inspector to the Local Government Board, held an inquiry at Radstock, on Friday, into the proposed loan of £1,700 for the purposes of a water supply, which sum the Radstock Urban District Council have applied to the central board for sanction to borrow.

Messrs. Powell and Sons, of the Whitefriars Glass Works, London, have just erected a stained-glass window in the east end of Mainstone Church, Salop. The subject is the Adoration of the Risen Christ. The risen Saviour stands out in the upper part of the centre-light in His character of Prophet, Priest, and King; in the lower part the child Jesus sits on His mother's knee, with the young John the Baptist kneeling before him, whilst in the foreground a lamb rests in repose.

The new wing of the Longmore Hospital for Incurables at Edinburgh was formally opened by the Duchess of Buccleugh on the 5th inst. It is the third enlargement of the present building, erected in 1878, forms an eastern wing, contains four large and four minor wards, and raises the accommodation from 70 to 100 beds. A new laundry, chapel, kitchen, and mortuary have also been added to the institution, the total cost of the present extension being £25,000.

Two Local Government Board inquiries were held at Rotherham on Friday by Mr. W. G. Wilcocks, M.Inst.C.E. One had reference to the gasworks extensions at Rotherham, and it was stated that some £40,000 was required before the town could be placed in a satisfactory condition with regard to its gas supply. The other was an application for sanction to borrow £850 for sewage disposal works at Greasborough. The object of the extensions at the sewage works is to meet the requirements of the West Riding Rivers Board.

Information is now forthcoming of the estimated cost of the improvements proposed to be effected under the Bill deposited by the London County Council. Sir Alexander Binnie, engineer, and Mr. Andrew Young, valuer, estimate the cost, including the purchase of the necessary property, as follows:—New street (Holborn to Strand), £1,862,500; Southampton-row (widening), £272,000; Wandsworth-road, Lambeth (widening), £63,000; High-street, Kensington (widening), £308,500; Cat and Mutton Bridge, Shoreditch (reconstruction), £71,800; making, with other items, a total of £5,591,800. No credit is taken for recoupment by resale of property.



## Our Office Table.

THE vandalistic proposal of a section of the town council of Southampton to remove the picturesque Bargate which spans the main thoroughfare of that otherwise very commonplace county town, is arousing uncompromising opposition from the more public-spirited residents. As Mr. G. D. Leslie, R.A., in a letter to the *Times* points out, an alternative route might surely be devised for the accommodation of tram-cars rather than the destruction of this interesting historic relic, and, indeed, the proposal is under consideration to remove the very ordinary properties on either side, and so leave the gate as an island in the widened High-street. What is the Society for the Protection of Ancient Buildings doing in the matter? On the lowest ground of utilitarianism the gate has a considerable value to the town as an attraction to American tourists and visitors, and we trust the inoclasic proposal will be scouted by the Southampton Corporation. Mr. Leslie pertinently asks "With what force can we as an art-loving nation, presume to dictate to the municipality of Florence as to intended street alterations in that city, when such waste of ruthless destruction is contemplated in one of the most famous towns in our own land?"

THE decision of Yarmouth Corporation to erect an overhead electric-light cable, crossing the Harbour at a great height, has excited much interest in electrical circles. The experiment is an entirely novel one in Great Britain, though in the States suspensory communications of the kind are by no means a rarity. The problem the Yarmouth Corporation had to solve was how best to take its electricity to a large population across the river, which is over 300ft. wide. A subway was out of the question, on account of the enormous cost. A submerged cable with the necessary land attachments would have meant an outlay of some £2,000, and been liable to derangement through shipping casualties, and so the borough surveyor (Mr. J. W. Cockrill) hit upon the bold expedient of an overhead cable. This is to be carried across the harbour from a point near the generating station on the South Denes by means of two lofty steel masts which will each be placed 40ft. from the key on either side of the river. The electric cable will be suspended between these, over a clear width of 400ft., while the height at the "sag," in the centre of suspension, will be 170ft. above the highest tides, thus affording vessels plenty of head-room, and doing away with the troublesome necessity of striking their topmasts ere they pass up stream. The total cost, including foundations on shore, &c., will be just under £1,000, and tenders have already been received for the erection.

AN aerial tramway is also being employed in the works for the rebuilding of Vauxhall Bridge, the contractors for which, Messrs. Pethick, of Plymouth, have commissioned Mr. J. M. Henderson, of Aberdeen, to carry a suspension cableway across the stream. This consists of a wire hawser 6½in. in circumference, crossing the river with a span of about 920ft. and suspended from two uprights or masts, 77ft. high on each bank. On this cable runs a trolley from which can be hung a load of any desired character up to a weight of four tons. A stationary engine at the Westminster end hauls the trolley forwards and backwards as required, by means of an endless rope, and another rope enables the raising and lowering of the roads also to be controlled from the bank. The apparatus will be employed in removing old material and conveying new into position, and by its adoption the free navigation of the river will be less interfered with than by the extensive stagings which the contractors would otherwise have been obliged to construct.

OWING to the wretchedly dilapidated condition into which the church of St. Luke, Bristol-street, Birmingham, has fallen, the City Council, acting on a report by Mr. John Price, the borough surveyor, have issued a peremptory order for its immediate demolition. St. Luke's is one of four churches erected by the Birmingham Church Building Society nearly fifty years ago, all of which quickly fell into a deplorable condition. The other churches were St. Andrew's, Bordesley, St. Mark's, and St. Stephen's, Newtown-row. These, together with St. Luke's, were built with external walls of soft red sandstone, an interior wall of brick, and a filling of rubble between the

two. St. Luke's, with its unsightly timber shoring, has for some years presented the aspect of a church upon crutches, and recently stones have fallen from the tower through the roof. It has reached a condition past all propping-up, and the closing services were held on Sunday. It has been decided to sell the building materials of the church by tender, in order that it may be taken down as early as possible. Tenders are also to be invited for the purchase of the organ and such portions of the fittings as are not likely to be of further use. The memorial tablets will be carefully removed from the walls and stored until arrangements can be made for their re-erection. Arrangements have been made for the use, during the rebuilding of the church, of an assembly-room in Bristol-street, in the building formerly used as Coldicutt's Mews, and less than a hundred yards from the church. This will be seated with chairs for 500 persons.

AT a select dinner-party, given by the ex-mayor of King's Lynn in the card-room of the town hall on Thursday evening, the present mayor being one of the guests, Mr. E. J. Silcock was the recipient of a handsome silver salver, in recognition of his services during the eleven years that he held the post of borough engineer. The gift came as a testimonial from present and past members of the corporation, to whom subscriptions were confined. The salver (which was supplied by Mr. W. J. King, of High-street), bore this inscription:—"Presented to Edward J. Silcock, A.M.I.C.E., F.G.S., by past and present members of the corporation of King's Lynn, in recognition of his services as borough engineer. August, 1898." The plate was accompanied by an illuminated address, with a list of the subscribers.

THE United States Consul at Chemnitz reports that there is a movement on foot to furnish working men with better dwelling-places in Germany. At present they are crowded into buildings which often look like barracks. The proposed houses will be built upon plots of ground about 16ft. 6in. wide by 102ft. deep, thereby allowing for a front yard for flowers and a back yard for a vegetable garden and shed, the latter for the keeping of poultry or some domestic animal. The houses will contain five rooms. A parlour and kitchen will be on the first floor, the parlour containing a porcelain stove and heating-pipes, and the kitchen a wash-boiler and stove. The three bedrooms on the second floor will easily hold five or six persons, and can be made to accommodate ten. In the largest, an iron stove will be placed. A pump will provide water where the city waterworks do not extend to the house. The cost of such a house and plot of ground when a number are built at a time will be between £170 and £190. They will let for about £9 a year—that is for the same price the working man has to pay for two rooms in the barrack-like tenements of the large cities.

### MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Royal Institute of British Architects. Award of Prizes and Studentships. 8 p.m.  
Society of Arts. "Bacteriological Purification of Sewage," Cantor Lecture No. 1, by Dr. Samuel Rideal. 8 p.m.

WEDNESDAY.—Society of Arts. "Canals and Inland Navigation in the United Kingdom," by L. F. Vernon-Harcourt, M.A. 8 p.m.

THURSDAY.—Society of Arts. "Railways in Burma and their Proposed Extension Across Yunnan," by J. Nisbet, Imperial Institute. 4.30 p.m.

FRIDAY.—Architectural Association. "Ancient and Modern Buildings in Palestine." By Beresford Pite, F.R.I.B.A. 7.30 p.m.  
Glasgow Architectural Craftsman's Society. "The Housing of the Working Classes," by Peter Fyfe, F.R.S.E. 8 p.m.

### THE ARCHITECTURAL ASSOCIATION.

JANUARY 20th.—ORDINARY MEETING, at 9, Conduit-street, W. 7.30 p.m. Illustrated lantern lectures, "ANCIENT AND MODERN BUILDINGS IN PALESTINE," by Mr. BERESFORD PITE.  
E. BOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

The partnership heretofore subsisting between T. Cox and R. Marmon, architects and surveyors, Liverpool, under the style of Cox and Marmon, has been dissolved.

The new board schools, Conisborough, near Rotherham, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied Messrs. E. H. Shorland and Brother, of Manchester.

## Trade News.

### WAGES MOVEMENTS.

SETTLEMENT OF THE SCOTTISH FURNITURE TRADE DISPUTE.—After continuing over ten months, the dispute in the Scottish furniture trade was amicably settled on Friday at a joint conference of employers and operatives, held in the Religious Institution Rooms, Glasgow. Six representatives were present from each side. These representatives were:—For the Scottish Furniture Manufacturers' Association: Messrs. Joseph Johnstone, Lochwinnoch; W. A. Wylie, Glasgow; A. Thomson, jun., Glasgow; John Stevenson, Beith; George Taggart, Glasgow; and Robert Balfour, Glasgow and Beith. For the men: Messrs. John Reid, Alex. Gossip, James Innes, Sutherland, Macleod, and Tank (London). Mr. Joseph Johnstone, Lochwinnoch, presided on behalf of the employers, while Mr. John Reid acted in a similar capacity for the men. Mr. Alex. Russell, writer, secretary of the Scottish Furniture Manufacturers' Association, was also in attendance. The men's representatives conceded the principle of piece-work on "repeat" work, on the understanding that prices would be fixed by collective bargaining. At first, it is understood, the men contended that prices should be fixed for districts as a whole; but, after a deal of discussion, they agreed that prices should be fixed in shops. They also strongly requested employers to allow operatives the liberty of objecting to or accepting piece-work at pleasure. The employers, however, declined to agree to this.

DUNDEE.—The Dundee operative painters have been granted an increase in their wages to the extent of ½d. per hour, to take effect from Monday last. The standard rate of pay will now be 8d. per hour.

### CHIPS.

On Monday, the North Staffordshire Railway Company opened their double line between Clifton and Ashbourn for passenger and goods traffic. This is the completion of the first part of the double line it is the intention of the company to make as far as the Churnet Valley Junction at Rocester.

The hospitals committee of the Leeds Corporation visited, on Friday, the fever hospital at Manston, and, along with the consulting architect, Mr. H. E. Hall, of London, went over the Killingbeck Hall estate, which was recently purchased by the corporation at a cost of £21,250, for the purpose of being used as a site for the proposed smallpox hospital.

At the parish church, Cleve, Somerset, on Friday, a window, which has been erected by the Alford family as a memorial to the late Rev. Charles Richard Alford, D.D., sometime Bishop of Victoria, Hong Kong, was dedicated. It is in the north transept, and consists of two lights with one subject, "St. Paul preaching to the Corinthians," the features of the late Bishop being copied by the artist to represent those of the great Apostle. Above are the figures of angels bearing scrolls. The floral ornamentation and general style is Early English, which is in keeping with the rest of the church. The artists were Messrs. Joseph Bell and Son, of Bristol.

The new wards of the Hampstead Workhouse, extending from the old building in New-end to the corner of Heath-street, were opened last week. The new buildings have been erected, from designs by Mr. Keith D. Young, by Messrs. Gough and Co., the builders of the Central Library. They are lighted throughout by electricity. The buildings, which have cost £20,000, are to be supplemented by important alterations in the older portion of the House, some parts of which date from the early years of the present century.

A memorial-window to the late Mr. J. T. Meredith, architect, was dedicated at St. George's, Kidderminster, on Sunday evening, when the Mayor, members of the corporation, and a large number of Freemasons attended. The window, which is in the west end of the church, has been given by Mr. J. Pritchard, who was for many years with Mr. Meredith.

At Catrine, Ayrshire, a new village institute was opened last week. It has been built by local contractors at a cost of £3,000, from plans by Mr. R. S. Ingram, of Kilmarnock.

## ELECTRIC LIGHT FOR COUNTRY HOUSES.

Send for New Catalogue, just published, at 1s. 6d. Gives price of all apparatus necessary for

### THE COMPLETE INSTALLATION.

## DRAKE & GORHAM,

66, Victoria St., Westminster, London, S.W.  
BRANCHES AT MANCHESTER AND GLASGOW.



## LIST OF COMPETITIONS OPEN.

Burnley—Higher Grade School, &c., Ormerod-road (limited to Architects within 60 miles of Burnley)	
Bradford—Central Fire Brigade Station	£100, £50, £30
Dartford—York-road Board Schools (1,150 places)	30gs., 10gs.
Knutsford—Cemetery Buildings	£20 and £10
Forfar—Isolation Hospital (Assessor)	£31 10s., £21, and £15 15s.
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£150, £100, £50
Nelson—New Church of St. Philip's	
Old Bailey, E.C.—Rebuilding of Sessions House (Professor Aitchison, R.A., Assessor)	
Charlbury—Drinking Fountain (£120 limit)	
Gosport—Technical Institute and Public Library (about £4,000; limited to Architects within 100 miles of Gosport; Assessor)	£100, £25, £10

E. Jones, Clerk, Town Hall, Burnley	Jan. 14
The City Surveyor's Office, Bradford	Feb. 1
Arthur S. Dixon, Clerk to School Board, Dartford	" 10
W. J. Downes, Surveyor U.D.C., Knutsford	" 24
Henry A. Patello, Solicitor, 1, Bank-street, Dundee	Mar. 31
The City Surveyor's Office, Bradford	April 14
H. Duerdon, Hon. Secretary, 180, Barkerhouse-road, Nelson	—
Sir John B. Monckton, Town Clerk, Guildhall, E.C.	—
The Vicar, Charlbury, Oxon	—
P. Tostevin, Sec., District Council Offices, Gosport	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

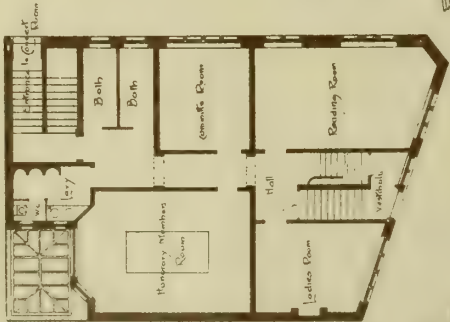
Forres—Two Semi-Detached Villas, Sanquhar-road	Forres Building Company
Aberchirder—Additions to United Presbyterian Manse	Trustees
Limerick—National School Training College	John Kelleher
Grangemouth—Shops, Stores, &c., at New Docks	Morecambe Tower Co., Ltd.
Cork—Eight Houses on Old Voughal-road	W. S. Vaughan
Branderburgh—Two Cottages	Parish Council
Morecambe—Shops, Restaurants, &c., Calton Lodge Estate	Grimshaw, Limited
Darlington—North Porch to St. Hilda's Church	T. H. Bennett
Alnmouth—Residence	Guardians
Northampton-by-Derby—Chapel and Lodge at Burial Ground	Handsforth Burial Board
Knowle—Infirmary Wards, &c., at County Lunatic Asylum	Bilston Urban District Council
Burnley—Rebuilding Yorkshire Hotel, Gunsmith-lane	Guardians
Rishton—Conservative Club	Mrs. C. F. Alexander Trustees
Belfast—Rebuilding the Crown, Shankill-road	Leicester Standing Joint Committee
Leeds—Alterations and Additions to Poor-Law Offices, East-parade	Gray and Son
Handsforth—Burial Ground	Gas Committee
Wombourn—Superintendent Engineer's House at Waterworks	Lancashire County Council
Brighton—Alterations at Workhouse	Guardians
Londonderry—Six Alms Cottages, Carrigans-lane	Bilston Urban District Council
Huyton—Police Station	Mrs. C. F. Alexander Trustees
Southminster—Railway Hotel	Leicester Standing Joint Committee
Rochdale—Electricity Works	Gray and Son
Preston—Police Station	Gas Committee
Glass Houghton—Dwelling-House in Church Field-lane	Lancashire County Council
Meltham—Twelve Dwelling-Houses at Calmlands	Guardians
Enniskillen—Business Premises in High-street	Midland Railway Co.
Goolle—Foreman's Cottage, Creyke's Siding	Guardians
Eastdown—Classroom and Offices at Board School	Midland Railway Co.
Shillingford—Residence	Cwmneol Building Club
Scotby, near Carlisle—Six Huts for Platelayers	Industrial Co-operative Society
Keighley—Two Houses and Shops in Cavendish-street	J. Rawlin
Warwick—Bath-room, &c., at Workhouse	Central London School Managers
Derby—Messroom for Carriage Works	R. Parker
Cwmaman—Thirty-five Cottages	Governors of Gelligaer County Sch.
Delph—Business Premises	Great Central Railway Co.
Burmantots—Shoe Factory, Hudson-road	Leeds School Board
Greasborough—Villa	Guardians
Hanwell—Block of School Buildings, Cuckoo-lane	H.M. Commissioners of Works
Dunoon—Court House and Police Station	School Board
Newtownuningham—Teachers' Residence	L. & Y. and L. & N.W. Joint Ry.
Rawtenstall—Five Cottages, Annie-street	Ile of Thanet Union Guardians
Hengoed—Intermediate School and Hostel for 50 Girls	Stepney Union Guardians
Guide Bridge—Refreshment Rooms at Station	Brown and Co.
Leeds—Repairs to Various Schools	Weber and Co.
Northallerton—Bathroom, &c., at Workhouse	Guardians
Stalybridge—New Post Office	Wilson, Walker, and Co.
Little Ilford—School Buildings, &c., Beasborough-road	Charles Wright
Blackpool—Additions to Central Station Buildings	Co-operative Society
Manstone—Cottage Home Buildings	Goodhall and Suddick
Ratcliffe, E.—Additions, &c., to Workhouse, Salmon-lane	H.M. Commissioners of Works
Leeds—Converting Bank Premises into Shops and Offices, Commercial-street	Ripponden Commercial Co., Ltd.
Leeds—Shop Premises and Bakery, North-street	Town Council
Bakewell—Workhouse Infirmary, &c.	Corporation
Leeds—Settling Tanks at Tannery, Sheepscar-street	Baths Committee
Leeds—Alteration of Shop Premises and Jubilee Hotel, Victoria-square	Urban District Council
Trimdon—Shop	Wm. Aston
Leeds—Printing Warehouse, Cookridge-road	Littleborough School Board
Manchester—New Government Offices	Allen Nield
Ripponden—Fireproof Mill	Gwalio Hotel Company
Berwick-on-Tweed—Look-Up and Police Station	Leeds Estate Co., Ltd.
Bootle—Technical School, Balliol-road	Prudential Assurance Company
Leeds—Alteration of Public Baths in Cookridge-street	Greys Thurock U.D.C.
Rugby—Public Offices, High-street	R. P. Cooper, C.C.
Wrexham—Additions to Premises, Regent-street	F. Bocoock
Carlisle—Eight Houses	Hyde and Co., Rusholme Brewery
Smithy Bridge—School	Farmers' and Cleveland Dairies Co.
Winchester—Residence, Abbott's Barton Estate	Allen Nield
Leeds—Studio, Rowland-road	Mrs. Hutton
Tinsley—Villa	Diamond Match Co.
Llandrindod Wells—Stables and Cottage	W. J. Sellers
Cartmel—Alterations to Cavendish Arms	Stanley Conservative Club Co.
Leeds—Excavations for Basements of Seventy-five Shops, Wood-street	Whitaker Bros.
Huddersfield—Offices	H. Blackmore
Brampton—Two Houses	Llanely School Board
Grays—Cast-Iron Band-Stand and Shelter in Public Park	
Shenstone—Lodge and Four Cottages	
Bramley—Sub-Post-office, &c.	
Rusholme—Brewery, Dickenson-road	
Nottingham—Dairy Premises, Park-street	
Burnley—Five Houses in Arkwright-street	
Crynant—Rebuilding Masons' Arms Inn	
Leeds—Photographic Printing Works, Rowland-road	
Bawtry—Alterations to Holland House	
Exmouth—New Roof and Additions to 4, The Beacon	
Felixstowe—Villa	
Seaforth—Composition Building	
Brampton—Two Houses	
Exmouth—Four Houses and Shops	
Bury, Lancs—Club	
Leeds—Two Pairs of Semi-Detached Houses, North Grange-rd.	
Bridlington Quay—Four Terrace Houses	
Exmouth—Six Semi-Detached Villas, Montpellier-road	
Bradford—Four Houses at Bankfoot	
Gwendraeth—New School and Additions	

John Forrest, Architect, High-street, Forres	Jan. 14
Robert G. Wilson, Architect, 181A, Union-street, Aberdeen	" 14
William H. Byrne, F.R.I.A., Architect, 20, Suffolk-street, Dublin	" 14
W. M. Anderson, Solicitor, Grangemouth	" 14
James F. McMullen, M.S.A., 30, South Mall, Cork	" 14
A. and W. Reid and Wittet, Architects, Branderburgh	" 14
Henry Waters, Sec., 1, Euston-road, Morecambe	" 14
Edward Hutchinson, Solicitor, Horsemarket, Darlington	" 14
George Reavell, jun., Architect and Surveyor, Alnwick	" 14
T. A. Fuller, F.S.I., Architect, The College, All Saints, Derby	" 14
W. J. Taylor, County Surveyor, The Castle, Winchester	" 16
Robert Neill, Architect, 9, Grimshaw-street, Burnley	" 16
J. C. H. Sandback & J. Parker, Archts., 15, Richmond-ter., Blackburn	" 16
W. J. Moore, Architect, Whitehall Buildings, Belfast	" 16
T. Butler Wilson, F.R.I.B.A., 12, East-parade, Leeds	" 17
Edmund Winder, jun., Surveyor, Corn Exchange Chambers, Sheffield	" 17
W. Wilson, Architect, District Council Offices, Town Hall, Bilston	" 17
H. T. Reid, Architect, Brighton	" 17
R. Eccles Buchanan, Architect, 39, Shipquay-street, Londonderry	" 17
Henry Littler, Architect, County Offices, Preston	" 17
P. M. Beaumont, Architect, Maldon	" 17
T. Banbury Ball, Manager, Gasworks, Rochdale	" 17
Hy. Littler, County Architect, Preston	" 17
Arthur Hartley, Architect, Carlton Chambers, Castleford	" 18
J. Berry, Architect, 9, Queen-street, Huddersfield	" 18
Thomas Elliott, Architect, 37, Darling-street, Enniskillen	" 18
H. B. Thorp, Architect, Goolle	" 18
James Mayne, Clerk, Eastdown, Barnstaple	" 18
Samuel Johns, M.S.A., Architect, Wallingford, Berks	" 18
The Company's Architect, Cavendish House, Derby	" 19
Geo. H. Knowles, Architect, Burlington Chambers, Keighley	" 19
Francis P. Trepass, Architect, 8, Jury-street, Warwick	" 19
The Company's Architect, Cavendish House, Derby	" 19
T. Roderick, Architect, Clifton-street, Aberdeen	" 20
The Secretary, Industrial Co-operative Society, Delph, Oldham	" 21
Smith and Tweedale, F.F.R.I.B.A., 12, South-parade, Leeds	" 21
J. Platts, Architect, Old Bank Buildings, Rotherham	" 21
J. T. Newman and Jacques, Architects, 2, Fen-court, London, E.C.	" 21
W. Fraser, Architect, Burgh Buildings, Dunoon	" 21
M. A. Robinson, Architect, Richmond-street, Londonderry	" 23
F. J. Hobson, Architect, King-street, Rawtenstall, Lancs	" 23
James and Morzan, Architects, Charles Street Chambers, Cardiff	" 23
The Engineer's Office, London-road Station, Manchester	" 23
W. Packer, Clerk, School Board Offices, Leeds	" 24
Fairbank and Son, Engineers, 13, Lendal, York	" 24
Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
S. Jackson, Architect, 65, Fenchurch-street, E.C.	" 25
The Engineer's Office, Hunt's Bank, Manchester	" 25
Leonard Grant, Architect, High-street, Sittingbourne	" 25
S. A. Lewis, Clerk, Guardians' Offices, Barnes-street, Stepney, E.	" 27
Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
E. M. Longsons, Architect, Town Hall, Bakewell	" 28
Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
The Secretary, Station Town Co-operative Society, Wingate	" 29
Thomas Winn, Architect, 92, Albion-street, Leeds	" 29
Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 30
Horsfall and Son, Architects, 22A, Commercial-street, Halifax	" 31
R. Burns Dick, 55, Northumberland-street, Newcastle-on-Tyne	" 31
E. Reid, Q. Surv., 7, Westminster Chmbrs, Crosshall-st., Liverpool	Feb. 1
Walter Hanstock and Son, Architects, Branch-road, Batley	" 6
D. G. Macdonald, A.M.I.C.E., Surveyor, Rugby	" 15
M. J. Gumnow, A.R.I.B.A., Wrexham	" 15
James Beatty, Old Post Office-court, Carlisle	—
G. A. Barnard, Architect, City-road, Winchester	—
H. Swanwick, Architect, 6, Upper Fountain-street, Leeds	—
J. P. Earle, Architect, Norfolk-road, Sheffield	—
Swash and Bain, Architects, Bank Chambers, Newport, Mon.	—
Settle and Farmer, Architects, County-square, Ulverston	—
J. Swann, Clerk of Works, Wood-street, Leeds	—
A. Waterhouse and Son, Architects, New Cavendish-street, W.	—
J. S. Thompson, Solicitor, 18, Bank-street, Carlisle	—
A. C. James, Surveyor, Grays, Essex	—
William Perry, Architect, Lichfield	—
J. M. Fawcett and Son, Architects, 26, Albion-street, Leeds	—
Harrap and Duffield, Architects, 24, Queen-street, London, E.C.	—
Evans and Son's Offices, Wheeler-cave, Nottingham	—
A. Robinson, Architect, 321, Pa. Ham-road, Burnley	—
Swash and Bain, Architects, Midland Bank Chambers, Newport	—
J. Swanwick, Architect, 6, Upper Fountain-street, Leeds	—
Joseph F. Walsh, Architect, Bank Chambers, Halifax	—
Philip Kerley, Architect, Exmouth	—
G. W. Thompson, Architect, Granville House, Arundel-st., London	—
The Secretary, Linacre-road, Seaforth	—
J. Studholme Thompson, Solicitor, Bank-street, Carlisle	—
Philip Kerley, Architect, Exmouth	—
C. H. Openshaw, Architect and Surveyor, Fleet-street, Bury	—
Kendal and Bakes, Calveley Chambers, Victoria-square, Leeds	—
Chorley, Connon, and Chorley, Architects, 15, Park-row, Leeds	—
Philip Kerley, Architect, Exmouth	—
Brayshaw and Dixon, Architects, Bowling Old-lane, Bradford	—
J. B. Morgan, M.S.A., Architect, 17, New-road, Llanely	—

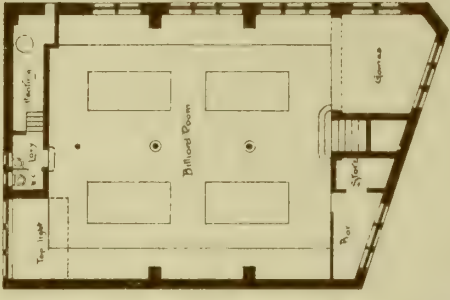




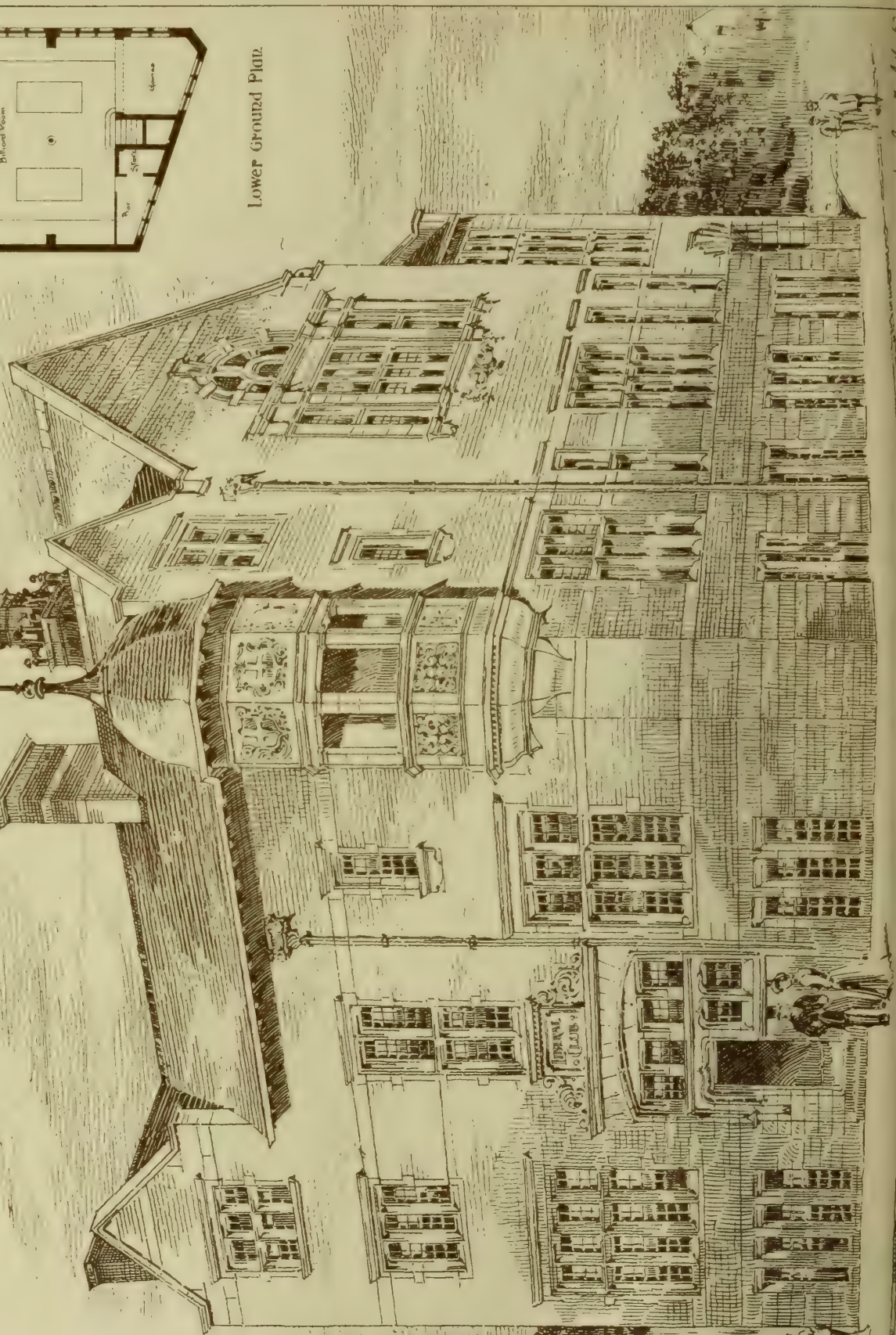




Ground Plan.



Lower Ground Plan.





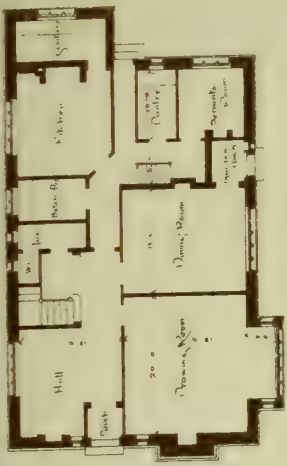
# HOUSE at FALINGE ROCHDALE

Jesse Horsfall FRIBA  
Arch<sup>t</sup>

First Floor Plan



Ground Plan





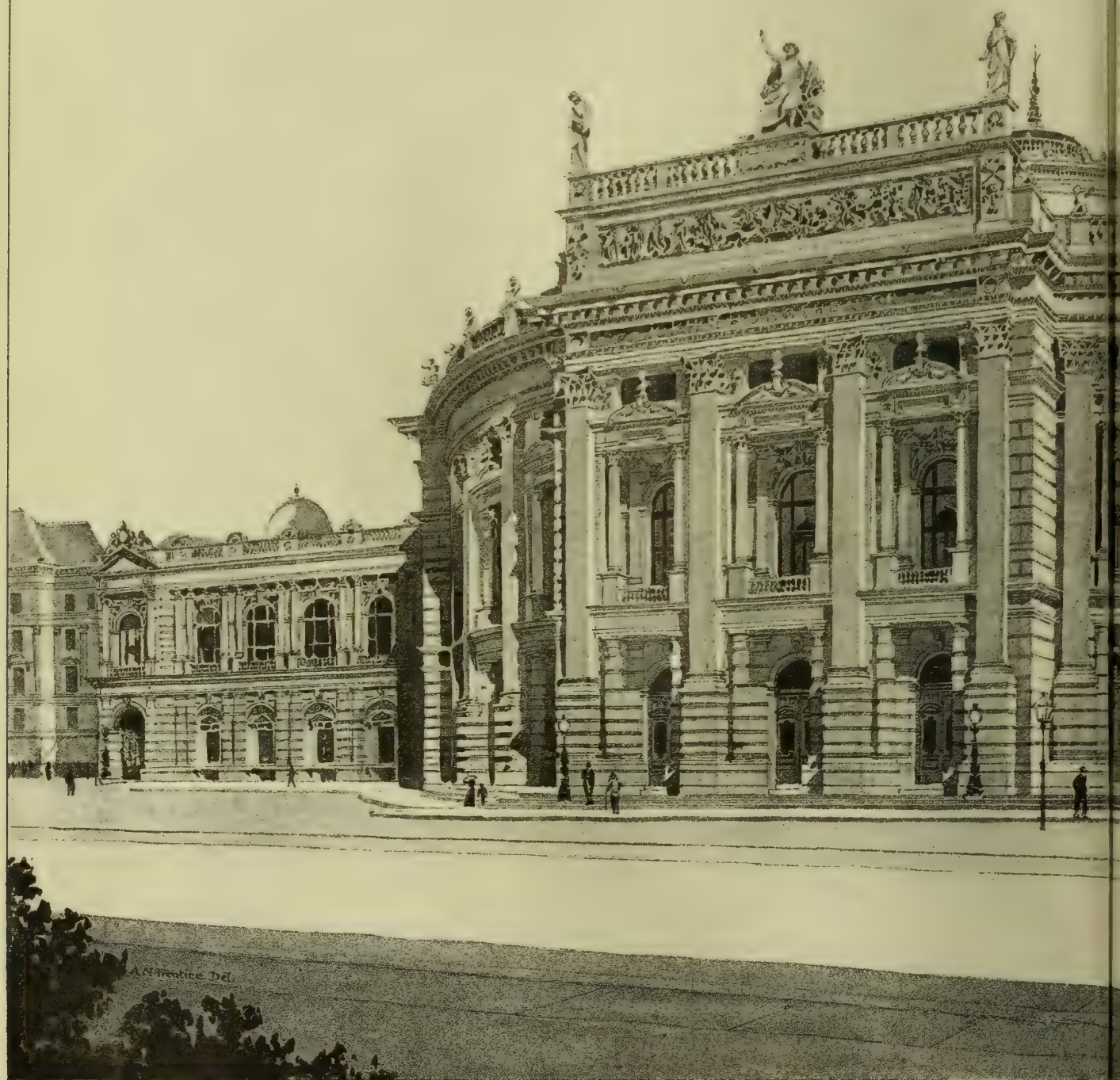








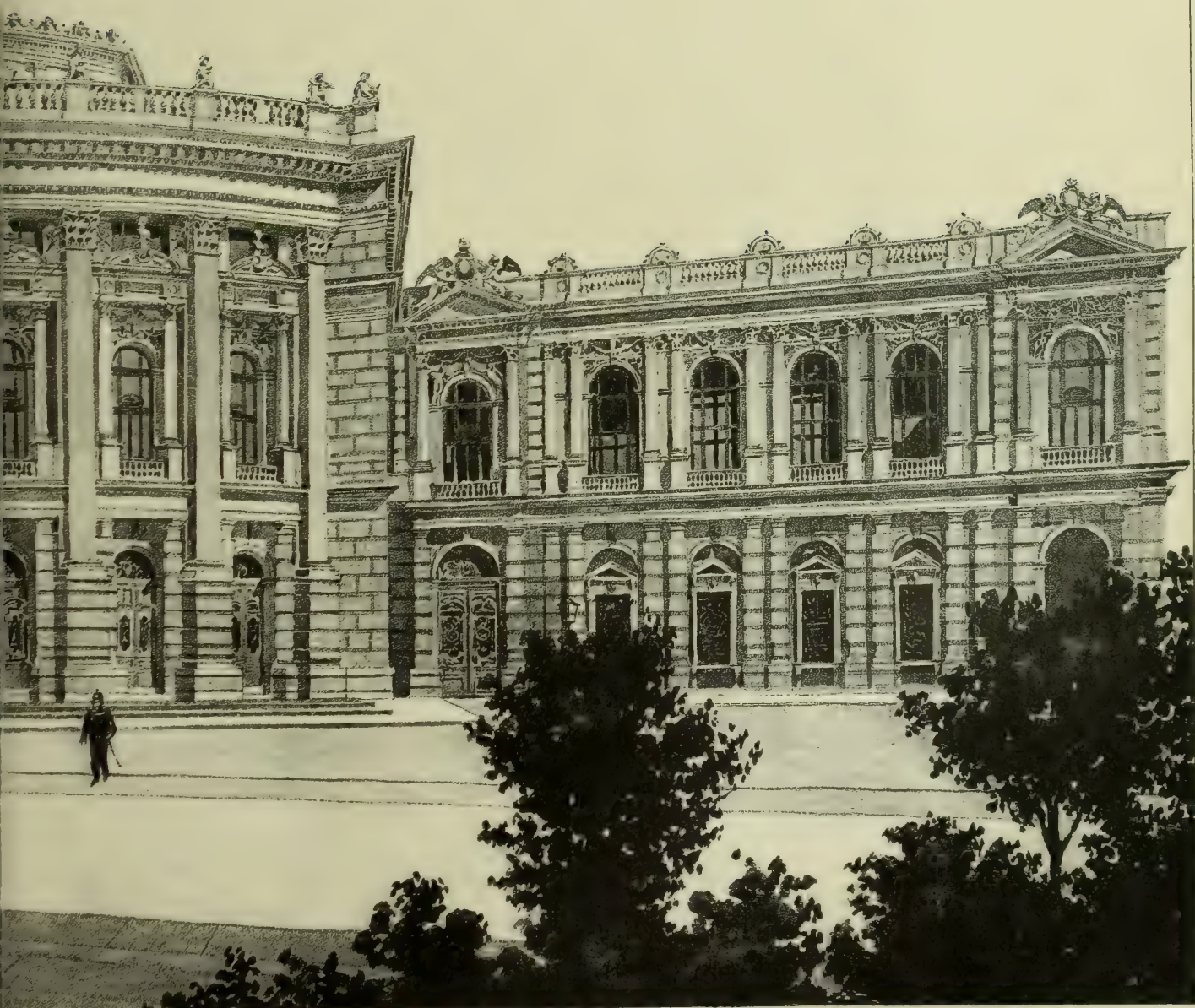
° THE COURT THEATRE VIENNA ° GOTTFRIED SEMPER AND BARON HASENAUER ARCHTS



FROM MODERN OPERA HOUSES AND THEATRES BY EDWIN O. SACHS



JAN. 13. 1899.



"PHOTO-TINT" by James Akerman, 8 Queen Square London W.C.

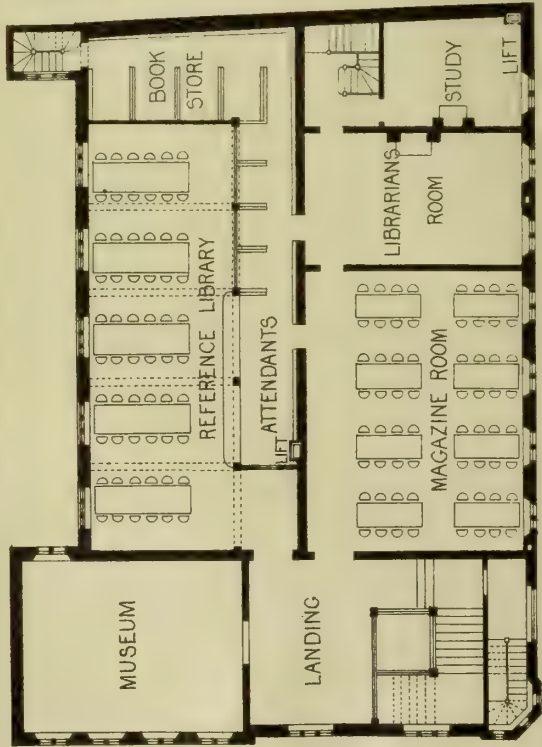








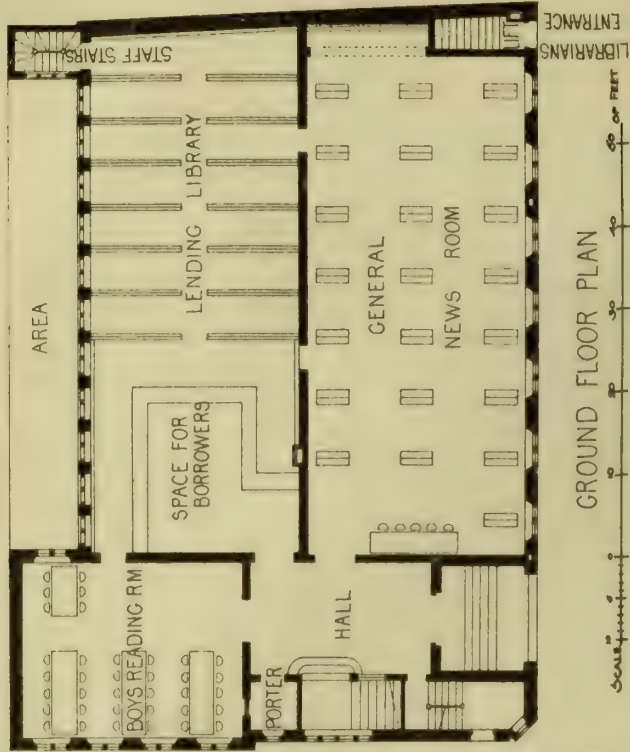




FIRST FLOOR PLAN

REFERENCE LIBRARY 10880 VOLS  
EXTENSION 13560  
TOTAL 24440  
MAGAZINE RM (READERS) 64

BOYS READING ROOM 36 READERS  
GENERAL NEWS ROOM 93  
LENDING LIBRARY 26496 VOLS  
EXTENSION 23760  
TOTAL 50256

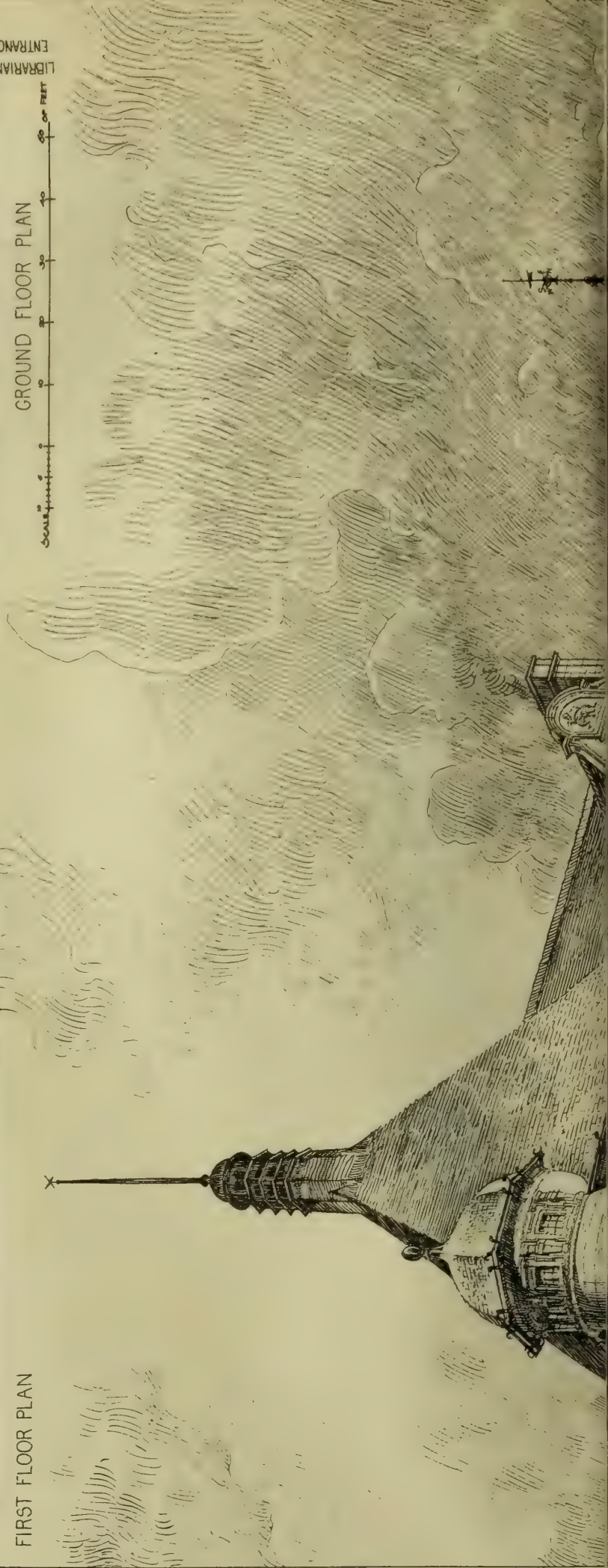


GROUND FLOOR PLAN

X

Scale 1/4" = 1' 0"

LIBRARIANS  
ENTRANCE





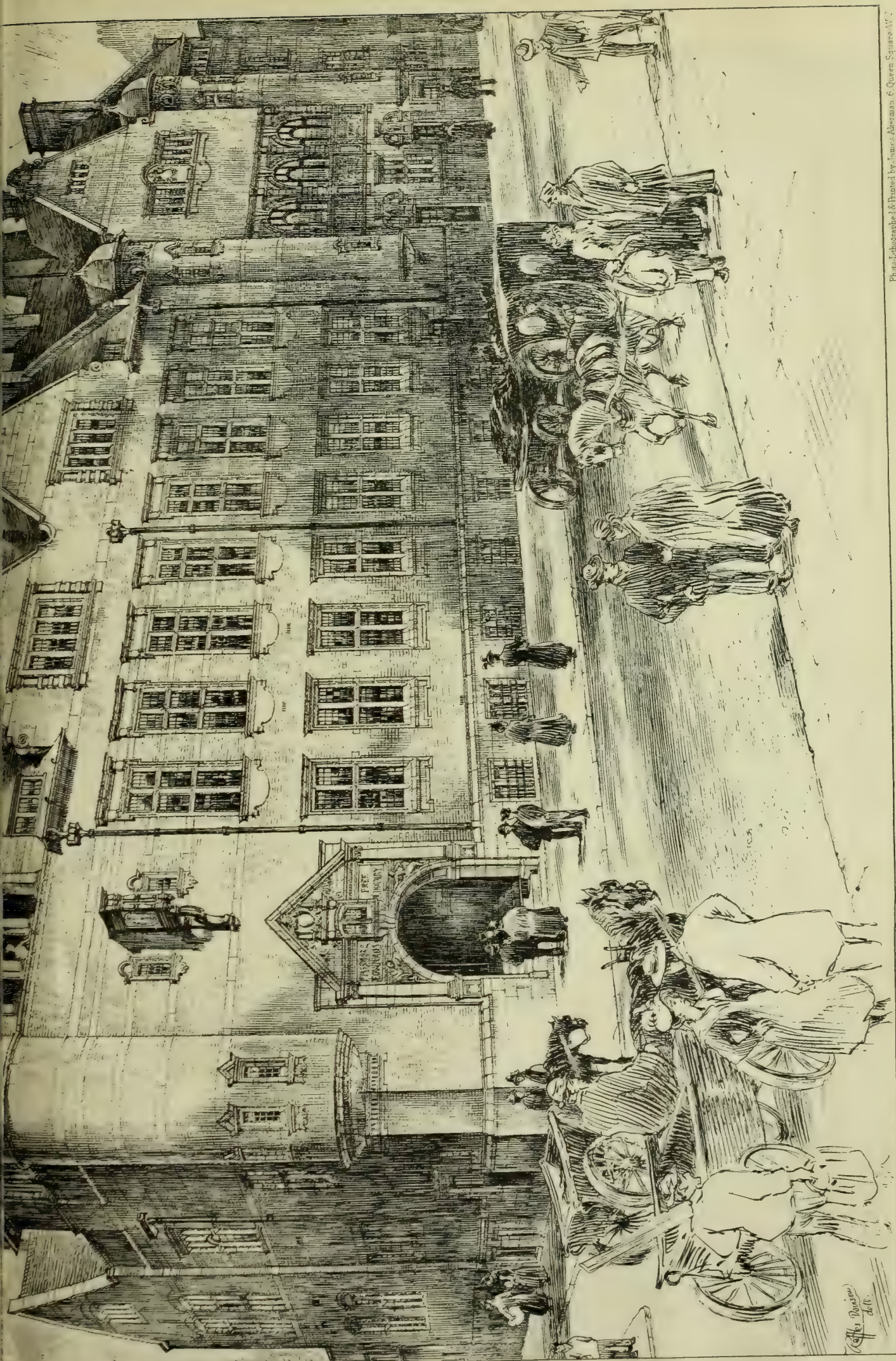


Photo-Lithographie & Painted by James Alderson 6, Queen's Square W.C.

PASSMORE EDWARDS PUBLIC LIBRARY, SHOREDITCH. HENRY T. HARE, ARCHITECT

W. H. D. 1871







# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2298.

FRIDAY, JANUARY 20, 1899.

### ACTUAL AND IDEAL STRUCTURES.

CERTAIN standards of construction have become the common property of the architect in all ages. Partly based on theory and partly on practical experience, they have been accepted as models, as the very foundation of architectural construction. Such have become the beam or lintel, the arch and the truss. Each of these elements has undergone modifications and developments in the light of new discoveries and materials. Thus concrete and iron or steel have been combined in the construction of beams, and greater strength has been obtained by this combination than the beam of stone or timber alone could give. The conditions of the arch have been investigated, and we have now arches composed of iron ribs or concrete and metal combined that give greater results than the old stone voussoir arch. Some recent experiments on full-sized timber trusses, made by Major G. K. Scott Moncrieff, R.E., late instructor in construction at the School of Military Engineering, Chatham, the results of which are published in the *Journal* of the R.I.B.A., are of interest. They were undertaken to ascertain whether roof timber trusses used for the support of ordinary roofs, according to the dimensions generally accepted, had any practical advantage over trusses designed in accordance with theory. Tredgold's treatise on carpentry has been taken as the authority on the subject, and the scantlings he has given have formed the standard of all textbooks. It was adopted as a textbook by the Engineer Department in 1844. Even Tredgold, however, observed that in practice roofs were made too heavy, and that the same roof could be constructed with a smaller amount of timber. Major Scott Moncrieff traverses the ordinary practice. He takes an ordinary king-post truss and shows that the section of principal rafter is made of much smaller scantling than the tie-beam; that the struts are very light and their centre axes would intersect at a point above the tie-beam; that the purlins are not vertically over the struts, and that the tie-beam and principal are connected at the heel by a strap fastened by a small bolt; in the queen-post truss, also, the straining beam, though thicker than the principal, is not so thick as the tie-beam. The writer shows the theoretical unsoundness of all these points. For example: (1) the stress borne by the principal under any loading is greater than that borne by the tie-beam, as may be seen by drawing the triangle of forces at the junction; (2) the stress on struts depends on the load: if it is greater on one side, the strut on that side will have a greater stress, and both bending and shearing stress will be set up at the foot of king-post which it is not designed to resist; (3) when the purlins are not directly over the struts, eccentric stress is caused in them, and they will fail the sooner by lateral flexure; there will also be combined stress set up in the principals; (4) the small size of bolt to heel-strap is an objection, as it transmits the greater part of tensile stress of the tie-beams, and its bearing area on tie-beam is not sufficient to prevent the crushing of fibres. (5) The scantlings given to straining beams are insufficient for the stress in many cases. These conclusions are sound, at least, in theory; but it is necessary to consider on what bases Tredgold formulated his tables of scantlings. These were limited. He premised a certain distance between trusses (10ft.), a certain pitch or angle of

roof (27°). Memel or Riga timber, and a covering of slate.

Moncrieff's experiments were undertaken for the purpose of discovering general rules or formulæ for giving scantlings for roofs under any circumstances, and especially for finding the results of tests upon both the old kind of trusses and the modified or theoretical truss the author proposes. To this end the joints had to be reconsidered. Instead of Tredgold's solid tie-beams, a double one is substituted. The joint at bottom of principal was secured by a horizontal iron strap, while the stress was a minimum. The tie-beam is in two pieces, one on each side of principals, and the bolt securing the strap is passed through a block of wood between the halves of tie-beam, and this block is partly housed into the two halves to prevent it slipping.

We refer the reader to the article in the *Institute Journal* for the description of the experiments. These were based in accordance with Tredgold's rules as to distance apart; the weight of roof covering was taken as 40lb. per square foot, or 400lb. per foot run of slant, and in a 28ft. span the load would amount to 12,800lb., taking 32ft. as the length of slanting rafter. Half this load would be borne by the purlins, the other half by the pole-plates, thus each purlin would bear 3,200lb., or with a margin of safety of 12,000lb., and these were the pressures put on the test-trusses. Taking the usual pattern of king-post truss 29ft. span, but with tie-beams and principals of the same scantling, it was found when the pressure reached 12,000lb. on each side, the end of tie-beam sheared off, and the plates above and below crushed into the timber with a pressure of 5,000lb. to the square inch. On one side the straps were doing all the work in resisting the thrust; on the other side the strap was not so tight, and the stress came on the timber joint. The next test was on a truss of the same span, but of the theoretical type, with double tie-beam of planks 5in. by 1½in., with horizontal strap and 1in. bolts and end blocks, but the strap square at end. The truss soon failed; at about 7,500lb. on each side the pressure bent the straps and split the wedges, thus showing that the semicircular form of strap was the stronger one. The third test was upon a truss of 28ft. span, according to Tredgold's tables, with principals 6in. by 3½in., struts 4in. by 2½in., tie-beam 11½in. by 6in., and king-posts 6in. by 4in. It showed weakness at 6,000lb. on each purlin; the struts buckled and crushed the fibres at foot of king-post. At 7,500lb. on each side, one of the bent principals split at a tight knot. The compression members were weak also, as the struts buckled in the direction of their least thickness. The third truss tested was of the same span, but the dimensions were according to theoretical principles. The principals were 5in. by 6in., the struts 5in. by 4in., the tie-beam double, of 8in. by 2in. planks, king-post 5in. by 2in. The truss failed at pressures between 11,000lb. and 12,000lb., but the test compared favourably with the Tredgold previously mentioned, and there was a saving in cost. The author says: "Truss No. 3 failed under a load equivalent to 75lb. per square foot of roof, while the last had borne, without failure, a weight corresponding to a uniform load of 137lb. to 140lb. per square foot."

Other tests are described, to which it is needless to refer. Valuable as these experiments are, they appear to leave out of account certain conditions that exist in actual roofs. In these tests the trusses were separately submitted to pressures at certain points; but, in actual roof-trusses, the load is more equally distributed. In most of the tests recorded, the trusses were laterally buckled, owing to the absence of purlins. These, as fixed in a building, materially stiffen the frames and distribute the load on

the roof, another condition is unheeded. The deep tie-beam of Tredgold's truss is a practical requirement where there is a ceiling.

But in other respects there are reasons for modification. The usual iron strap securing principal to tie-beam is sadly defective, and the bolt is often too small to make any adequate resistance; the struts are often too thin in one direction, and the joints of king-post and struts under an eccentric load would cause flexure and shearing in the post.

A very important conclusion to be derived from these experiments is that the failure of a roof-truss is to be attributed often to some accidental circumstance, like a knot in a principal or strut, or the shrinkage at a joint, by which more pressure would be exerted at one point, causing crushing or unequal stress. The importance of being able to tighten up a joint, as that between principal and tie-beam, is important. Experiments of this kind would be of more value if adequate means could be devised to prevent lateral deflection, or the entire buckling of the structure; the means used to secure this by means of stays, blocks, and tackle are not sufficient. Another point is the want of rigidity, or fixing of the ends of truss, as they would be in a building, as such fixed ends would naturally assist to prevent deflection. We refer the reader to the report and formulæ for calculating scantlings given in the appendix, and for the kind of apparatus employed in these tests.

### MODEL SPECIFICATIONS.—XLVIII.

SINKS, LAVATORIES, AND BATHS.

AS a full and exact specification of fixtures like baths, lavatories, sinks, and their traps, wastes, and overflows is very necessary, we have devoted some space to the subject. A good slop-sink should have the essentials of a well-flushed closet. The sink should have a good basin, deep enough to prevent splashing, and one of lead or cast iron is best. There should be a self-cleansing trap below the basin. Dent and Hellyer's "water shoot" is a good form, and is made of cast iron enamelled on the inside, and fitted with a strong white glazed stoneware screener. Doulton has also an excellent corner sink of glazed stoneware top with slate skirtings; the basin and siphon are of iron, and it is provided with a flushing valve. Our sketch (1) represents a corner arrangement well suited for general work, with draw-off and flushing-taps, and a cleansing cap on top of trap. Many firms who supply plumbers' fixtures have arrangements of this sort. The sink is of enamelled iron, basin, and trap, and has a 3in. waste-pipe. The trap has a brass grating to exclude solids, &c.

A complete slop-sink should have hot-and-cold water draw-off taps and a flushing tap.

Pantry and scullery troughs should discharge in the open air, or over a disconnecting receiver-trap. The lead lining of lead troughs should give room for expansion and contraction to avoid buckling.

An ordinary scullery-sink should have a 1½in. or 2in. waste-pipe discharging over a trapped gully with good seal. We show a sink waste made by Duckett (see sketch) with a 2in. waste-pipe, made of glazed enamelled ware, with "Stanford" joint to trap and with a brass grate in the sink. The pipe from sink is made in two parts, the upper of brass soldered to grate, and the lower part of lead, into which it is telescoped. The outlet can be turned in any direction. The upper pipe and trap can be removed for cleaning. Pantry sinks in butlers' pantries should be lead-lined, as being not so hard, and less liable to damage glass or china. A depth of 16in. is necessary. The angles should be rounded off by fillets for the lead, and 8lb. lead is recommended for the sides and 10lb. or 12lb. per foot for the bottom. Provide a



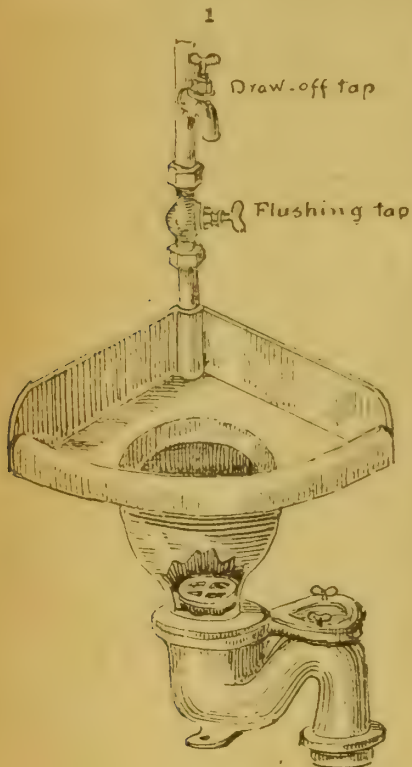
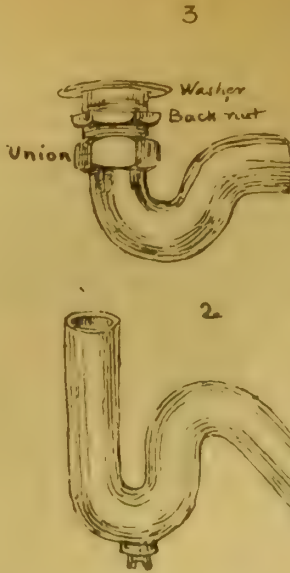
countersunk washer with back-nut and plug, and a drawn-lead siphon-trap with cap and screw (see sketch 2).

We refer to our remarks on sinks and lavatories, p. 52. Lavatories of iron are enamelled and galvanised, but are not so cleanly-looking as stoneware and porcelain; besides which, there is in the latter nothing to scale off or oxidise. Stoneware basins are made in one piece and fixed on slate slabs, or the whole basin and slab are in one, with dishings for soap, brushes, &c. The makers we have named turn out many admirable lavatory fittings.

Bib or push-taps are used; some basins have flushing rims. The waste from basin should allow of rapid discharge, and 1 in. to 1½ in. diameter pipe is usual, and should be trapped immediately below the basin, the pipe delivering outside house. If several lavatories are necessary, each waste should be trapped before passing into common waste, this being carried up for ventilation.

Sketch 2 shows a waste and siphon trap, lead-drawn, suitable for a lavatory or sink, with cap and screw for cleansing; and sketch 3 is a plug waste and trap combined, for a bath. It has a washer back nut and

overflow and trap. Sketch 5 shows a flap (Hellyer's) for rapid emptying. Sketch 4 is a bath showing an arrangement of trap,



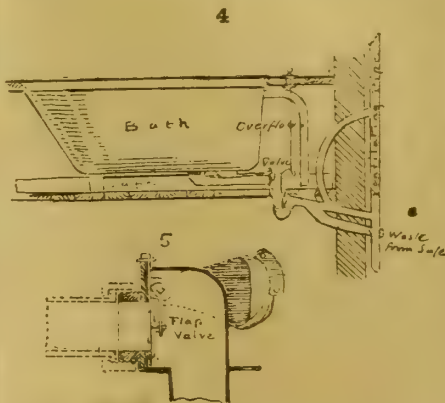
waste overflow, and ventilating pipe for preventing the unsealing of trap.

63. *Lavatory Basin*.—Provide and fix in lavatory or dressing-room a circular enamelled ware basin, with chain-pull attached to lever of waste-valve, with water-tight seating, with skirting, marble (or slated) top complete. Lay on hot and cold ½ in. or ¾ in. supplies through horns on opposite sides of basin with flushing rim, with ½ in. lever or screw-down valves fixed to wall. Lead an air-flow pipe to open air. Or,

The fixed washstand-basins in lavatory or bedrooms to have 1 in. waste-pipe anti-D trap, with grating of full bore to waste-pipe. Provide a 1 in. round-way cock between grating and trap with handle and lever, and lay on ½ in. hot and cold supplies at sides of basin, discharging through flushing-rim with screw-down valves, with handles fixed on casing to satisfaction of architect. The basins to be D-shaped earthenware, with skirting, dished for soap and brush-traps;—if with hot or cold douche arrangement, state so.

64. *Butler's Sink*.—Line the butler's sink with 6 lb. (or 8 lb.) lead soldered at angles, turned over upper edge, and copper nailed. Fit with 2 in. pantry-washer soldered in, and plug and brass chain, and take 2 in. waste (middling quality, 15 lb. per yard) through wall to deliver over gully grating, and provide a 2 in. Du Bois trap with 2 in. brass cap and screw for cleansing.

65. *Draw-off Sink*.—Line deal draw-off sink on landing with 8 lb. lead, bottom turned up against



walls 18 in. and over angle filets on floor, close copper nailed. Take 1½ in. waste pipe (9 lb. per yard), and 3 in. brass grating, through wall discharging over hopper head. Or—

Fit up in housemaid's closet on floor level a deal sink 2 ft. 6 in. by 18 in. and 3 in. deep, lined with 8 lb. lead, copper nailed and bossed and soldered, the lead taken up 3 ft. at back. Lay on water to same with ½ in. supplies from nearest hot and cold service to strong gunmetal quick-turn, screw-down, full-way bib-cocks. Fix 1½ in. brass

grating and rim, and 1½ in. S-trap, with 1½ in. waste, with vent-pipe, &c., complete.

66. *Slate Bath*.—The bath to be 5 ft. 6 in., of tapered shape, 1 ft. 10 in. deep, made of 1 in. Bangor slate slab, sides and end 1 in.; and 1½ in. slab bottom rebated together in lead cement, and bolted with four ½ in. galvanised-iron bolts, nuts, &c. Or—

Provide and fix one of Young and Marten's slate-slab baths.

(Describe waste overflow traps, &c., as before.)

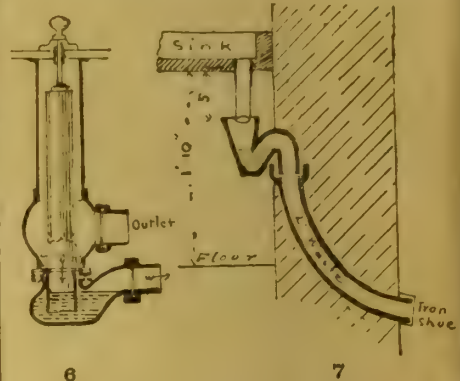
67. *Copper Bath*.—Provide and fix complete a tapered copper bath 5 ft. 6 in. long, with flanged brim, circular end, with copper hot and cold supplies, overflow, and waste, and 3½ in. copper gratings, with 2 in. full-way screw-down valve, 2 in. lead S-trap in waste, and connected to 2 in. lead pipe, to discharge over hopper head; overflow pipe, with copper grating. The lever fittings "hot," "cold," and "waste" to be selected, or allow p.c. sum for same. Or—

The bath to be Nicholls and Clarke's "Como" best quality, enamelled, with mahogany capping, and combined fittings complete for "hot" and "cold," and lift-up waste, p.c. £7 15s.

68. *Bath*.—Provide and fix in bathroom one of Doulton's (or Dent and Hellyer's) best white-glazed porcelain baths, 5 ft. 6 in. long, fixed in deal bearers. Put in 2 in. lead waste with siphon to hopper outside wall, with brass union and porcelain (or brass) grid, with a 2 in. full-way brass stop valve. Take a 2 in. overflow into waste pipe, with porcelain (or brass) grid, and fit up lever handles for "hot," "cold," and "waste." Or—

The bath to be a cast-iron enamelled taper-shaped bath, 5 ft. 6 in. long, with circular end and dished bottom (or to be supplied by Messrs. Young and Marten, Stratford, No. — in catalogue), with 2 in. full-way screw-down valve, S trap, overflow, and waste with all fittings, and connected complete.

Lay on hot and cold service, 1 in. branches, and connect to supply valves. Put in a 2 in. lead trap



under bath and waste, and connect to main waste. Ventilate trap by an anti-siphonage pipe of same size as waste, and provide under bath a 4 lb. (or 5 lb.) lead safe of the full size of bath, with overflow pipe to discharge outside. (The floor to be blocked up with a fall of 1½ in. in 5 ft., rough boarded, with small gutter for dressing lead.)

69. *Superior Copper Bath*.—Fit up in bathroom a strong tinned copper bath, 5 ft. 6 in. long, on deal framed cradle with circular end enamelled white (or ivory), with copper pipes for hot and cold supplies, overflow, and waste, and 3½ in. copper gratings (or with large copper under waste, and extra large waste-valve), 1 in. nickel-plated hot and cold-supply valves, complete, p.c. (Or, put 2 in. full-way, screw-down valve, 2 in. lead S trap formed in waste, and take 2 in. lead discharge-pipe outside; also a 2 in. lead overflow, with 3½ in. grating, and connect to waste). Allow p.c. sum of £3 10s. for bath fittings to "hot, cold, and waste." Or—

Lay on hot and cold supplies in 1 in. branches, and connect same to supply valves, with 2 in. lead trap under bath, and 2 in. branch waste. Put in a siphonage pipe to ventilate trap.

Provide and fix 1½ in. French-polished mahogany top, with rounded corner framed to bath, with rounded nosing, and fix round 6 in. by ½ in. skirting round wall, and inclose space below with 1½ in. mahogany framing, with hinged panels, &c., complete.

70. *Movable Bath*.—Provide a copper (enamelled green inside) taper bath, 5 ft. 6 in. long, with circular ends, dished bottom, and with roll rim, p.c. £11. Or—

The movable copper bath to be 5 ft. 6 in. long, with circular ends and dished bottom, with large roll edge (3 in.) with ½ in. copper waste-pipe and ½ in. screw-down gunmetal bib-cock, fitted on wheels in a wrought-iron frame complete.

union. If from a catalogue, specify the description and No. of lavatory, and in all cases specify diameter of waste, its weight per foot, where carried, the kind of trap, if with cap, and overflow, the material of top, thickness, skirting, &c.

Copper baths should be supported on a wooden framework to prevent any alteration of shape. They are enamelled, which is not a very desirable covering. Zinc baths also require support, and are painted or enamelled. The objection to iron baths, especially cast-iron, is that they look dirty after a time; but they are stronger than zinc, and require no wooden framing. Porcelain-glazed baths in one piece have many advantages, and are smooth and cleanly; but block tin and copper baths are generally used. In specifying baths, provide for a 5 lb. lead safe of the full size of bath, with overflow, for which purpose the floor should be furred and boarded to form a slight fall; also a bath waste of 1½ in. or 2 in., discharging outside wall into open channel leading to a self-cleansing gully. We show in section 6 a form of valve for emptying bath made by Mr. Jennings, combining



71. *Zinc Bath.*—Provide in bath-room a taper, flanged top zinc bath, with wood casing, japanned white or green inside, fitted with copper pipes for hot, cold, and waste, and copper overflow in extra strong zinc, or Nicholls and Clarke's (or Young and Marten's) bath No. — in catalogue, p.c. Or—

Provide extra strong zinc japanned bath, with small lengths of copper pipe for hot and cold supplies, waste and overflow, 5ft. 6in. long, with 2in. full way screw-down valve, 2in. lead S trap in waste, and 2in. waste-pipe to discharge over hopper head, &c., complete.

72. *Rising Main.*—Take from company's main lin. pipe and lin. brass high-pressure equilibrium ball-valve, with copper ball and stem, and lay on water to cistern A. From last pipe lay 3in. pipe and similar ball-valve to cistern B.

73. *Supplies.*—Lay on water to scullery sink from cistern A, with 3in. brass cistern connector, 3in. pipe, and 3in. bib-cock.

Lay on water from last with 3in. pipe and bib-cock to housemaid's closet.

Lay on water from cistern B with lin. connector as before, and lin. pipe to angle of bedroom No. —, thence with 3in. pipe and bib-cock to butler's pantry sink.

Lay on water from last to bath with lin. pipe, and lay on from last with 3in. pipe and patent 3in. electro-plated self-closing tap to lavatory.

Fix below each separate supply-pipe and near cistern a brass high-pressure screw-down stop-cock, with union at each end, and a similar stop-cock to rising main near area or in basement.

74. *Waste to Sinks.*—Provide and fix to all sinks on ground floor Duckett's patent waste-pipe, 2in. diameter, of glazed enamelled ware, with airtight "Stanford" joint to trap and pipe, with 2in. brass (or ware) grate, lewised and set in cement; the outlet of waste-pipe to be hooped with cast-iron (see sketch 7.)

## "BUILDING NEWS" DESIGNING CLUB.

A VILLAGE SHOP AND POST-OFFICE WITH COTTAGES.

WE do not like any of the designs submitted for this block of buildings, because we cannot consider any one, out of the nearly fifty proposals received, really a success. The drawings, strange to say, taking them as a whole, have seldom, if ever, been of a higher or more equal degree of merit; clean, crisp, and honestly well done, though many of them, as designs, however, are ineffective and commonplace. It may seem to the members of the Club that, by objecting to all their proposals in this fashion, we are disparaging their work. Obviously, if progress is to be made, the truth must be told, and, in our opinion, we are bound to say that not one of the designs received is up to the mark. The first place is given to "McGilligan," the second to "Thistle," and the third to "Nothe."

The conditions issued to competitors were as follows:—"C.—A Village Grocer's Shop, including a Post-office, with residence attached. On either side of the shop, which may project in the centre not more than 5ft.—there are to be two cottages. The general frontage line of the whole block to set back 20ft. from the forecourt-line, the space in front of the shop being left open to the pavement without a boundary wall, which is to be shown to inclose the gardens in front of the cottages. The house forming part of the shop premises to have a living-room 14ft. by 14ft., or of that area; a kitchen, scullery, &c., and four bedrooms, a bath-room, box-room, and linen closet. To the rear of shop there is to be a store, 20ft. by 15ft., the width of the shop. Each of the four cottages to have a living-room, 14ft. by 12ft., a kitchen, scullery, larder, bath space, w.c., and coal-place. Each dwelling to have its own rear yard, inclosed by walls 5ft. high, 18ft. deep, and the width of the tenement. The cottages to have three bedrooms each. The style of these buildings to be adapted to stone walling and slate-slab roofing. Windows to be metal casements in wooden mullions or frames. Chimneys to be in red brick. The upper-floor walls may be roughcast throughout, or in part. The group must be picturesquely treated in a plain, inexpensive, and countryside way. The end cottages may project if desired. The ground-floor line is 18in. above the pavement. Ground-floor rooms 10ft. pitch, first floor, 9ft. Scale, 8ft. to inch for elevations and sections. Plans, 16ft. to inch. A view of block is essential."

"McGilligan's" design fails to realise the ideal simplicity so essential to the effective contrivance of a countryside group of cottage buildings, and he has not grasped the notion of a row of dwell-

ings of this class in anything like an adequate way. His houses are planned with no relation one to the other, being merely so many individual tenements strung together; the divisional walls are party-walls certainly, but there is no endeavour to economise the chimney-shafts or group the planning of the parts as an essential whole. Each house is schemed without reference to the other, and it becomes a matter of accident that the block only includes just so many and no more. Any number could be added without spoiling its completeness, if we may use so inappropriate a word in describing such an unfinished scheme. The result is restless and toy-like, the latter quality being brought more into evidence by the view, which gives a sort of Chinese effect by curving the bargeboards. The shop-front is as commonplace as it can well be, and very little attempt has been made to broaden out the central feature suggested by the shop and residence attached to it in the middle of the block. The entrance vestibule assumes too much of the character of a hall, and the stairs leading up to the first floor would be very dark. The bath should have been arranged out of the scullery, so as to get, for one thing, all the plumbing work close together. Parlour houses of this class are not villas, and workpeople in the country naturally have different habits from the smug respectability of the ordinary clerk's home in the suburbs. Every inch of room in either case is of the utmost consequence, and "McGilligan's" wasteful landings on the first floor only furnish another instance of his want of attention to details. The squat effect of his chimneys is brought out by the perspective and the hard, tin-like outline of his trees in silhouette is no advantage pictorially. Still, we place him first, and our sole reason is that no better choice is open to us. At any rate, he has made an effective-looking sheet. That, however, is not, and should not, be the prime consideration, and it has not for that reason unduly had our favourable consideration.

The same remark likewise applies to "Thistle's" contribution, though we are bound to admit that his draughtsmanship insures a very attractive result, which demands at least a sufficient recognition at our hands. In some respects his design is preferable to "McGilligan's," but, like him, he has committed similar mistakes by making his cottages too much like semidetached villas stuck on to the post-office shop in the centre without much notion as to the grouping of the whole. The sketch view emphasises this want of unity, and the strong dominating vertical lines brought about by the stores building, which is made to divide the block instead of uniting it, are considerably aggravated by the placing of the otherwise very attractive young lady in the picture immediately below the corner of the shop, thus bringing this objectionable vertical line right into the foreground with fatal effect to the composition. The locating of the grocer's house on the first floor is a mistake, necessitating a needless amount of labour, to say nothing of the inconvenience of the staircase, which is not at all well placed. Every time the shop-bell rings, unless a person is always on duty, it will be necessary to run up and down from the first floor. The position, too, of the post-office counter, right away from the window, is not a good one. With regard to the cottages, there are obvious objections, one of which is the absence of any inclosure for the bath. It ought to be in a place by itself, no matter how small. In the scullery, as "Thistle" puts it, the bath would be in the way, and probably in the majority of cases would be filled with rubbish, or kettles and saucepans. The exterior treatment we have already remarked upon. Another point of objection not mentioned is the similarity of the two doorways to the central block, the only distinction being the proximity of the letter-box.

"Nothe," the third man, is somewhat commonplace. His shop plan is the best of the lot, though the telegraphist is poked away in a dark corner. Still, there is considerable ingenuity in the arrangement which leaves the shop proper—less encumbered by post-office customers. The store, too, is better, and the other parts are conveniently contrived. The head-room at the entrance of the cottages under the stairs would be very low, and there is a loss of space outside the bathroom door. The bath ought to be reached from the scullery, and not be put in the front of the house.

The fourth place is contested for very strongly by three or four designs of very nearly equal merit. "Tokio" is so unequal that, had it not been for the spirit displayed in his drawings and

the general breadth of quaint simplicity illustrated by his contribution, we should have put him lower in the list. For these points of merit we place him fourth. His scheme is too expensive, the living-room windows are too small and too low down in the rooms. The circular lights to the smaller bedrooms in front are not good, the houses are contrived too much like villas: the bathrooms should not be upstairs, there is too much stonework about the fronts, the arched porches are over-ambitious and costly, the shop-front is ugly and very ordinary, the staircases are very dark excepting to the end houses, and the arched roughcast recesses along the front are meaningless. With this indictment "Tokio" may see why we have not placed him higher, though the other competitors may be inclined to question our choice in locating him fourth. Anyhow, "Tokio" has sent in so pretty a scheme, speaking of it as a whole, that we wonder why he did not do very much better. "Swan" is a clever contributor, and his row would look exceedingly well; but we do not like his plan with the cottages only one room thick where the parlours occur. The roof-space is not economised sufficiently. "Pup" is a coarse draughtsman and a crude planner; but he has sent in a simple and tasteful scheme which, on this account, has much to recommend its adoption. His front doors are odd with muntins wider than the panels. The baths in a recess facing the kitchen fireplaces would never do. "Casual," at any rate, has had the good taste to group his buildings ingeniously, and any village would be graced by the erection of his design. Few proprietors would care to adopt his plan, however, which is contrived without much regard to the habits of cottagers. The staircases are very dark. "Quadrant" puts a very large roof, without utilising the enormous unoccupied space which it incloses. The wide eaves are useful and effective, but overdone; the thin, battered buttresses are odd and objectless, and the almost straight-sided Gothic arches above the doorway pents do not add to the merit of the elevation, which is carefully and spiritedly drawn. "Quadrant" is so good that we cannot understand why he was not more successful. "The Old Firm" is fanciful, and by no means lacking in a sense of the picturesque, which, however, is too obviously intentional. Massive masonry to smaller features like dormers and bays may be all very well, but the scale thus adopted ill accords with the thin treatment adopted by the author in roughcast for the end gables, which are finished off with only a tile creasing, not even a bargeboard. "Delia" overshadows his cottages by the needlessly big façade of the shop block in the middle of the row. The plans of the cottages are but repeats of ordinary suburban speculators' houses. There is only a space of about 2ft. to pass the foot of the staircases next the angle of the living-room wall. Notwithstanding such oversights, "Delia" sends a reasonable sort of design. The bedrooms are too low where the eaves come outside. "Bat" hits off a better plan, and his cottages are more reasonable. The elevation is thin-looking in effect, due to the wiry drawing. The post-office is much too large. "Bat" will improve. "Bedouin" has not learned the charm of that unassuming grace so essential to countryside architecture, if such a term can properly be used. Building, simple building, and no trimmings, is what is wanted. "Bedouin" is rightly plain; but, in spite of his plainness, the mullioned windows, curved shop-fronts, arched porches, and projecting bays look out of place appearing very smug, and entirely out of harmony with primitive ways of living. "Espoir" comes next, drawing carefully, and seriously doing his best. Broken party-walls on plan are not good, and not cheap, and this is the index to his design—it is not simple enough, though his work is by no means devoid of merit. "Claude" is better in this respect, only that his plans, with the eternally-recurring narrow side-passage and stairway facing the front door, do not harmonise with the façade. It is this effort after façades which ruins so much endeavour. The aim should rather be a good suitable plan, and then bespeak the plan in what the old builders used to term the "uprights" of the building. A passage in a cottage is not wanted. The whole house is far too small to spare a room for show purposes. The living-room should lead direct out of the kitchen. "Scruton" imitates a row of almshouses, and for the shop has Ionic columns to flank the window and the entrance. In the front of the village green he shows the village stocks. Both are out



of place, and so likewise is the arcaded treatment shown for the walls of the shop inside. "Scruton" sends a very good plan, and his building would look very nice with its ashlar walling and pedimented bays, but he has missed the object we had in view. He is too palatial for the present purpose. "The Auk" is far more in accord with the general spirit of village cottage-work. His drawing, done in brown ink, is spotty and poor, and the plan dodges about too much; some houses have kitchens in front and some behind. The elevation is rather good, but the drawing makes it look common-place. Here is the "rub" to design a simple, unpretentious, untrimmed, and inexpensive row of small dwellings, and yet impart a degree of taste and quaintness to render the work interesting and devoid of common-placeness. "Vigorina" is pretty and well drawn in a neat way, but it is wanting in "go."

We thus come to the class of designs which take second rank. "Le Nord" is one of the best, mainly on account of the grouping of the elevation. It is not a good plan to cut out the drawings as "Le Nord" has done, and paste them on a sheet of paper. "Rata" is too ambitious with cusped half-timber work, and shaped heads to the window and door openings. His view is a spirited performance, though it looks a trifle stagey. His house plans are of the villa type already objected to. "Notts" adopts the birds'-eye method of perspective, and sends in a plain design having a canted angle-ways square bay rather meaninglessly introduced at the ends of the front. "Brush" draws neatly, but in an uncertain style, leaving out his constructional lines in a patchwork way. He ought to improve upon this mannerism, which is not effective. "Rikki" shows common sense and a tasteful regard to simplicity. His failing is due to a want of care in good proportion. Thus the odd-shaped gables at the end are spoiled by their stilted look, and their shape is due to no evident advantage. "Astragal" makes a neat, but very modern row, and by this expression we mean to say the effect is stereotyped, lacking the spirit of the old, and yet not objectionably uninteresting. The plan is rather good. "Butts" deserves a line of commendation, reading into it much that has been said about the last named. His perspective, with the tumble-down fence in front, is not very effective. "Dachs" sends houses much too large, and so misses the position which his ability otherwise would command. "Arc" has a sense of unbroken quaintness; but the shop-front, and the way in which the shopkeeper's house is designed spoils his scheme. His chimneys are paltry. "F." has distinct merits, but little sense for good proportions, and queer drawing quite spoils the real effect which the eaves in his design would produce. "Alexem" has the objections alluded to in describing the design placed second, but he comes a long way behind the merits of that scheme. His sketch is very crude. "Carlo" is a poor draughtsman, but exhibits an appreciation of picturesque and well-grouped outline pleasingly contrived. His design, though plain in detail, would be expensive on account of its diversity of roofing. The third class of designs group themselves in the following order:—"First Attempt," "Dick," "Tie-Beam," "Don't Know," "Dodo," "Indian Ink," "Brown Bread," "Balbus," "Hoopoe," "B. Gyn. R.," "Jabez," "King Crow," "La Poupée," "Jonnie," "Gurgyle," and "Athos."

#### THE INSTITUTE STUDENTSHIPS AND PRIZES.

THE Soane Medallion and £100 was offered for the best design for a concert hall to seat 2,500 persons. The site given was oblong, with streets on all the surrounding sides. The designs submitted for this prize are of various merit: only one or two of the designs show a careful study of the conditions and skilful drawing; others illustrate the theories of acoustical construction, but their architectural qualities have been made a secondary consideration; and a few aim at mere novelty of conception, or are conceived in a spirit of complete variance with architectural rules and canons of composition. There is a reckless attempt to ignore all precedent and produce something sensational or crudely original.

The eleven Soane designs for a concert-hall exhibit various conceptions, from the conventional oblong hall to the ideal acoustical type.

"Ben Marcato," which takes the Medallion

and £100, is a well-drawn set of designs in a kind of Birmingham Town Hall style—a peripheral temple, with pedimented ends, surrounded by thickly-set fluted columns. There is a promenade round area. "Si Je Puis" is an elaborate series of drawings in the Italian Renaissance style, neat in execution, and showing much labour. There is a main order standing on a basement, and the flanks are arcaded between the columns, and form loggias. We do not approve of the broken arched entablature between the columns at the ends. The plan of the hall shows a well-shaped semicircular end near entrance, a curved semicircular recess for orchestra, with corridor round three sides, and having lounges, staircases, cloakrooms, &c., on either side of balcony floor. The entrances and exits are numerous. The total accommodation provided is 2,500 seats. The first balcony floor has a spacious foyer over the entrance hall.

"Olive Green" is conceived in a massive Florentine style, the main angles of front end being pronounced by large engaged octagonal towers, which form retiring-rooms below. Between them above the entrance vestibule on the first-circle level is a large crush-room with front balcony, which is a good feature. The hall is segmental-shaped at this end with three main entrances, also several on each side. The seating area is surrounded by a gangway and corridor. The platform end is recessed, with the side walls slightly inclined, and the seats are arranged as a semicircle within it. Outside the corridor are balconies and staircases. There is an area level, a first-circle and a second-circle level, and a total of 2,514 seats is provided. Some ingenuity is shown in the planning; there are ample entrances and exits, and the construction is fireproof to conform to the L.C.C. regulations. The external elevations are too heavy and fortress-like. Pierced by small openings, these have angle rusticated columns and arches, and the angle octagonal towers are crowned by flat cupolas. The auditorium rises a story above the surrounding building, and is separately roofed with central turret.

"Civitali," a bold Classic design, with large square tower-like projections at corners crowned with cupolas, and having a circular auditorium, is broadly treated, and some good features distinguish the design. The auditorium is covered by an iron domical roof. The author has grasped the conditions of a concert hall, but the design is somewhat crude in detail.

"Lohengrin" fails from its very cleverness. The author has ingeniously sought to develop the harmonic proportions and the acoustic principles of hall design. Accordingly he has made the longitudinal section of his hall trumpet-shaped, the platform or orchestra being narrow and low, expanding by widening walls into the further end of auditorium—no doubt a very clever realisation of the theory propounded by scientific men, but hardly satisfactory as an architectural design. The height, width, and length of hall are in exact harmonic proportion to the numbers 2:3:5. Taking 30.10 as unit, the height of hall equals  $2 \times 30.10 = 61.8$ ; the width,  $3 \times 30.10 = 92.6$ ; the length,  $5 \times 30.10 = 154.2$ ; the width of orchestra is equal to height or 61.8. The external features are of nondescript character.

"Honour" is a florid Italian design, with elaborate features and details. There is a large domical foyer and crush-room at the entrance end. "Cecilia" is tame, and has an ill-studied plan. "Swan" is an acoustical plan, but the elevations are wanting in character and dignity. The auditorium is surrounded by corridors with octagon bays at intervals. "Itinerant Architect" sends a bare, roofless, and primitive design, but the seats are well studied.

The designs submitted for a Royal Mausoleum (the Tite Prize) are disappointing. One student, "Red Rose," seems to have the right idea, and has justly been awarded the certificate and £30. The structure is broken, and rises from a Greek cross to a circular dome. There is a simple and dignified treatment, and the drawing of details is clever and masterly. "Memoria," which obtains honourable mention, is severe in outline, a flat-domed octagon, with apsidal chapel in the arm opposite entrance. The dome is panelled and enriched by decoration, and the details are fairly good. "Imperial" is too lofty. It is circular in plan, surrounded by apsidal recesses or alcoves. There is a deep apsidal chapel and projecting entrance.

"Petronius," to which the council gave a second medal, is wanting in solidity and

character; "Rex" is a square outside, octagonal within, covered by a flat dome. The detail drawing of shrine is able. "En Avant" is octagonal, with square-shaped like recesses on each side, forming a Greek cross on plan. Although there is meritorious drawing and detail in many of these designs, the authors have scarcely realised the objects. Eight designs were sent in.

For the Pugin Studentship Silver Medal and £40, sets of drawings have been received from eleven candidates. We notice with commendation H. Raine's very clever drawings in pencil of Chartres Cathedral, La Sainte Chapelle, Paris, firm and accurate in touch; also Benj. Bower's drawings and details of St. Mary Magdalen's church spire, Newark; St. Mary's, Warwick; monastic buildings at Ely, &c.; and J. A. Moore's pencil sketches of details of All Saints', Derby, St. Mary's Church, Warwick, Beauchamp Chapel, &c. There are eleven sets.

The Institute Silver Medal measured drawings are only six in number. It goes to "Wren" (Mr. H. E. Kirby), for a series of accurate drawings of the north porch of St. Paul's Cathedral—a hackneyed subject. Some firm ink drawings are submitted under motto "Nomen" of Moreton Old Hall, Cheshire, gable detail of timber and panelling. "Pitti" is a set of clear ink drawings of St. Michael's Church, Linsithgow, including plans and details. "Non vi sed Sempe," which takes a second prize, is a clever set of drawings of St. Catherine's College, Cambridge, an interesting example of Classic Revival of the 18th century. Under "Nox" are drawings of Southwold Church, Suffolk, showing the flint panel-work. Riddlesden Hall, Keighley, a good example of Tudor or Early Renaissance, is of interest—motto, "Sulphur."

The Grissell Gold Medal has only been responded to by four. The design is for a fruit, flower, and vegetable market, a good subject, and calling for some knowledge of iron construction. "Simplex" is a clever treatment on the whole, and wins the prize, "Jack" being an indifferent second; while the design "Artichoke," with a central dome, has merit.

The Owen Jones Studentship designs, for the study of colour, are only three in number. The winner, Mr. John Stewart, shows some very effective drawings. Edgar T. A. Wigram sends several clever colour studies from Venice and other Italian cities, and we notice very admirable studies of painted glass from San Marco, Florence, and San Lorenzo, Rome, and also from Venice. The chancel decoration of Santa Maria dei Miracoli, in the latter city, is a fine piece of decoration, very creditably sketched.

#### WHITECHAPEL ART GALLERY.

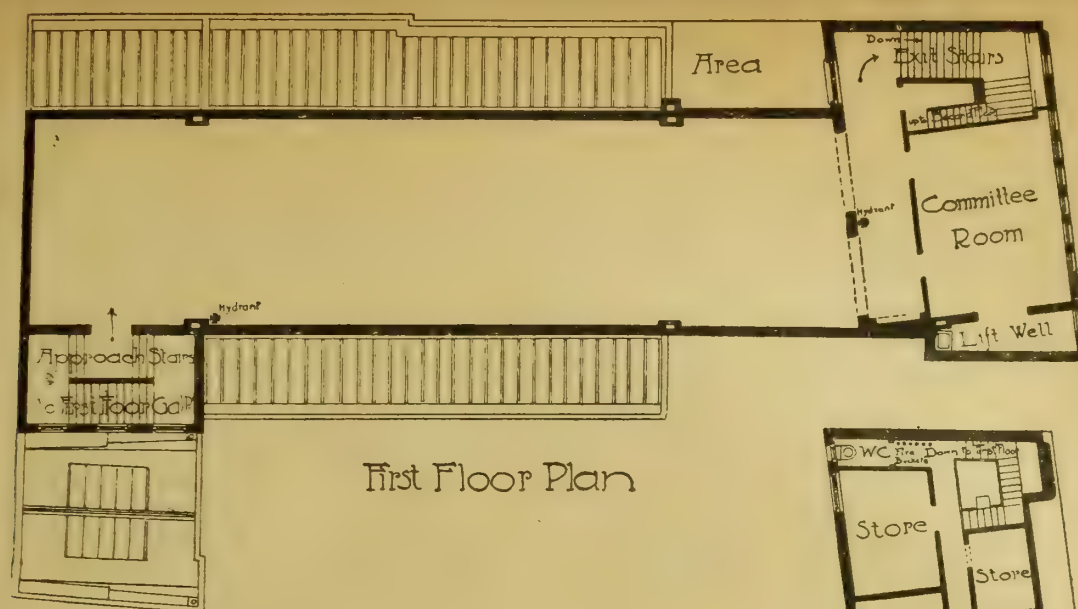
[WITH PHOTO-LITHOGRAPHIC ILLUSTRATION.]

WE publish the elevation and plans of the new picture gallery at Whitechapel which is in course of erection at the cost of Mr. J. Passmore Edwards, who was also the donor of the adjoining building, the Whitechapel Free Library. The site, surrounded as it is by other property, offered difficulties in the way of efficiently lighting the ground-floor gallery. These the architect endeavoured to overcome by an arrangement of plan somewhat on the lines of a church, the "aisles" being entirely top-lighted. Accommodation will be found to hang, with ample spacing, 450 pictures. The ground-floor hall will be so arranged as to allow it to be let for meetings when the loan exhibitions (of which it is intended to hold three or four a year) are not being held. The material for the façade towards the High-street will be a soft-coloured terracotta. The mosaic, which forms the dominant feature of the design, has been designed by Mr. Walter Crane, and is of a size unusual in exterior decorative work, being 25ft. long and 20ft. high. By the omission of the use of gold (the weak point in mosaics exposed to the weather), there is reason to believe in the permanence of the work. The architect is Mr. C. Harrison Townsend, F.R.I.B.A.

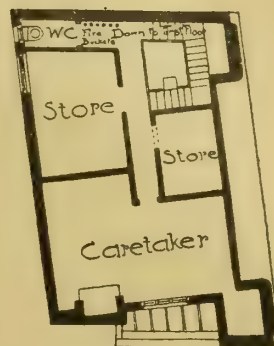
#### THE CRITTALL MANUFACTURING COMPANY'S WORKS, BRAINTREE.

WE recently availed ourselves of the opportunity of inspecting the works of the Crittall Manufacturing Company, Limited, at Baintree, Essex, a company which is one of the largest





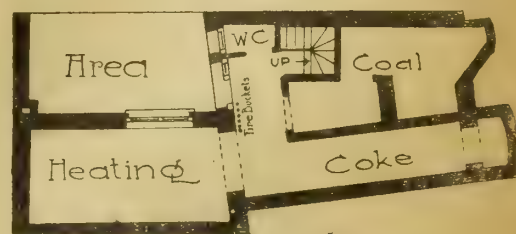
First Floor Plan



Second Floor Plan



Ground Plan



Basement Plan

## WHITECHAPEL ART GALLERY.

manufacturers of iron and steel doors, sashes, and casements in this country. The company have lately considerably extended their premises, owing to the development of their business, and the Manor Works now comprise several large and well-equipped workshops constructed substantially with ample skylights, well ventilated, with provision for overhead travelling cranes, and apparatus for moving the heavy iron and steel plates and manufactures. We first inspected the Door shop, 120ft. by 55ft., where large steel-plate doors to meet the regulations and by-laws of the L.C.C.

and fire assurance offices are turned out. These doors are made double and single-hanging, and in sets; also sliding, with iron hangers, cast-iron wheels, and channel-guide to run in. We here see the large steel plates  $\frac{1}{2}$ in. and more in thickness, framed up into sliding and hinged doors, with stiles and rails from 3in. by  $\frac{1}{2}$ in. up to 9in. by  $\frac{1}{2}$ in., 5ft. to 7ft. wide, by 7ft. to 12ft. high, and angle steel frames, 3in. by 3in. by  $\frac{1}{2}$ in. for party-walls. These are being made for Bovril, Limited, and the workmanship is of the best.

In another part of this shop we saw an 8ft. radial arm drilling machine by Buckton and Co., of Leeds, all holes being carefully drilled in the plates, and all edges planed by a 9ft. plate-edge planing machine.

The Sash shop (No. 3), measuring 160ft. by 40ft., was a very busy scene, scores of hands and machines being at work. Here iron sashes, too well-known to require description, are made. The company mitre all their sash-bar joints, and their sashes claim to be the best machine-mitre jointed in the market. The sections are rolled steel to



special models, and are manufactured of English material; all the corners of frames are brazed together. We notice here a very large skylight for roof of buildings in Red Cross-street intended for the Crittall Co.'s patent glazing, a special tee-section which thoroughly secures the glass, and with condensation grooves. The gutter is of cast iron channel iron. Some huge iron sashes for Messrs. Ogden's tobacco factory, Liverpool, were also shown us, 11ft. 6in. by 6ft. 10in. The frames are made with lugs to fix into masonry, and the ventilators on gunmetal centres, are made to hang in several ways, and to occupy a part or whole width of sash. Many have circular and segment or pointed heads, and all are mitre-jointed. For factories, warehouses, police-cells, and stables, these sashes surpass all others, and their moulded bars and mitres are clean and sharp.

The Casement shop (No. 2) is crowded with work in various stages. Our readers know the high repute the Crittall Company holds in this branch; their casements are too well-known to need description. We see side-hung casements in steel, iron, and gunmetal of all sizes, and with copper weather bars; casements hung at top or bottom, centre-hung casements, casements for fixing to wood or stone, with and without frames.

From these main departments we turn to other shops and stores, in which the several materials are prepared and stored. In the Machine shop we see the operations in perplexing diversity—15 drilling machines, a dozen circular cutting-off machines for plate and bar-cutting to lengths, several saws and lathes and compound milling machines, which latter are ingeniously contrived to mitre the bars where they intersect. No less than 300 tons of sectional bars are stored for use. We may mention that the Engine and Boiler rooms (laid in glazed bricks), occupied by Davey, Paxman and Co.'s engines and boilers, are quite model ones. The electric light throughout the buildings is also generated here. Various and very artistically-designed casement stays and handles in malleable iron, bronzed or blacked, gunmetal, "plain" and "best finished," are made by this company suitable for wood or metal casements, and of superior workmanship. Gearing for casements by vertical and horizontal rods of steel is an important branch of the company's business. Other developments are ship-fittings, radiators, air-tight manhole covers, staircases, &c., all of which goods are of the highest class of workmanship.

#### ESTATE FENCES.\*

VERY few people know anything about boundary fences in their legal aspect, and there are a great many who will be glad to have some authoritative statement as to their construction and cost. Mr. Arthur Vernon, F.S.I., land agent to the late Earl of Beaconsfield, and a member of council and honorary examiner of the Surveyors' Institution, &c., has just brought out a very comprehensive volume on the subject, which will be found of great service to land owners, surveyors, land agents, and others who are desirous of erecting fences. The work is, of course, largely a compilation; but the author's long practical experience as a land agent enables him to speak with authority. Numerous kinds of fences are described in these pages, and they have been divided into four main species—viz., the ditch, the hedge, the paling, and the wall; the author deals with them under the heads of the ditch fence, the hedge fence, the wall, the wood fence, the metal fence, the combination fence, gates, stiles, &c. In so simple a matter, it seems curious to be told that much want of judgment has been evinced in the selection of fences. Hedges of the wrong sort have been planted in soils where they could never have become strong and permanent fences, or have been so mismanaged or neglected as to become a waste of money, an eyesore, and a nuisance. The landscape and economic importance of fencing is acknowledged by everyone who has to manage or lay out land for agricultural and other purposes, and the preservation of bird-life, so essential to the extirpation of destructive insects, is one of the uses of fencing. Many useful observations will be found in Chapter II. It appears that there are many non-

destructive birds, like the golden-crested wren, the wood-wren, the chaffinch, the yellow wagtail, the titlark, &c.; the hedge-sparrow, unlike his more prolific namesake the house-sparrow, is an insect eating bird, and is useful in getting rid of worthless seeds, and does more good by destroying insects noxious to the farmer than it does harm. Good fences are required round young plantations or ornamental clumps, to exclude sheep and cattle, rabbits, &c. Live hedges, by harbouring insects, vermin, and weeds, and shading, are attended with disadvantages; large hedges at the sides of narrow lanes are picturesque, but exclude the sun and air, and keep the road wet and moist; but if properly kept and trimmed they make pleasing boundaries. The rental value of a farm depends much on the condition of the fences and gates, and the yearly cost of repair. Therefore, when a tenant takes a farm, the fences should be in good condition. A height of 4ft. 6in. is a good height for a fence to a paddock—a 5ft. fence taxes the skill of a hunter. Some useful remarks are made respecting the picturesque in fencing. Straight lines and right angles are abhorrent; curves are more pleasing, and we think the lines of fences should either follow the contour and trend of the ground; but the natural undulation of ground makes even a straight line agreeable. The colour and character of the fences should partake of the landscape and plantations. The sections and illustrations given are numerous, and these show different kinds of ditch fences, like simple ditch, double ditch with bank, a watercourse ditch and bank, &c. The author explains how these ditches are to be dug, the slope necessary for the banks in different soils. Ditch fences depend largely on the nature of the soil—what is right for clay would not do for a ditch in loose earth. "There is no economy in digging a ditch at too steep an angle for stability, and it should never be less than three nor more than five or six times wider at the top than it is at the bottom." Several examples of ditch fences with dimensions are given. The chapter on the management of young hedges is full of useful suggestions, and illustrated by different forms of hedges 4ft. to 5ft. high.

The wall fence is illustrated by several kinds of brick, stone, and flint walls. Very excellent and effective boundary walls are built of brick and flint, rough flint and stone, and good examples are met with at Eastbourne, Folkestone, and other south coast places. Ornamental, perforated, and panelled brick walls are given, and a table of cost of labour and materials is appended. Wood fences are also fully described in their numerous varieties, as the post-and-rail zigzag fences, the Continental palisade fence, matted hurdles, and each kind is illustrated by examples figured. Full dimensions of posts and rails, distance of posts, height, &c., are indicated. Open pale, close oak, boarded, and ornamental wrought fences are illustrated, with data for estimating. Metal fences are also treated in equal fulness, wire fencing, and cast iron and wrought iron, expanded metal, and other fences being described. "Gates and Stiles," "Fences as Shown on Plans," "Ownership Difficulties," and "Fences in their Legal Aspect"—the latter written by Mr. T. W. Marshall, B.C.L., Oxon.—are other chapters to which we cannot refer. The latter chapter adds much to the practical value of this useful and comprehensive treatise. A glossary of terms is given at the end, and the index makes the work easy for reference. The illustrations are numerous.

#### A NEW SURVEYING INSTRUMENT.

THE *Times* describes an instrument which claims to be able to record automatically not only the distance travelled by a bicycle or other vehicle, but also the various directions followed during the journey and the hills ascended or descended. The record of distance travelled, of course, presents no difficulties. The record of directions is not so simple, but it is obtained by means of a compass. The needle is suspended at the top of the pathometer, as the instrument has been named, directly above the tape on which the records are taken, and is so arranged that all its movements are exactly reproduced by the stamping portion of the marking apparatus, though the act of stamping is performed independently of the needle and without disturbing it in the least. The indications appear on the tape in the form of fine arrows, all, of course, standing magnetic north and south. Now the run of the tape represents the direction in which

the bicycle travels; hence the series of arrows constitutes a record of the course steered. The problem of showing ascents and declines is solved by a pendulum. The pathometer is fixed to the frame of the vehicle in such a way that this pendulum is free to move to and fro in the line of travel, its oscillations being damped by immersion in glycerine. Against the recording tape, which is carried on a drum that is rotated as the bicycle moves by the action of a "kicker" as in an ordinary cyclometer, there presses a wheel with sharp teeth, able to cut into the paper. This wheel is controlled from the pendulum in such a way that when the latter is hanging in its middle position—as it does when the road is quite level—the line cut in the tape is straight and parallel to the edges of the strip; but when the pendulum is swung forwards or backwards the line is diagonal, its obliquity being proportional to the steepness of the slope traversed. Hence with a knowledge of the constants of the instrument the gradients over which the vehicle has passed can be easily calculated. The inventor does not expect an error of more than 1 per cent. in the cheaper and smaller forms, while he believes that in the larger ones carefully constructed for scientific purposes it can be reduced to 1 in 1,000. The instrument is not yet on sale.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A BUSINESS and ordinary meeting of the Institute was held on Monday evening, Mr. E. A. Gruning, Vice-President, in the chair.

#### AWARD OF PRIZES AND STUDENTSHIPS.

The Chairman read the deed of award of prizes and studentships for 1898-99 made by the Council, and, the seals of the envelopes having been broken, the names of the prize-winners were also announced in accordance with the following list:—

Institute Silver Medal and Twenty-Five Guineas: for Essay on "The Use and Value of Colour in Architecture"—H. C. Collette, 18, Selwood-place, Onslow-gardens, S.W.; 2nd, £5, F. C. Eden, 3, Staple Inn, W.C.; hon. mention, A. Troyle Griffith, B.A., Malvern; J. Humphreys Jones, B.A., Dalston; and Alexander N. Paterson, M.A., of Glasgow. Seven essays sent in.

Institute Silver Medal and Ten Guineas: for Measured Drawings of Ancient Buildings in the United Kingdom or Abroad—"Wren," H. E. Kirby, St. James's Palace, S.W. (drawings of St. Paul's Cathedral); 2nd, Medal and Five Guineas, "Non vi sed sepe," Heaton Comyn, c.o. R. S. Balfour, 76, Inverness-terrace, W.; 2nd, eq., Medal of Merit and Five Guineas, "Nox," Edward F. Nox, North Bank, Oakley Park, N. Six competitors.

Roane Medallion and £100 (for Continental travel): Design for a Concert Hall—"Ben Marcato," William Arthur Mellon, 136, George-street, Edinburgh. Eleven competitors.

Pugin Studentship: Silver Medal and £40 (for travel in the United Kingdom)—J. Harvey Rutherford, 9, Sydney-street, Chelsea, S.W.; 2nd, Ten Guineas, E. H. Bennett, Curzon House, 35, Albany-street, Regent's Park, N.W.; 3rd, Five Guineas, Ramsey Traquair, 8, Dean Park-crescent, Edinburgh; hon. mention, Albert Herbert, of Leicester. Eleven competitors.

Owen Jones Studentship: Certificate and £100 (for travel and study of colour)—John Stewart, Huntingdon House, Bridge of Allan, N.B. Three competitors.

Godwin Bursary: Silver Medal and £40 (for travel outside the United Kingdom)—E. W. M. Wonnacott, 74, Torbay-road, Broomfield, N.W. No other competitor. The Prize: Certificate and £30 (for travel in Italy)—"Red Rose," James B. Fulton, 34, Mecklenburgh-square, W.C.; 2nd, "Petronius," Alexander McInnes Gardner, 3, Albert-street, Downhill, Glasgow. Hon. mention, Ernest T. Jago, 16, Garfield-road, Lavender Hill, S.W. Eight competitors.

Grissell Medal and Ten Guineas (for Design and Construction): Design for a Fruit, Flower, and Vegetable Market—"Simplex," G. Gardner Wallace, 1, Gladmuir-road, Highgate. Hon. mention, "Jack," C. A. Daubney, 1, Wellington-road, Peckham, S.E. Four competitors. Ashpitel Prize: to most distinguished Student in Final Examinations of 1898—equally divided (Five Guineas each) between Charles Ridley and John Kirkland.

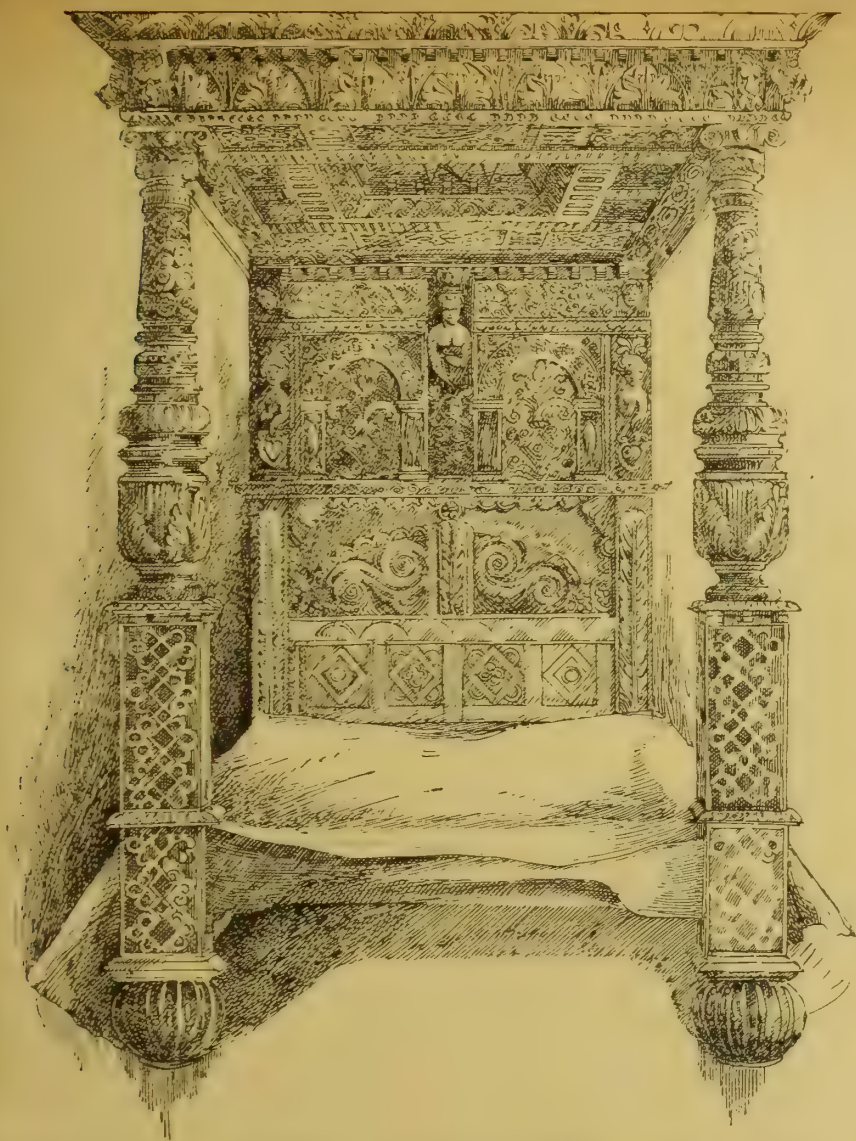
The designs and drawings, which were on view in the meeting room and the council room and the galleries on the floor above, are dealt with in an article on p. 84, ante.

#### ADMINISTRATION OF LOCAL BY-LAWS.

Mr. Lacey W. Ridge moved the following resolutions:—(1) That the administration of Local Building By-laws in rural districts is a matter calling for the action of the Royal Institute. (2) That the Council be requested to communicate with the Local Government Board on the subject, and to appoint a Special Committee to consider and take action thereon. (3) That matters of sanitation, including the preparation of the site for building, should in all cases be carried out under the supervision of the local authorities. That where separate tenements adjoin they should be divided by party walls of incombustible material. That the interests of

\* Estate Fences: their Choice, Construction, and Cost. By ARTHUR VERNON, F.S.I., &c., and a Chapter on Boundaries and Fences in their Legal Aspect. By T. W. MARSHALL, B.C.L. Oxon. London: E. and F. N. Spon.





ELIZABETHAN BEDSTEAD FROM HEAVITREE HOUSE, EXETER.

the public in buildings in rural districts are not such as to justify any further interference on the part of the public authorities with the construction of buildings.

Mr. William Woodward seconded the motion, which was supported by Mr. J. Douglass Mathews. Mr. P. Gordon Smith assured the members that any representation from the Institute would be received with the greatest respect and attention by the Local Government Board. Mr. Owen Fleming suggested that resolution 3, dealing with questions of detail, might be withdrawn. This was agreed to by Mr. Ridge, and after some further discussion the first and second resolutions were unanimously adopted.

#### ELIZABETHAN BEDSTEAD FROM HEAVITREE HOUSE, EXETER.

THIS interesting piece of historic furniture belonged to the late Sir F. Clare Ford, G.C.B., long Ambassador at Rome. His house at Exeter contained a fine collection of works of art, and among these some really good old furniture. This bedstead was one of the best. During the present week a sale has been held, consequent upon the death of Sir Clare, and Mr. A. Bromley Sanders, of the Cathedral-yard, Exeter, was the auctioneer. The bed has the usual massive turned posts, and a carved and panelled tester deeply coffered in the centre. The head-piece is enriched by figure work. The piece is 5ft. wide, and as a sample of Jacobean work is of undoubted interest. The carvings are very perfect, and as sharp as when the work was executed.

The memorial to the late Right Hon. Edward Stanhope, at Horncastle, is to be unveiled on February 2 by Earl Stanhope.

#### DRESSING BUILDING STONES BY MACHINERY.

ONE especial feature characterising the work of stone-cutters and stone-dressers is that it is generally carried on in the open air, or in a shed so open to the weather, except for a roof, that it amounts to pretty much the same thing. Another distinction between this and other handicrafts is that, while, as a rule, the latter have benefited largely by the introduction of machinery, new labour-saving appliances and apparatus, and improved methods which greatly facilitate the operations of the craftsmen, the stonemason still plies his tools in very much the same old style as formerly. No one who has watched a gang of stonemasons at work could come to any other conclusion than that the operation of cutting and dressing building-stones is slow, tedious, and laborious. Under the new régime, which has been tried successfully in America, all these drawbacks will be either removed or considerably ameliorated. In the first place, warm and well-ventilated workshops will take the place of the unprotected shed, and in it "dressing machines" will perform at one operation what it at present requires a number of small ones in the aggregate to accomplish. The motive power driving these dressing machines is supplied by compressed air, and the whole process is so exceedingly simple and brief, that one need not be a mechanical engineer to thoroughly comprehend both its full value and efficiency. These machines, or dressers, as they are termed, consist essentially of an ordinary cylinder furnished with a movable piston which works alternately up and down in the interior of it after the regular see-saw manner. At the end of the piston-rod is fixed a cutting-tool, which varies in size, shape, and degree of sharpness, according as the nature of the particular work requires. When the compressed air is admitted

into the piston it acts precisely as steam power does, and, when necessary, can propel the piston and the cutting-tool attached to at the rate of 120 strokes a minute, although this high velocity is very rarely needed.

It is necessary that the workman manipulating these dressers should be a somewhat experienced hand, and not altogether unused to mechanical appliances, as the cutting-tool demands careful and accurate adjustment for the duty it has to perform. After the cutting-tool, which is balanced by a counterweight, has been properly placed in position, the operator guides it backwards and forwards over the surface of the stone to be dressed until the operation is satisfactorily completed. It is, however, not merely that these machines render the labours of the stonemason much lighter than they have hitherto been which constitutes their principal merit. They possess the greater advantage of contributing to his physical well-being, and very possibly to the prolongation of his health and life. It is well known that there are a number of mechanical trades and businesses in which a considerable quantity of fine dust, and sometimes almost impalpable particles of various disintegrated materials attend the different processes. These minute irritants are continually finding their way into the eyes and lungs of the workpeople, both men and women, and in some instances children as well. There is no difficulty in devising means for, if not totally preventing, at any rate greatly diminishing, the deleterious action of these noxious particles. Numerous are the devices: from the simple mask to far more elaborate designs, which have from time to time been invented, and put into actual use. But the great difficulty to be surmounted, which in some cases appears to be quite insuperable, is to overcome the disinclination of the workpeople themselves to the adoption of these remedial measures. While they acknowledge their value, their utility, and their efficiency, they state that they encumber and embarrass them in the execution of their work. To some extent there is no doubt that in more than one instance this allegation is not devoid of either truth or reason, although not perhaps, to quite the degree the employés would wish to make out. Nevertheless, all English workmen like to work under natural conditions, with their limbs and physical capabilities completely untrammelled and unfettered.

Stone-cutting is one of the handicrafts which is unfortunately accompanied by the production of a large quantity of small petrean particles of a very injurious character. It is claimed as one of the chief advantages of the compressed-air process that it altogether nullifies the evil effect of the dusty residue arising from the continued trituration of the material. Directly the compressed air is liberated, it creates a regular blast which sweeps before it, away from the persons of the workmen, all those injurious annoyances have enumerated. In this particular point compressed air can compete very favourably with electricity as a motive force for a similar purpose. Moreover, the simple dresser is a far less costly and more easily and cheaply manipulated machine than the cumbersome and expensive engine and dynamo, requiring skilled men to attend to them. Both these sources of power are employed in the quarrying of stone, in the piercing of tunnels, and in numerous other descriptions of engineering work. But, at the same time, dealing with rock and stone *en bloc* is a very different matter from the more delicate operation of dressing the surface of stones intended for construction as well as for decorative purposes. The method just described ought to have a future before it, for it possesses three meritorious distinctive characteristics—viz., economy, executive rapidity, and immunity from danger to those engaged in using it.

T. C.

#### BOOKS RECEIVED.

*Monographs on Artists*, by H. KNACKFUS, translated by CAMPBELL DODGSON, M.A. (London: H. Grevel and Co.—4s. each), will be appreciated by all. The issues sent to us (Nos. 1 and 2) deal with Raphael and Holbein. Each volume may be had separately, but readers who value good illustrations and competent criticism will take care to get all as they appear.—*Lockwood's Builders' and Contractors' Price Book*, 1899. Edited by FRANCIS T. W. MILLER, A.R.I.B.A.—The present volume contains, in addition to the price lists of each trade—which remain unaltered, owing partly to the cost of labour, necessitated



by the trade-union policy and the maintenance of high prices by master builders in consequence—the "London Building Act, 1894," edited, with annotations, by Mr. A. J. David, LL.M., of the Inner Temple; Notes on Decisions of the Courts; By-laws and Regulations of the L.C.C., of the Public Health Department of the Corporation of London, "Sections in Electric Lighting," by Mr. A. P. Haslam, A.I.E.E., besides the miscellaneous appendices of tables of weights and measures, areas, solicitor's costs, valuation of leases and estates, legal memoranda, marks and qualities of wood, and the form of building contracts adopted by the R.I.B.A. As a compendious guide to prices and building trade measurement, and as a book of general reference for the contractor, architect, surveyor, and engineer, Lockwood's Price Book maintains its character for completeness and accuracy.—*Description of Various Sewage-Disposal Works*, by R. O. WYNNE ROBERTS, Assoc. M.Inst.C.E., City Engineer, Cape Town (London: The St. Bride Press, Limited, St. Bride's House), is a report prepared by the author, who was formerly borough engineer of Oswestry. The remarks appeared in the *Surveyor*. The author treats the subject under several heads. When dealing with the discharge of Oswestry sewage, he visited several works and reported on them, and this little book gives a summary of the information collected. Under "Land Irrigation with Crude Sewage," the experiences of Wrexham, Nottingham, Merthyr Tydvil, Stretford, and Bedford are dealt with; under "Crude Sewage after Partial Separation of the Sludge," we have data from Merthyr Tydvil, Wimbledon, Cheltenham, Walton, Banbury, Luton, &c.; under "Chemical Clarification and Land Irrigation," the facts are collected from Hereford, Lincoln, Loughborough, Melton Mowbray, Ealing, and Wimbledon. The experience of "Clarification" and "Artificial Filters," "Electrical Treatment," "Biological Treatment," and "Septic Tank Systems" are also noticed; and the author comes to the conclusion that "the biological filters and the septic tank system are both improvements on the majority." Where land is prohibitive in price or cannot be had, these methods of purification can be adopted at less cost; and the author shows that the bacteriological methods have simplified the process, for the filters can be made of any material. Chemical precipitation will, it is thought, only be used in exceptional cases. This little book is a useful summary of the methods in use.

#### CHIPS.

The Board of Trade have recently confirmed an order, authorising the construction of a light railway from Porthywaen, in the county of Salop, to Llangynog, in the county of Montgomery.

Six windows in the Congregational Church, Pendleton, Salford, are about to be filled with stained glass. The artists are Messrs. Beaven, Bennett, and Co., of Manchester.

Tuesday evening, the 31st inst., has been appointed for the Royal Academy elections at Burlington House. There are four vacancies to be filled—three among the Associates and one among the Honorary Foreign Academicians.

At the Manchester Town-hall on Thursday last week an inquiry was opened by Major-General H. D. Crozier and Mr. Theodore Thompson, Local Government Board inspectors, with reference to the application of the city corporation to borrow £160,000 for purposes of sewerage and sewage disposal.

The entrance to the lower chamber in the Central Lobby of the Houses of Parliament is at present occupied with scaffolding, workmen being engaged in placing a mosaic representing St. David in the niche over the doorway. The mosaic is to be a companion work to that depicting St. George, over the entrance to the House of Lords, and it is intended to place mosaics representing the patron Saints of Scotland and Ireland in the corresponding spaces over the doorways leading to St. Stephen's Hall and to the Commons' dining-room and committee-rooms. The David mosaic is being carried out by the Venice Murano Glass Company.

Colonel Luard, R.E., on behalf of the Local Government Board, held an inquiry, in the District Council Offices at St. Anne's, on Friday, for the purpose of obtaining particulars of applications for power to borrow £4,000 for the erection of a fire-station, slaughter-house, mortuary, and town's depot, £3,500 for the erection of a refuse destructor, £1,533 for a sewer in Clifton Drive South, and £350 for the purchase of a fire-engine: or, in all, just over £9,400.

## Building Intelligence.

**BRISTOL.**—The new clothing factory erected at Staple Hill for Messrs. Wathen, Gardiner, and Co., was opened last week. The premises cover just an acre of ground, the main building measuring 210ft. by 150ft. The whole of this is lighted from the roof on the north-light principle, using upwards of 13,000ft. of plate-glass set in steel bars. The roof is supported on iron columns, with light steel trusses and framing. The goods can be passed successively through all departments from the receiving-rooms for raw material to the finishing and packing rooms. The machine room, 150ft. by 42ft., has been fitted up by Messrs. Singer and Co. with machines for 400 workers. Power is supplied by a gas-engine, and protection against fire is provided by a system of hydrants. The building is warmed by a hot-water apparatus, supplied by Messrs. Crispin and Sons, who have also put in the stoves for the pressing department. The elevations are of Pennant stone, with Cattybrook brick dressings and cornices, the central block being entirely of brick, with Brosely tile roof. The general contract has been carried out by Messrs. Cowlin and Son, and the sanitary engineering by Mr. G. Tuckey. The architects were Messrs. La Trobe and Weston, F.F.R.I.B.A., of 20, Clare-street, Bristol.

**CRINGLEFORD, NORFOLK.**—The parish church was reopened last week after restoration, from plans prepared by Mr. A. J. Lacey, of Upper King-street, Norwich, diocesan surveyor, carried out by Messrs. G. E. Hawes and Sons, of the same city. The total cost of the work has been over £1,400. The south wall of the nave has been removed, and in its place there is an arcade of three arches on four stone columns, and an aisle with gabled roof, capable of seating over 100 people, has been built. The decayed roof of the nave has been replaced by an open-timber one of pitch-pine. The nave and aisle have been seated with oak. Two buttresses have been built into the north wall, and a new heating-chamber has been built, and heating apparatus fitted throughout the church and chancel by Messrs. Reeve, of Duke-street, Norwich. The tower and porch have been restored. While the north wall was being unfaked traces were discovered of two early arches, with a Saxon window, splayed on both sides, and retaining some of its old oak frame. In the south wall were found portions of Saxon crosses and a small Norman capital of Early date. A double recess inside the north wall and a squint on its outside have also been discovered.

**LEEDS.**—A Presbyterian school hall at the junction of Harehills-avenue and Avenue-hill was opened last week. The hall, which has cost £1,800, is built of pitch-faced stone lined with brick, with a pointed red-tiled roof to connect the church to be erected in the near future on the immediately adjoining land. The dimensions of the hall are 43ft. by 26ft. 6in., and there is seating accommodation for about 250 people. The roof is timbered, and the walls finished in plaster with a panelled wood dado. Solid wood blocks are used for the floor. Mr. W. H. Beevers, A.R.I.B.A., is the architect, and the contractors include:—Masons' work, Mr. A. W. Hargreaves; joiner, Mr. B. Mawson; wood-block floors and mosaic, Messrs. Geary, Walker, and Co.; ventilation and roof-work, Messrs. Ewart and Son and Messrs. D. Crossley and Son.

**MANCHESTER.**—In Deansgate a plot of land, having streets on three sides, has recently been purchased partly by the City Missions Board and partly by the Manchester and Salford District Provident Society. The architect for the former and larger building is Mr. Henry Lord, and for the latter Mr. Charles Heathcote. The architects have arranged, as far as rights of light will allow, to erect the two buildings in harmony, and intend using for each building similar granite base, stone ground-floor façade, and with the upper portions in terracotta.

**PETERBOROUGH CATHEDRAL.**—The work of taking down the south gable of the west front of Peterborough Cathedral has made great progress during the past week. The roofing has been demolished, the surroundings cleared, and the massive and very beautiful foliated cross which tops the gable has been carefully removed, and the demolition process actually started upon. This cruciform finial, with its pedestal, weighs a

couple of tons. It has not been brought into the precincts below, where the rest of the stones are laid in sequence, and repaired, but finds a harbour aloft, as was the case with the northern gable cross. It was a peculiarity of the southern gable roof that its ridge was far below the wheel lights, rendering the window a sham so far as illuminating purposes were concerned. The roof will now be raised. The roof supports were found to be of stout oak, little the worse for age, and although not deemed to be the original, they were at any rate a Medieval substitution. So sound are they that they can be added to for the additional height and used again. This gable is not so much out of the perpendicular, nor is it in such a bad plight as its northern sister was. It is leaning towards the Market-place about 1ft. 11in., whereas the other was over 2ft. 2in. out of plumb. Whereas the various orders of the deeply-recessed arch on the northern side had become disordered to such an extent that they were all but slipping over one another, in the case of the southern gable the arch mouldings are secure and will not be touched; the work indeed will only proceed to the main string-course, just below the base of the gable. There are some nasty cracks in the upper masonry, but they are trivial compared with the chasms which were in the north gable. Altogether, therefore, the work is nothing like so heavy as that just completed, and the time occupied will be correspondingly shorter. The work is still being done by Messrs. Thompson's firm, under Mr. G. F. Bodley, A.R.A., the restoration committee's architect, and the residential supervision of Mr. T. J. Irvine, who has been the architect's clerk of the works from the start. Compared with the northern gable, there will be very little renewal of stonework; but sufficient old Barnack rag (of which the front is composed) has been secured for the purpose (in the demolition of "Low Farm"—a homestead contemporary with the date of the west front) and will be worked up. Several of the Alwalton marble shafts, as well as the spokes of the wheel window, have decayed, and will require renewal, wholly or partially; but sufficient material from the Alwalton quarries has been secured for this purpose also. The weather and iron clamps have played havoc with the statuary in this particular gable, and the figures will be pickled in a lime-water bath, and restored where necessary.

**RADCLIFFE, LANCs.**—The new Grand Theatre and Opera House, Radcliffe, was opened on Monday week. The building is from designs by Mr. Chas. E. Humphreys, architect, of Chorley. The exterior is of brick, with terracotta dressings. An arcade affords protection against the weather to those awaiting admission. The auditorium is seated for 2,000 people. The ground floor contains two classes of stalls fitted with tip-up chairs, the pit being at the back of these stalls. The first tier contains dress-circle, with tip-up chairs, two large side circles, and four boxes. The gallery is on the floor above. Each part of the house is provided with refreshment and retiring rooms. The stage is 61ft. by 40ft., clear of any obstruction, the proscenium opening being 27ft. wide. There are greenroom, thirteen dressing-rooms, property-room, painting-room, and scene dock, and a fireproof curtain to cut off the stage from the auditorium. Messrs. Baxendale and Sons, of Chorley, are the builders.

**RIPON.**—The new workhouse infirmary was opened last week. It is two stories in height, and has been erected with local and Leeds bricks, with Pateley Bridge and Killinghall stone dressings. In the central portion, on the ground floor, are the head nurse's sitting-room, medical officer's room, storeroom, assistant nurse's bedroom, waiting lobby, and conveniences. On this floor is a sick-ward, 25ft. 6in. by 23ft., and 11ft. high, for eight beds, with bathroom. The first floor is reached by two stone staircases. The central portion of this floor contains the head nurse's bedroom, bathroom, and lavatories; also labour-room and lying-in-room; while on either side are situated duty-room, special-case ward, sick ward for eight beds, dayroom, and bathroom. Accommodation is provided for 38 patients. The cost of the building has been £2,750, exclusive of furnishing. The architect is Mr. F. H. Hargrave, of Ripon.

**SOUTHAMPTON.**—The board of guardians adopted, at their last meeting, plans and a scheme prepared by Mr. A. F. Gutteridge, of the firm of Mitchell, Son, and Gutteridge, architects, of Southampton, for building a workhouse infirmary



on the Shirley Warren site, at an estimated cost of £65,000. The buildings now to be erected will comprise lodge and entrance-gates, nurses' home, observation block, doctor's and matron's block, committee-room, &c., kitchen and stores block, receiving and central administrative ditto, two women's pavilions, three men's ditto, small maternity ditto, laundry, boiler-house, mortuary, workshops, sheds, &c. The accommodation will provide 120 beds for sick women, 8 ditto for maternity cases, and 184 beds for sick men. The administrative blocks and offices, laundry, boiler-house, &c., have been arranged and provided to be of sufficient area to allow of future extensions. The nurses' home will accommodate the nurses and probationers only, who will all reside there. The greater part of the bedrooms are about 12ft. by 8ft. for single beds, and there will be a few double-bedded rooms. A general reception-room is provided; also a quiet room, and small visitors' room. This building will be three stories in height, and will provide beds for about 30 persons. All the blocks will be of the simplest character possible, in red brick, with slated roofs. The only buildings with any pretension to architectural effect are the lodge and gates, the nurses' home, and the main administration block, in which a little stonework is used very sparingly.

**WAKEFIELD CATHEDRAL.**—Dr. Tristram, Q.C., Chancellor for the diocese of Wakefield, held an inquiry at Wakefield Cathedral on Friday with reference to a petition from the vicar and churchwardens for a faculty to alter and enlarge the cathedral as a memorial to the late Rev. Dr. W. Walsham How, first Bishop of the diocese. Mr. Chalker appeared in support of the petition, to which there was practically no opposition. Mr. Eldridge appeared for Mr. Henry Hawksworth, the owner of some adjoining property, whose ancient lights will be interfered with, and asked for reasonable compensation. Mr. Chalker promised to negotiate with the property-owners. It was stated that the proposed alterations and additions are estimated to cost from £20,700 to £25,000, towards which £11,000 has already been promised and £9,000 deposited in the bank. The alterations will include new vestries and chapter-house, and will increase the sitting accommodation from 1,400 to 1,800. The plans were prepared by the late Mr. Pearson, R.A., and will be carried out under the direction of his son, Mr. Frank L. Pearson. Mr. Harold Watson, architect, submitted a plan of the graves which will be interfered with. The Chancellor made a decree, subject to the insertion in the faculty of clauses protecting the rights of certain interested parties.

**WINCHESTER.**—The City and County Club in Chenock-place will be opened in March. Messrs. Cancellor and Hill, of that city, are the architects, and their plans have been carried out by Mr. F. Walter, of Southampton, the cost being between £4,000 and £5,000. The bricks used are Rowland Castle red, whilst the ornamental parts are in the moulded brick of Messrs. Poulter, of Reading. On the ground floor is an entrance-hall 17½ ft. by 15ft. From it are reached a smoking-room, 29ft. by 24ft.; a dining-room, 29ft. by 21ft.; a manager's room, 13ft. by 11ft.; and butler's pantry, 11ft. by 7ft. The first floor includes a ladies' room, 15ft. by 14ft.; a reading-room, 29ft. by 24ft.; and a card-room, 29ft. by 21ft.; also a steward's room, 13ft. by 11ft. The basement contains kitchen, scullery, servants' hall, larder, and cellars.

The old parish church of Bothwell, N.B., was reopened last week after restoration, carried out from plans by Dr. Rowand Anderson, of Edinburgh, and at the same time there was unveiled in the churchyard a monument, executed by Messrs. Doulton and Co., of Joanna Baillie, the poetess.

The improvement committee of the Manchester Corporation have appointed Mr. William Wilson chief building inspector, at a salary of £200 per annum. The committee have also resolved upon a more careful supervision of advertisement hoardings. The height of such hoardings, where they abut upon a footpath, will henceforward be limited to 15ft.

In the case of "Donaldson and the Corporation of South Shields," in the Court of Appeal on Thursday in last week, the practical question between the parties was whether the corporation was entitled to take, in addition to the land actually required for widening a street, land adjoining, and to resell it at a profit. Mr. Justice North had held that the corporation was not so entitled. The Court affirmed the decision of the Court below.

### LEGAL INTELLIGENCE.

**LORD BATTERSEA AND OTHERS V. THE OWNERS OF CLEMENT'S INN.**—This case came before Mr. Justice Kekewich, in the Chancery Division, on the 13th inst., on a motion by the plaintiffs, the owners of Dane's Inn, Strand, for an *interim* injunction to restrain the defendants until the trial of the action from building a wall on their property at the eastern side of Dane's Inn, in such a manner as to interfere with the access of light to the plaintiffs' property. Mr. Renshaw, Q.C., stated that the owners of Clement's Inn had for some time past been erecting a very high block of buildings on their property overlooking Dane's Inn, and this block of buildings was the subject of the action. Negotiations between the owners of Clement's Inn and Dane's Inn took place in 1887 and 1888, which resulted in an agreement, dated July 30, 1888. Under that agreement it was stipulated that the defendants might pull down certain buildings on their ground which backed upon Dane's Inn, and also that the plaintiffs, the proprietors of Dane's Inn, might increase the height of their buildings, there being certain reservations as to the heights to which the buildings should be carried, and the angles of building, so as to facilitate access of light. The plaintiffs had not increased the height of their building, but his case was that the defendants had exceeded the heights allowed under the agreement, and had interfered with the plaintiffs' ancient lights. One ground of complaint was that the defendants, after allowing the slope-back of their building for a certain height, had then raised it abruptly, instead of the sloping-back being continued. Trouble began early in the autumn, when the plaintiffs' solicitor wrote that the building of the north-western end of the Clement's Inn block greatly interfered with their clients' property, and diminished their light. The writ in the action was issued on Oct. 29. His Lordship: They had liberty to go up to a certain point. If they had gone beyond that point, your claim is not for breach of agreement, but for interference with the access of light without sanction? Mr. Renshaw agreed that that was so. The learned counsel then read the plaintiffs' evidence, amongst which was the affidavit of Mr. Jas. Smith Cooper, an architect and surveyor occupying offices in Dane's Inn, who said that he had been engaged respecting the plaintiffs' property since 1888. The block of buildings on the west side of the courtyard of Dane's Inn, containing ground floor and three floors above, enjoyed uninterrupted access of light over the buildings in Clement's Inn, now pulled down, except so far as the ground floor and first floor were partially obstructed. In his opinion, if the defendant's building was continued, the plaintiffs' light would be obstructed and the value of their premises seriously diminished. His Lordship (to Mr. Renshaw): What are you asking for? Mr. Renshaw: I am only asking on this occasion to keep affairs in *statu quo*. Mr. Bramwell Davies, Q.C., counsel for the defendants, then read the defendants' evidence, which had been filed. The affidavit of Mr. Chas. Bull, the contractor, stated that he had known the premises of both plaintiffs and defendants since 1883. Before the new building was put up, the old buildings in Clement's Inn, now pulled down, were higher than those in Dane's Inn. The agreement of 1888 did not refer to roofs or chimneys, and, as he understood, fixed the height of the wall, but not of the roof. In his opinion, the plaintiffs at no time prior to the pulling down of the old building had uninterrupted access of light, but a lesser angle than they now obtained. He denied that they would be deprived of light previously enjoyed. Mr. Slade, the defendants' architect, stated that when making the designs he had most carefully considered the height and position of surrounding property. He denied that there was any material diminution of light to the plaintiffs' windows as they now existed. The agreement of 1888 did not provide for slopes of roofs. Other affidavits were read to a similar effect. His Lordship: My view of this agreement is that it gives the defendants liberty to remove their old building and to erect a new building, as shown under the conditions agreed. Nothing more nor less. Mr. Davies, for the defendants, agreed that as far as anything else was concerned the parties were governed by their ordinary rights, whatever they were, but was there not, however, a deduction to be drawn from the agreement? The owners of Dane's Inn obtained power to increase the height of their building under this agreement. He (counsel) submitted that he was entitled to say that it must be considered in deciding on what the defendants had done that if Dane's Inn was carried up as the plaintiff had power to do there would be no question of the Clement's Inn building obstructing the lights as now complained of. His Lordship: You want to treat an option as an obligation? The learned counsel replied that he wanted to treat as done that which the plaintiffs had power to do, and that he submitted was the intention of the parties. In conclusion, the learned counsel submitted that, in view of the distance at which the Clement's Inn and Dane's Inn buildings stood apart, there was not sufficient evi-

dence to show that there was material interference with the light, or that there would be such interference when the building was completed. His Lordship, in giving judgment, said that the ingenuity of surveyors, and, perhaps, that of their legal advisers as well, had been largely expended in confusing a perfectly plain issue. That issue was this: Had the defendants by such part of their building as went beyond the lines sanctioned by the agreement interfered, or would they interfere when their building was completed, substantially with the access of light to the plaintiffs' building? The defendants had introduced what was practically an idle contention: that something else might or would happen if the plaintiffs hereafter exercised the option given to them by the agreement to raise their building. The plaintiffs had not exercised that option, and there was not a word in this case to show that the relative rights of the parties were changed by that option. The construction of the agreement was plain. It provided for a new building under certain conditions, but there was no prohibition one way or the other. It was perfectly plain that the defendants were to be at liberty to build as provided by the agreement, without justifying any complaint on the part of the present plaintiffs, and leaving them free as to their actions subject to any interference with the Law if they chose to overstep it. The question was whether the wall in question would affect the light of Dane's Inn when the defendants' building was completed. Here was a new building of enormous height in the place of a dwarf building, and it was quite impossible, to his mind, to say that that enormous building would not interfere with the access of light to houses on the other side of Dane's Inn. Therefore he thought that the injunction must necessarily go to restrain, not a breach of the agreement, because he did not think that the agreement had been broken, but an interference with the light under the ordinary law. Mr. Renshaw suggested that the form of the injunction had better be to restrain the defendants from building or erecting any building or erection so as to darken or obstruct the light of windows of Nos. 2, 3, 4, and 5, Dane's Inn, which such windows enjoyed prior to the pulling down of the tenement in Clement's Inn, upon which the present building was being erected, except so far as the defendants were authorised to build to the height and angles shown in the plans under the agreement of 1888. His Lordship agreed to this.

**BRISTOL BUILDING BY-LAWS.**—YABRICOM V. KING.—In the Queen's Bench Division, on the 13th November, before Mr. Justice Day and Mr. Justice Lawrence, sitting as a divisional court, a special case stated by two justices of Bristol for the opinion of the court came on for hearing. Mr. Salter, in opening the case on behalf of the Bristol Corporation, said there was an information by the city surveyor of Bristol for an alleged infringement of the Bristol Improvement Act on the part of the respondent by erecting certain houses without parapet walls as required by the Act. The houses were at Bell Hill, in the parish of St. George, which until recently was part of the urban district of St. George, in the county of Gloucester, and which was outside the limits of Bristol. The parish was included in the city of Bristol by an Act which came into force on the 31st October, 1897. By that Act the Bristol by-laws applied to the added area, but there was a promise that all plans of new buildings within the added area, and which had been approved by the urban district council or local authorities before the commencement of the Act, should remain valid for a period of two years from the date of the commencement of the Act, and on the expiration of that period fresh plans would be required. In this particular case the respondent had deposited with the urban district council of St. George, before the date of inclusion of the area in Bristol, plans of a terrace of houses. Those plans neither complied with the by-laws of the urban district of St. George, nor with the by-laws of Bristol. Nevertheless, the plans were approved by the urban district council, who waived compliance, and endorsed the plans as approved. After the inclusion of the area in the city and county of Bristol, a particular house of the terrace was in course of construction in accordance with the plans which had been approved. Now, by both the by-laws of St. George and of Bristol, the party-walls were required to be carried up so as to form parapets, the object being to prevent fires spreading from house to house. In the case of the Bristol by-laws the principal walls were to be carried higher than under the St. George by-laws. The St. George Council, however, had passed plans for houses without these parapet walls in contravention of their own by-laws, and it was when the Bristol authority saw that in the particular house now in question no parapet walls were to be erected, they took their present action. The respondent's answer was that he had not committed any offence, because he relied on the proviso of the Bristol Act that plans approved by the St. George authority were to remain valid for a period of two years, and that they were approved within the meaning of the Act. The contention of the Bristol Corporation was that



there was no approved plan within the meaning of the Act, because on the authority of a decided case the local authority had no power to waive compliance with the by-laws, which were for the benefit of the public, and that, therefore, such approval was *ultra vires* and a nullity, and there was no approved plan within the meaning of the Act. Mr. Eldon Bankes, for the respondent, said the plans had been deliberately approved by the existing local authority and had been acted upon. The St. George authority, after having passed the plans, could not have interfered with the respondent in building according to those plans; and if the contention were correct, then it was not open to the Bristol authority, who were in the same position as the St. George authority, by the provision as to two years, to interfere with the respondent in completing the houses according to the approved plan. Mr. Justice Day, in giving judgment, said the urban district council of St. George had no power to control the law. The by-laws had the effect of law, and it was not competent for any public or private body to dispense with the law. A public authority was bound by the law like everybody else, and the Bristol authority were right in seeking to ascertain whether the St. George Council had exercised their powers properly. He was of opinion that the magistrates had come to a wrong conclusion in dismissing the information. Mr. Justice Lawrence concurred. The appeal was allowed with costs, and the justices were directed to convict.

**WOOD BLOCK FLOORING.**—WARD AND CO. V. "WESTERN MAIL" (LIMITED).—The plaintiff in this case, heard by Mr. Justice Wright on Saturday, who are specialists in granite concrete paving and wood-block flooring and carry on their business at 15, Great George-street, Westminster, claimed £113 for work done and materials supplied at the defendants' premises in Cardiff. The defendants are proprietors of the *Western Mail*. At the end of 1896 the plaintiffs laid down some granite concrete paving and wood-block flooring for the defendants under a contract in writing whereby they undertook to do the work in a good and workmanlike manner to the satisfaction of the defendants. The defendants declared they were not satisfied with the work, as cracks and holes had appeared in the paving and many of the blocks in the flooring had come loose, and refused to pay. The plaintiffs alleged that any defects that might have appeared were due to special circumstances in the premises and not to bad workmanship, and denied that the defendants had any reasonable grounds for rescinding the contract. Mr. Justice Wright gave judgment for the defendants, with costs. In any ordinary case defects in work would only entitle the defendant to some reduction in the amount to be paid. But in this case the contract was of a peculiar nature, and the plaintiff must have known what was implied in the words "to the satisfaction of the defendants." The defendants had acted reasonably in rejecting the flooring and paving altogether.

**WORKMEN'S COMPENSATION ACT AND BUILDINGS UNDER 30FT. IN HEIGHT.**—MELLOR V. TOMKINSON AND CO.—In the Court of Appeal on Friday, Lords Justices A. L. Smith, Chitty, and Collins heard this appeal from an award of the Judge of the Liverpool County-court in an arbitration under the Workmen's Compensation Act, 1897. The claim was made by Thomas Mellor, a workman, to recover compensation from Messrs. James Tomkinson and Co., his employers, for accidental injuries suffered by him in the course of his employment, by reason of a piece of brick having gone into his eye, in consequence of which it became necessary to have the eye removed. At the time of the accident the claimant was engaged in building the wall of a house in the Vauxhall-road. The wall was not then 30ft. in height. The claimant was on a scaffold just above the basement. Beams were being raised for the purpose of making a flooring. There was a pole run up about 20ft., and guy ropes from the pole, and fastened to the top of the pole there was an iron wheel with a groove in it. An iron chain went over the top of the wheel. The guy ropes steadied the pole, and the pole also ran into the ground. One side of the chain was to hook the beam on, and the other side to pull the beam in. Six or seven men were at the beam and chain together—two to guide the beam, the rest at the chain. There was a brake on the wheel, which stopped the beam from running back. It was admitted at the trial on the part of the employers that a machine was being used which was driven by mechanical power. The County-court Judge thought the case came within section 7, and made an award in favour of the claimant. The employers appealed, and it was argued on their behalf that the employment in question was not on, in, or about any engineering work, or any building which exceeded 30ft. in height. The Court, without calling on counsel for the respondent, dismissed the appeal. Lord Justice A. L. Smith said the first point taken was that this was not a building on which machinery driven by mechanical power was being used. It had however, been admitted at the trial, on behalf of the employers, that this was a machine driven by

mechanical power. This point, therefore, was no longer open. It was then said that, as the wall was not 30ft. high, the case did not come within section 7. But he thought that the words "which exceeds 30ft. in height" were only coupled with the words "and is being constructed or repaired by means of a scaffolding, or being demolished"; and that the antecedent to the following words "or on which machinery driven by steam, water, or other mechanical power is being used" was the word "building" simply, and not the words "building which exceeds 30ft. in height." Therefore, if the building was one on which machinery driven by mechanical power was being used, it was not necessary, in order to bring the case within the Act, that it should also be 30ft. high. Lords Justices Chitty and Collins concurred.

**THE WHITEHALL IMPROVEMENTS.**—At the Surveyors' Institution on Thursday in last week, Mr. Robert Vigers, the president, sitting as arbitrator, heard a claim brought by Messrs. Maynell and Pemberton, solicitors, against Her Majesty's Office of Works for compensation and disturbance to their leasehold premises, 20, Whitehall-place, acquired by the Crown under the Whitehall Sites Act, 1896. Mr. P. L. Pemberton, sole partner in the firm, said that their average profits during the last three years had been £7,000 per annum, and he considered two years' profits as a fair basis of compensation. Mr. G. H. B. Glasier (of 7, St. James's-street), Mr. Daniel Watney, Mr. E. H. Tewson, and Mr. H. C. Trollope, surveyors, gave evidence on behalf of the claimants. On behalf of the Board of Works, evidence was given by Mr. James Green (of Messrs. Weatherall and Green), Mr. W. E. Horne (of Messrs. Horne and Co.), Mr. W. H. Elwell, Sir John Taylor, and Mr. J. H. Sherwin (of 16, Whitehall-place). The Attorney-General, for the Crown, agreed that the claimants should receive a substantial sum, say £1,000 or £1,500, as an insurance premium; but to give any such amount as that claimed by Mr. Pemberton was, he urged, a proposal the facts of the case could not justify. The arbitrator reserved his award.

**TOWER BRIDGE APPROACH ARBITRATION.**—Justices Day and Lawrence on Saturday had before them a case in which the County Council sought to set aside an award. The Council, under a private Act, acquired certain property belonging to a Mr. West for the purpose of carrying out improvements to the northern approach of the Tower Bridge. A jury awarded the owner £11,026 as compensation, and it was now contended for the Council that the proceedings should be declared void owing to an alleged excess of jurisdiction on the part of the Under Sheriff. The Court held that, taking the directions of the Under Sheriff as a whole, there was excess of jurisdiction, and discharged the rule for a writ of certiorari, with costs.

**STRAND AND TOTTENHAM COURT-ROAD IMPROVEMENTS.**—Mr. James Green (Weatherall and Green), of Chancery-lane, the valuer appointed by the Local Government Board, has now made his initial valuations for the purpose of "betterment" in regard to these two improvements. His awards have been deposited with the London County Council, and are open for inspection as provided by the London County Council Improvements Act, 1897.

**ARBITRATION BETWEEN ARCHITECT AND BUILDERS.**—SPRAGUE V. ALLEN AND SONS.—Mr. Justice Bruce and Mr. Justice Ridley heard, on Wednesday, in the Queen's Bench Division, a motion to remit an award which had been made by Mr. Justice Bucknill, sitting as arbitrator before his elevation to the Bench. Mr. McCall, Q.C., for the applicants, stated that the plaintiff, Mr. W. G. R. Sprague, was an architect engaged by the defendants in building the Deptford Theatre. An action was brought by him for his commission; to this no defence was raised, as it was believed that the claim put forward was for the right amount; there was, however, a substantial counterclaim for some £17,000 for breach of warranty. The action was referred by consent in July last by Mr. Justice Hawkins to Mr. Justice Bucknill, then Mr. Bucknill, Q.C. His award found in favour of the plaintiff on the claim and counter-claim, but without costs, and directed judgment to be entered in accordance therewith. Since this the defendants had discovered that the plaintiff had based his commission on a sum which was inaccurate. The result of this was that £91 in excess of what was proper had been charged for commission. The defendants had paid this sum on threat of execution being levied if they did not pay. This excess was not disputed in the affidavits on the motion. Mr. McCall cited the case of *In re Keighley, Maxted, and Co. v. Bryan and Co.* (1893), to show that the Court had powers, even after judgment, to remit an award on the ground of the discovery of new evidence since the making of the award. Whether the £91 was accidentally charged or fraudulently in the first instance, the architect now knew that the £91 was not due, and he ought not to resist the application. Mr. Horace Avory, following on the same side, contended that, not only had the Court power to set aside the judgment, but also to enter judgment

for the right amount. He cited for this the case of *Clark v. Sonnenschein*. Under order XL, rule 2, a referee was bound to enter judgment; it was not a mere discretion. Mr. Rose Innes, for the plaintiff, said the plaintiff's claim was, as was well known by the defendants, based upon an estimate only of the total expense. Probably the claim was not disputed, as the gigantic counter-claim occupied the minds of the defendants. This was a reference by order of Court by consent, not a compulsory reference. He cited *Darlington Wagon Co. v. Harding* to show that the award should not be interfered with. It was perfectly possible that as the builders had still some claims, the commission claimed might prove to be right. The defendants themselves could have found out what the right amount was. The Court remitted the matter to the arbitrator. Mr. Justice Bruce said the Court was asked to remit the award in order that the arbitrator might reduce the sum to be paid by the defendants. The claim and the counter-claim had been referred; the arbitrator had disallowed the counter-claim; the claim, therefore, alone remained. The defendants did not on their pleading deny the plaintiff's claim. He made up his 5 per cent. commission in respect of the various matters on a total sum of about £35,300. The defendants, knowing that 5 per cent. was due on the amount of the contract, and thinking that the commission was based on the true amounts, did not dispute it. It now turned out that that amount was really £91 less. Under the circumstances, were they entitled to have the award remitted? There was no doubt that the Court had power to remit an award on the discovery of fresh evidence. The older case of *Burnard v. Wainwright*, as well as that of *Keighley, Maxted, and Co. v. Bryan and Co.*, showed that. He quite agreed that this power should not be exercised without due care. Yet the Court ought not to allow injustice to take place. In this case, evidence which would certainly have affected the mind of the arbitrator had been discovered. He thought, therefore, that the matter ought to be remitted. It was, perhaps, within the power of the Court to direct judgment at once, but the Court would only exercise any such power with extreme caution. The award would, therefore, be remitted. Mr. Justice Ridley concurred.

**THE POWERS OF SANITARY INSPECTORS.**—VINES V. NORTH LONDON COLLEGIATE, & CO., SCHOOL.—In this appeal, heard in Queen's Bench Division on Wednesday by Mr. Justice Lawrence and Mr. Justice Channell, the appellant Vines was a lady inspector for the parish of St. Pancras, and the respondents carry on a large girls' school in the North of London. The case raised a question under the Public Health (London) Act, 1891, as to the powers in sections 10 and 40 given to the sanitary authority to enter upon premises within their district and examine them, in order to see whether or not they are in a sanitary condition. The inspector applied to the school to be admitted, and was refused, and then she applied to Mr. Plowden, the police magistrate, for an order to enter, but in her information did not state that she had reason to believe that there was anything wrong with the sanitary arrangements of the school. The magistrate refused the application, holding that no reasonable ground had been shown for entering. The appellant therefore instituted the present appeal. The Court dismissed the appeal, with costs.

An inquiry was held at the Council House, Birmingham, on Friday, by Mr. H. P. Boulnois, one of the inspectors of the Local Government Board, into an application made to the Board by the city council for sanction to borrow £10,000 for the provision of a branch school of art to be erected at the corner of Moseley-road and Lime-grove. Mr. W. H. Bidlake, the architect, explained the plans, and said the builders' tender was £6,502, without furniture and fittings.

At the Bolton County-court, on Friday, Judge Jones gave a verdict for £120 to a bricklayer's labourer named Michael Kenny as damages for the loss of a finger. Kenny was working at the erection of the new fire-station for Mr. Cunliffe, contractor, when a girder fell and cut off his finger.

During the gale on Friday night a gust of wind blew down a lofty platform at the works now in progress at the Mount Pleasant Post-office, carrying with it two large derricks. The platform was some 70ft. in height, and supported a steam-engine and boiler, which fell, together with the derricks, upon the buildings now being erected below. One of the derricks was blown down during the recent gale a couple of weeks ago, and the damage then incurred is said to have cost the contractors (Messrs. W. H. Lorden and Son, of Upper Tooting) £1,000. On this occasion the loss will be very much heavier.

The new schools, Sandwich, are being warmed and ventilated by means of Shorland's patent Manchester grates, patent exhaust roof ventilators, and special inlet tubes, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.



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## ILLUSTRATIONS.

THE WHITECHAPEL ART GALLERY.—"BUILDING NEWS"  
CLUB DESIGNS FOR A VILLAGE SHOP AND POST-OFFICE.  
—STAIRCASE, ENTRANCE-HALL, DRAWING-ROOM, AND  
HALL FIREPLACE AT LEDCAMEROCH, N.B.—XVII. AND  
XVIII. CENTURY NEWELS, RECENTLY ADDED TO THE  
SOUTH KENSINGTON MUSEUM.

## Our Illustrations.

THE WHITECHAPEL ART GALLERY.

WE give this week an elevation of the façade and plans of both floors of the Art Gallery which is being erected for Whitechapel at the cost of Mr. J. Passmore Edwards, and of which Mr. C. Harrison Townsend is the architect. A further description appears on p. 84.

"BUILDING NEWS" DESIGNING CLUB: A VILLAGE SHOP AND POST-OFFICE, WITH COTTAGES.

(For description and awards, see p. 83.)

## LEDCAMEROCH.

LEDCAMEROCH is a house built about 30 years ago, of which Mr. George Walton, of 152, Wellington-street, Glasgow, had lately the alteration and decoration of interior. The hall fireplace did not exist in the old plan, and has been built in entirely new to Mr. Walton's design. It consists of tiled hearth and back, with hammered sheet-iron armour bright finish. The grate is a movable chair grate in wrought iron. The chimney-piece is built in Hopton Wood stone, with timber facings. The frieze above chimney-piece is plaster sanded ground, coloured yellow, with stencilled decoration in browns and yellows. The cornice is the original cornice. The staircase hall is balustered with upright posts and wrought-iron handrail. The window of the staircase is principally in white, and is rather heraldic in character, with a few touches of colour through it; it is entirely in mosaic, and no painting. The entrance hall and doorway are in oak, with mosaic leaded glass panels, with hammered copper bands inserted. The drawing-room is an alteration, two rooms being made into one. On the left of fireplace is a French casement leading to lawn. The door on fireplace elevation leads to dining-room; the ceiling is strap-moulded and painted white, the frieze is covered with a silk and linen tapestry, the background is linen and the ornament in silk, the colour naturalistic on white ground, and has been woven to Mr. Walton's design, under his directions. The under walls are panelled to about 6ft. 6in. in timber, and enamelled white. The glass-work in doors and windows is similar to that in hall. The fireirons, fender, and grate are in polished steel, tiles of rich deep blue, and floor of oak. All the work is made and executed at the works of Messrs. Geo. Walton and Co.

## NEWELS FROM BRUSSELS.

Among the recent additions to the South Kensington Museum are a fine collection of 17th and 18th century oak newels, which come from different houses now demolished in Brussels. The whole batch, comprising over a dozen, are boldly carved

with flowers, foliage, and grotesque heads. We give sketches of four so carved in oak, and finished at top of base in a spiral manner. Further sketches will be given in due course. The designs of these newel posts are somewhat uncommon, and they are peculiarly decorative. In Brussels the Museum possesses quite a fine collection of them, and so this particular kind of newel must at one time have been employed in many houses in that city. From the information which has reached us from a distinguished authority, we understand that it will be very difficult not long hence to obtain examples of this kind of post. These new acquisitions in the Museum are due to the energy of the Director and his staff.

## CHIPS.

The spire of St. Paul's Cathedral, Calcutta, which was so seriously damaged during the earthquake, has now been completely repaired. The other damages which the edifice has sustained have also been made good. The architect is Mr. Edward Thornton, A.R.I.B.A., who has also designed the new Episcopal throne, which will be executed in marble and oak by Messrs. Martin and Co., of Calcutta.

A stained-glass window, to the memory of the late Mrs. Dalziel, of Tigh-na-Traigh, has just been placed in Aberfoyle parish church. It consists of three compartments, which are filled with figures illustrating the Nativity. Messrs. A. Ballantine and Gardiner, of Edinburgh, are the artists.

The Colne Town Council have resolved that the report of the architect on the cost of the new technical schools, public library, and central hall be adopted, such scheme not to exceed £9,000, and that the architect be paid £200 for work done up to the present time in full settlement of claim.

Mr. P. Reynolds, M.Inst.C.E. (late superintending engineer, Northern Division, P.W.D., Bombay), has been appointed engineer to the board on a salary of Rs.1,800. The engagement is to be for three years. Mr. Reynolds will give his whole time to the service of the board.

New branch printing premises at Perth, for the British Linen Company, have just been opened. They occupy the site of the Free St. Stephen's manse, at the corner of Caledonian-row and York-place, and have been erected from plans by Messrs. Peddie and Washington Browne, of Edinburgh.

The Wolverhampton Board of Guardians have finally approved of and adopted the plans for the new workhouse prepared by Mr. Marshall, of Nottingham, whose design was recently selected in competition. They have also decided to employ Mr. Marshall to take out the quantities for the work in the erection of the workhouse, at a fee of 1 per cent. on the outlay, such outlay not to exceed 5 per cent. of the estimated cost of the buildings.

The Llandudno Urban District Council have adopted a scheme proposed by Mr. Wyatt, C.E., for the construction of a reservoir at a point below the turbine in the Vivod Valley, with pipe line, service-tank, &c., estimated to cost in its entirety £4,755.

The umpire in the arbitration between the Long-ton Corporation and Mr. Thomas Pedley in respect of the price to be paid for property in Stafford-street and Edensor-road, required for public street improvements, has fixed the amount to be paid by the corporation at £2,516.

It is proposed to raise a fund for the restoration of St. David's Cathedral, the noblest monument of ecclesiastical architecture in Wales. The present structure was commenced by Peter de Leia about the year 1180. During the time of Bishop Thirlwall, and subsequently under the direction of the late Sir Gilbert Scott and his son, Mr. J. Oldrid Scott, who is to be intrusted with the completion of the work, very extensive restorations were carried out, at a cost of over £43,000; but these did not extend to the eastern group of buildings, which are now in a ruinous condition. The restoration of the beautiful eastern buildings, which will cost, it is estimated, not less than £12,000, is intended as a memorial to the late Dr. Basil Jones and Deans Allen and Phillips.

The town council of Aberdeen have decided that the Fish Market be extended along Market-street, in accordance with the amended plans of Mr. R. G. Wilson, architect. The length will be 426ft., and the width 36½ft., and the cost, exclusive of foundations, is estimated at from £4,000 to £5,000. The building will be retired 10ft. from the east edge of the wharf, while the width of the street alongside the market (inclusive of the foot pavement) will be 96ft. At the same meeting a motion to bear the cost of restoring Greyfriars Church, in accordance with plans prepared by Mr. A. Marshall Mackenzie, A.R.S.A., of that city, was rejected after a lively discussion.

## COMPETITIONS.

ABERAVON.—In the recent competition for new market at Aberavon, South Wales, twenty-two sets of designs were sent in. The ones selected being those of Mr. Frank S. Biram, of St. Helen's, who has been appointed to carry out the work.

BRISTOL.—The corporation libraries committee have decided to invite local architects to submit designs for the erection of a new library on the Cheltenham-road site, and the designs have to be sent in on or before the 1st of March. The probable cost of the building will be about £7,000, including the furniture and fittings. The building will be one of the largest branch libraries in the kingdom.

CHIPPENHAM.—A competition is proposed to be held for designs for an isolation hospital. The committee have resolved that a stone building be erected, comprising two male and two female wards, five beds in each, with bedrooms for three nurses upstairs, and one bedroom downstairs; also kitchen, sitting-room, and accommodation for caretaker. It was decided to invite architects in the district to send in plans of a building with the accommodation named, and at an estimated cost not to exceed £600. According to the Local Government Board requirements for infectious cases, the bare air-space demanded for sixteen patients would be, at 2,000 cubic feet per head, 32,000 cubic feet. This, at 6d., works out at £800. Furthermore, a correspondent writes: "The site being away from public sewers and water supply, sewage treatment and water supply are to be included in the scheme."

HULL.—The competition for the new Public Library at Hull is not yet determined, as the award of the referee, Mr. Sidney Smith, has not yet been confirmed by the committee. There were fifty-one designs sent in.

SESSIONS HOUSE, OLD BAILEY.—The City Lands' Committee of the Corporation are arranging for the rebuilding of the Sessions House in the Old Bailey. They have consulted Professor G. Aitchison, R.A., the President of the Royal Institute of British Architects, who has suggested a competition among a limited number of architects, to be nominated by the Council of the Institute. The committee, adopting this suggestion, have approved of six architects being nominated by the Council, on the understanding that the acceptance of any of the designs submitted should not be binding upon the Corporation. In the preparation of the necessary conditions of the competition and the ultimate selection of a design, they have appointed Professor Aitchison as assessor, with the co-adjutorship of the city surveyor, Mr. Andrew Murray. Each unsuccessful candidate submitting a complete set of drawings, with estimates, will receive an honorarium of 200 guineas.

We are glad to hear that Mr. Elgar Farman, the solicitor to the Society of Architects, is able to attend to business again, though still suffering from the effects of his recent serious accident, and unable to move much without assistance.

A new station will be opened by the Great Western Railway Company in the spring between Slough and Taplow, and will be designated "Burnham Beeches."

The memorial to Lord Tennyson in Haslemere Church is to take the form of a window, after a design by the late Sir Edward Burne-Jones (one of the last of a series illustrating the story of the Holy Grail), representing the vision which came to Sir Galahad in the little chapel. The window will cost about £100.

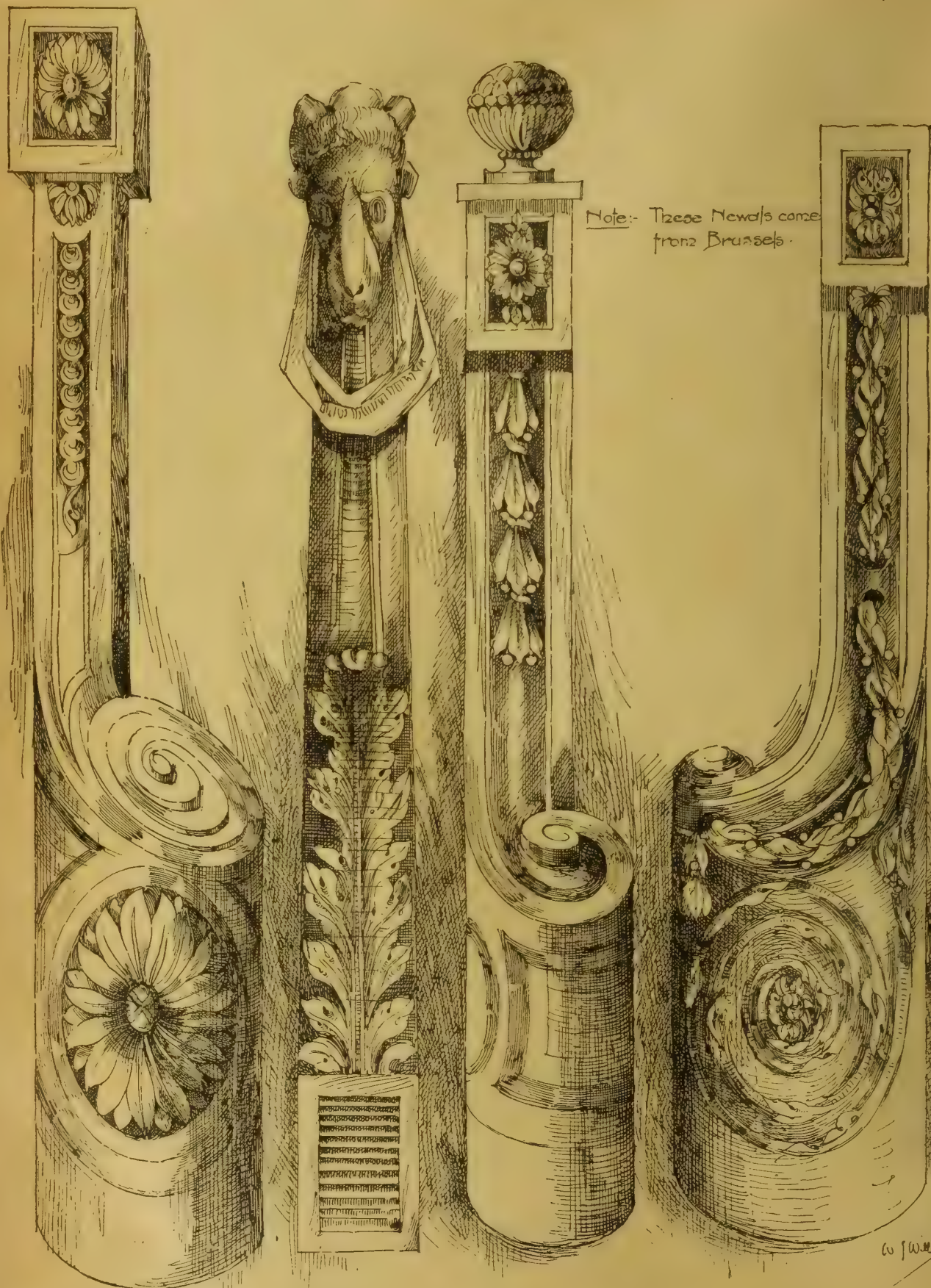
The tower of St. Sidwell's Church, Exeter, has been stripped of its plaster case. Like the church itself, save the chancel, which is comparatively modern, the tower is of Heavitree stone. When repairs were needed red brick was used, and the cobbling of the "restorer" was concealed by plaster casing. The tower will be cased with stone, so as to harmonise with the rest of the building, and there is a proposal to remove the copper-covered spire added in 1820, and which is a conspicuous feature in views of the city from the surrounding hills. Mr. E. Hall Harbottle, of Exeter, is the architect for the restoration.

A Local Government Board inquiry with reference to the application of the Uttoxeter Urban District Council to borrow £1,762 to complete the purchase of the Somershall Herbert Springs for supplying the town of Uttoxeter with water, was held at the town-hall on Friday. Lieutenant-Colonel Albert Smith, R.E., attended as an inspector from the Local Government Board.

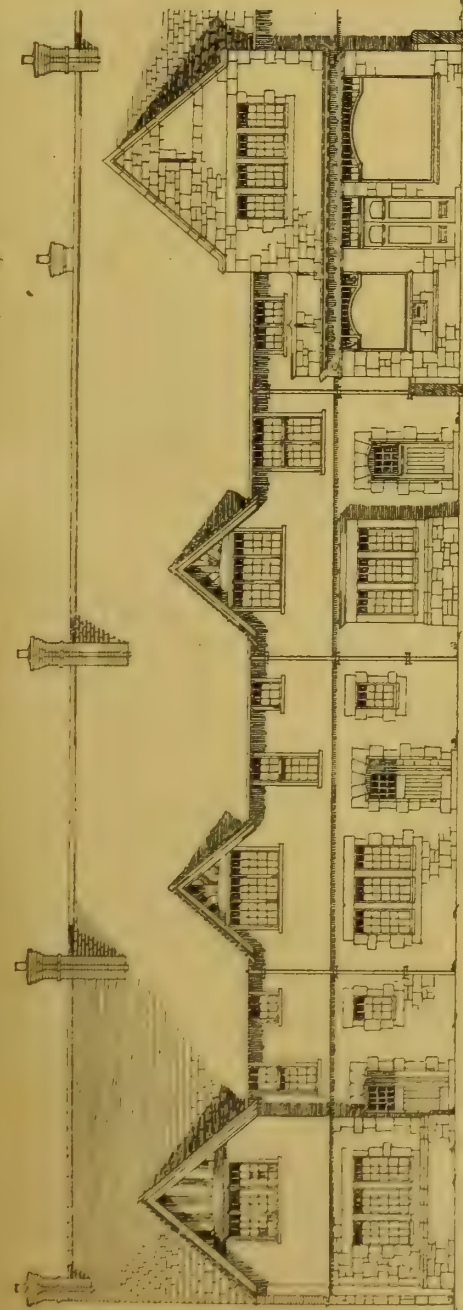


# NEWALS 17<sup>TH</sup> AND 18<sup>TH</sup> CENTURY.

RECENTLY added to the S. K. MUSEUM.

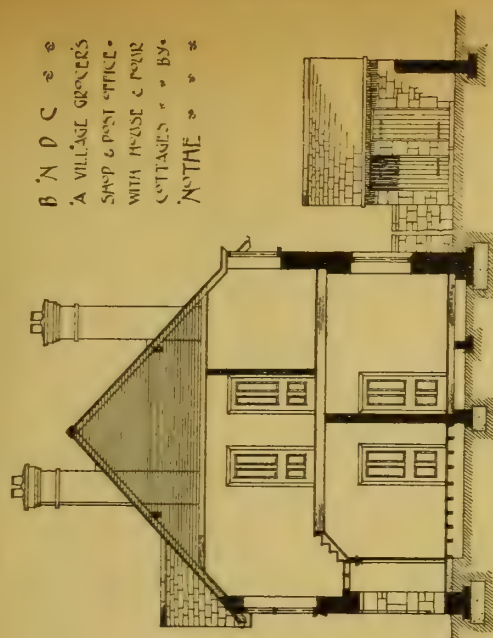




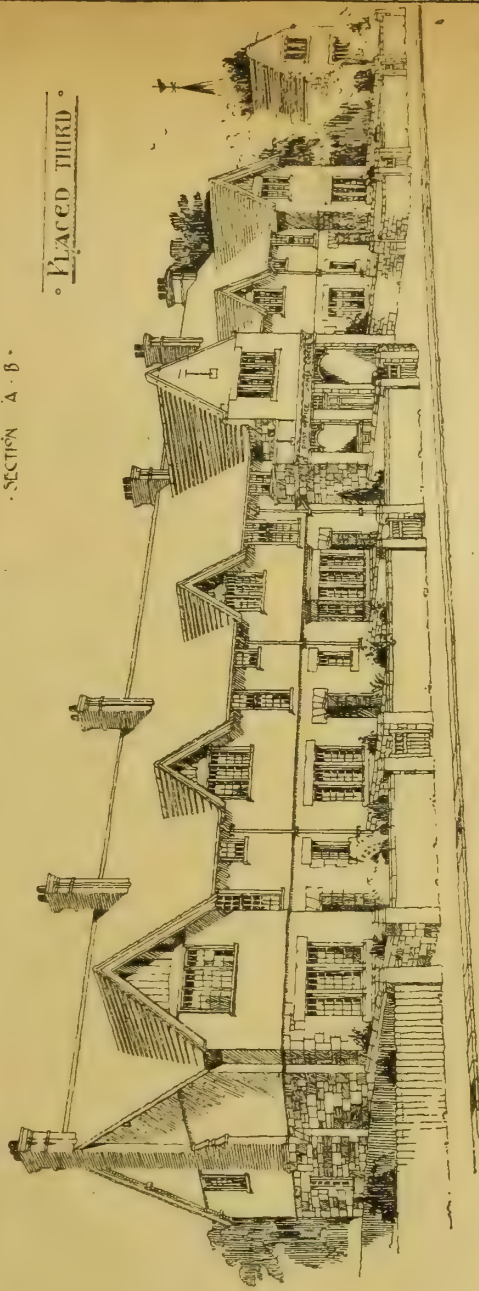


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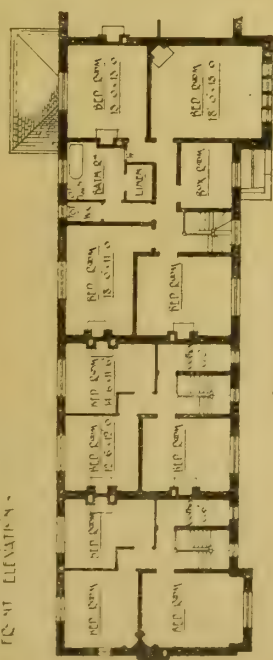
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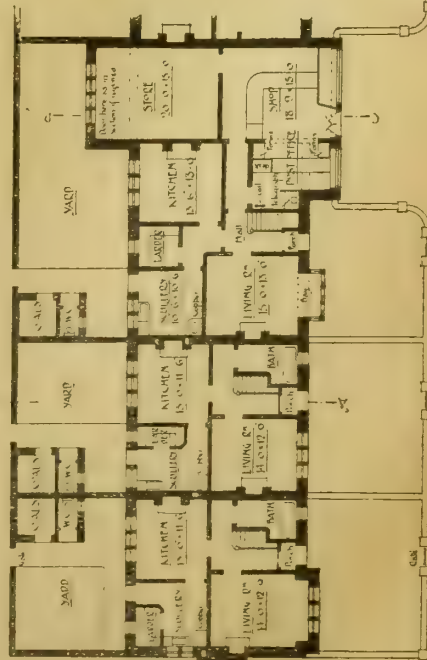
• SECTION A-B •



• PLACED THIRD •

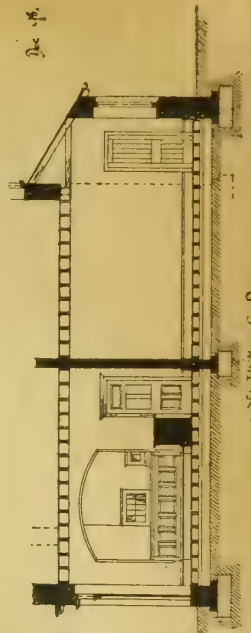
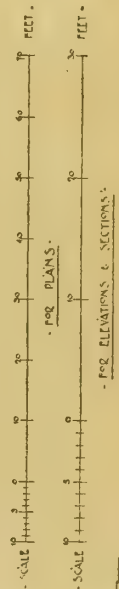


• FIRST FLOOR PLAN •



• SECOND FLOOR PLAN •

• VIEW •



• SECTION C-D •



## PROFESSIONAL AND TRADE SOCIETIES.

**BRISTOL MASTER BUILDERS' ASSOCIATION.**—The annual report presented to the members at the meeting held on Wednesday states that the work performed during the past year had been alone sufficient to justify the existence of the association. During the past year there had been increased prosperity in the building trade of Bristol, though it must be admitted that there had been greater competition; but where there was competition the trade must be healthy. Reference was made to the demand made by the men in March for an advance of wages and sundry alterations in the working rules, and to the arbitration proceedings which followed. The effects of the Workmen's Compensation Act upon the trades also passed in review. In opposing the Plumbers' Registration Bill, the committee was of opinion it had acted in the interests of the public and the building trades generally, and it was intended to persevere in its efforts in that direction. The West of England and South Wales Federation, established in the previous year, was gradually gaining ground in popularity. The next ordinary half-yearly meeting would be held in Cardiff next May, under the presidency of Mr. W. Symond, of that town.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—At the last meeting of this association, held in the Royal Institution, Edinburgh, Mr. Thomas Ross, the president, in the chair, a lecture on "Explorations in Palestine and Jerusalem" was delivered by Mr. A. C. Dickie, A.R.I.B.A., of the Dundee Institute of Architecture. The paper dealt with the recent excavation at Jerusalem carried out by the Palestine Exploration Fund, under the direction of Dr. Bliss and Mr. Dickie. Their principal work was the recovery of the southern limits of ancient Jerusalem, and the recent explorations showed, he said, that the city once extended very much further south than the present southern boundary, the addition to the area of the city amounting to over 100 acres. Almost the whole of this area is now cultivated in tiny terraces and plots, the soil having accumulated over the ancient ruins to an average depth of from 25ft. to 30ft., and in some places as much as 70ft. The ancient wall incloses the whole of the western hill down to the verge of the Kedron Valley across the Tyropeon, under the Pool of Siloam, on to Ophel, where it joins the wall traced by Sir Charles Warren from the south-east angle of the Temple area. Towers occur at short intervals along the wall, and three gates (two of which show three periods) were found between the Protestant cemetery and the Pool of Siloam. The discoveries illustrated in a remarkable manner the description given in the second and third chapters of Nehemiah of his night ride and survey of the ruined walls and subsequent apportionment of sections of the work of restoration to the different Jewish families from the "Valley Gate" to the "stairs that go down from the City of David" (Nehemiah iii. 13-15). The lecturer also referred to the discovery of a church, baths, mosaics, and tombs, and concluded with a few notes on the mode of excavation and the difficulties to be encountered. The lecture was illustrated by drawings and lantern slides.

**HEREFORD AND DISTRICT MASTER BUILDERS' ASSOCIATION.**—The second annual dinner in connection with this association took place at the Mitre Hotel, Hereford, on Tuesday week. Mr. W. P. Lewis, president, occupied the chair, Councillor James Davies the vice-chair, and there was a large attendance. Mr. J. Stephenson Jones, Birmingham, president of the National Association of Master Builders of Great Britain and Ireland, wrote, among others, regretting his inability to attend. Mr. John Davies, in proposing "The Mayor and Corporation of Hereford," suggested that the Artisans' Dwellings Act should be put into operation in the city. The Mayor (Councillor James) replied. Mr. Symonds (Cardiff) said that, in reference to the relations between architects and builders, their relations in the past had not been altogether satisfactory; but in most cases now, he was glad to say, architects were guaranteeing their quantities. Mr. A. Krauss (Bristol) drew particular attention to the scarcity of plasterers. These men kept raising their terms, and the matter would have to be dealt with promptly. Among the other speakers were Mr. A. J. Corner, Mr. E. H. Lingen Barker, Mr. H. Easton, Mr. W. Bowers, Mr. J. Mitchell, Mr. L. Hodges, and Mr. L. D. Lewis.

**ST. PAUL'S ECCLESIOLOGICAL SOCIETY.**—The

twentieth annual report, to be read at the meeting to be held to-morrow (Saturday) afternoon, states that seven meetings have been held at the Chapter House, at which papers were read by Mr. Joseph Grimshire, the Rev. E. S. Dewick, Mr. Mill Stephenson, Mr. Edward Bell, and Mr. H. B. Briggs. During the summer afternoon visits were made to the several parish churches of Perivale, Greenford, Northolt, St. Margaret, Lothbury; Holy Trinity, Roehampton; and Horsham.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—The monthly meeting of this society was held at the School of Art on the 11th inst. Mr. Frank Baggallay, F.R.I.B.A., of London, delivered a lecture on "Some Common Errors in Architectural Design." The lecturer referred to the undue value often placed on ornament as a source of architectural beauty. The common use of large quantities of badly designed and injudiciously distributed ornament was condemned, and some of the commoner errors pointed out in detail, and suggestions made for the treatment of ornament generally. The restlessness of contemporary architecture, and the tendency to mingle incongruous forms and materials in the same composition, were noticed, and the necessity for repose and unity of design was insisted on. The movement to abandon the study of past architecture, the reason for it, its chances of success, and the subject of originality generally were discussed. It was pointed out that originality requires knowledge and a cultivated taste to guide it if practical, and aesthetic pitfalls are to be avoided; and the continued and thorough study of architectural history was strongly advocated. Attention was called to errors in the scale of the details and parts of buildings, and the lecturer suggested that the matter of scale should be especially and carefully watched where original forms are used. In connection with the question of scale he said a few words about the difficulty introduced by large sheets of glass, and pointed out a treatment that has been partially successful in certain cases. A number of errors were condemned as sins against common sense; among them the construction of arches that obviously would not stand without the aid of a concealed girder, corbels that are many times larger than necessary, queer-shaped windows, and the transfer of forms appropriate to one material to another. Errors in the use of terracotta were attributed to a similar cause, and its better application in the past was referred to. In connection with errors of proportion it was suggested that the source of our ideas on the subject is really to be found chiefly in what the eye is most used to, and that modifications of customary ratios may be successful if they be systematic and not exaggerated. The lecturer referred to the frequent neglect of opportunities in planning to provide for architectural effects, especially interior ones, and to the influence of the position of windows on interior effects. On the motion of Mr. E. M. Gibbs, seconded by Mr. J. B. Mitchell Withers, and supported by Messrs. W. C. Fenton, F. W. Chapman, and W. J. Hale, a hearty vote of thanks was given to the lecturer.

The death of Mr. David Pearson, builder, Dundee, took place at his residence, 20, County-place, on Wednesday in last week. The deceased was widely known, having been a master builder for the long period of thirty years. For some time he was a partner with Mr. Miller, and during that time many important contracts were carried out. After the partnership had been dissolved, Mr. Pearson carried on the business alone. Latterly he has been assisted by his son, Mr. Thomas Pearson.

During the ten years 1889-98 over 1,200 students have attended the Building Construction Classes at the City of London College under Professor Henry Adams, and nearly one half have sat for the Science and Art Department Examination, with a resulting success averaging 50.28 per cent. in the elementary stage, 91.32 per cent. in the advanced stage, and 28.57 per cent. in the honours stage. This is believed to be a record achievement.

The upper floor of the cottage hospital at Dummerline, built a few years since from designs by Mr. Sydney Mitchell, of Edinburgh, was destroyed by fire on Saturday afternoon. Arrangements have already been made for rebuilding the edifice under the original architect's direction.

The Cardiff Town Council, who recently completed the purchase for £158,500, of Cathay's Park, as a site for the proposed new Town Hall, have rejected, by 22 votes to 8, a motion for delaying the erection of the new town-hall and law-courts.

## Engineering Notes.

**LIGHT RAILWAYS.**—The Board of Trade have recently confirmed an order amending the Flam-borough and Bridlington Light Railways Order, 1897. A meeting took place at the Board of Trade on Friday to consider, prior to confirmation, an order which has been made by the Light Railway Commissioners authorising a light railway at Ventnor. The proposed railway will run from the pier through a tunnel to Church-street, in the centre of the town, where there will be a station. Thence it will run across Marlborough-road, through the grounds of St. Catharine's Home, under Goldwell House and Grove-road, and via Primrose Bank and the electric light station to the existing station of the Isle of Wight Railway, which it will connect with by means of an arcade. From this point it will rise to the top of St. Boniface Down. From the station in Church-street to Goldwell House the line will be made on a viaduct, the remainder being in tunnel. The total length of the line will be about 1,100 yards. The section from the Isle of Wight Railway station to the top of the down is constructed chiefly with a view to meeting the demands of pleasure traffic, the other portion being designed more to meet the general requirements of the town, pier, and railway traffic. The motive power will be electricity. Objection was taken on behalf of Mrs. Evans, the owner of St. Boniface Down, in regard to the granting a lease of the down for the purpose of the railway. Subject to some minor alterations required by the Board of Trade, the order will be confirmed in the usual way.

### CHIPS.

The school board for Rotherfield, East Sussex, have adopted plans submitted in limited competition by Mr. Parris for an infant school for 200 children to be built at Crowborough.

A large clock has just been fixed in the parish church at Ecclestone, Lancashire, by John Smith and Sons, Midland Clock Works, Derby. It has two dials, and strikes the hours upon a large bell.

Mr. James Tait, burgh engineer, Wishaw, died suddenly, on Sunday, at his residence, at the age of fifty-eight years. He had suffered from an affection of the heart, and the strain entailed on him in connection with the promotion and execution of the large water scheme for the burgh, which is at present being carried out, told severely on his constitution. The deceased has acted as burgh surveyor for almost a quarter of a century. He leaves a widow and two sons.

At a meeting held at Nottingham last week, it was reported that about £3,000 had been raised or promised towards building a new church in the Blue Bell Hill district. The plans were prepared by the late Mr. J. L. Pearson, R.A., and after some discussion on the relative cost and merits of brick v. rock-faced stone as a facing material, it was decided to ask the present architect, Mr. Frank L. Pearson, to report on the point, and to commence building operations in the spring.

Eight carved panels, representing scenes in the life of Our Lord, have been placed in the new reredos in All Saints' Church, Peterborough. They have been executed by Mr. W. Allan, of that city.

An inquest was held on Friday evening at the General Hospital, Nottingham, by the city coroner, touching the death of Frederick Filtneiss, aged 23 years, of 76, Radford-boulevard, who sustained fatal injuries by a fall from the roof of the Great Central Railway new goods-shed in the Meadows on the previous day. The contractor is Mr. Enoch Hind. A verdict of accidental death was returned.

On Tuesday week a new infants' block at the Cardiff Workhouse was opened. The building was erected by Mr. Joseph Thomas to the designs of Mr. Edwin Seward, of Cardiff, and Mr. Scott was the clerk of works; whilst Messrs. John Williams and Sons fitted up the hot water and heating arrangements. The cost of the building was £1,870.

In the National Telephone Co.'s extensive new premises, Belfast, after special consideration, the system of combined warming and ventilation of John King, Ltd., Liverpool, is decided on, employing their "Rajah" ventilating radiators, and "Rex" electric air propellers for removing foul air and supplying fresh air—warmed in winter, cooled in summer.

A writ has been issued against the Swansea Intermediate Committee in respect of the commission claimed by Mr. W. Wills, architect, in connection with certain abandoned buildings, and the town clerk has been directed to enter an appearance on behalf of the defendants.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LIX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; and all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—T. G.—F. S. and Co.—N. B.—S. C.—P. C.—M. H.—J. W. Son.—B. P. R.—F. G.—D. H.

## Correspondence.

## THE LONDON BUILDING ACT.

To the Editor of the BUILDING NEWS.

SIR,—Your reporter has so condensed my opening remarks at the Surveyors' Institution that they appear nonsense. Fortunately, most of your readers know that district surveyors have nothing whatever to do with scavenging, paving, &c., so that the words "district surveyors did their work of scavenging, &c., not less completely than parish surveyors," will rather surprise them. What I said was, "If some of the district surveyors wished they could find many shortcomings in the parish surveyors of London—of repairs to pavements neglected, the scavenging badly done."

The surveyors are probably not to be blamed personally, as they are instructed by the committee of the vestry; but it must be apparent to anybody that our streets and pavements have recently been in a deplorable condition.

I could not follow Mr. Wheeler's remarks, that the fees being added to the cost of building eventually fell upon the tenant. Surely they would more directly fall on the tenants if the salaries came out of the rates. The tenant pays rent for a building according to its value, not on what it cost.—I am, &c.,

HENRY LOVEGROVE,

District Surveyor of S. Islington and Shoreditch, 124, High-street, Shoreditch, E.

The urban district council of Litherland, Lancs, has appointed Mr. W. H. Foster, of Burnley, as assistant-surveyor and building inspector.

## Intercommunication.

## QUESTIONS.

[12155.]—**Block-Tin and Cement.**—Would any of your readers kindly give their experience of block-tin gas-pipe imbedded in Portland cement? I have had recently taken from a new building some pieces of piping which were quite eaten through as if by some acid, with the result that the gas was found to be escaping freely. I shall be glad to hear of any cause and possible remedy for this, to me, new difficulty.—J. P. G.

[12156.]—**Copper Roofs.**—Will any experienced in copper inform me whether a copper roof can be laid in the same manner as one of zinc? What are the differences, if any, in joining the sheets? Are rolls or welts used, and what kind of fixing is necessary?—INQUIRER.

[12157.]—**Baths.**—Which are generally used for superior houses? I presume copper baths enamelled are the best. Where should the hot and cold supplies enter, and the overflow be taken from? Also the best mode of trapping waste? Are there any advantages in cast-iron baths?—AMATEUR BUILDER.

[12158.]—**Right of Light.**—A neighbour has extended and raised his projecting offices at the back of his house, which has materially darkened the back room of my house. Have I not a right of light over his back yard? If so, can I claim compensation? Will some expert answer?—OWNER.

[12159.]—**Lime Burning.**—Will any reader kindly state where I can obtain particulars for building improved kiln for burning grey lime?—G. H. B.

[12160.]—**Damp in Safe.**—What is the cause of damp in a safe? It is fixed in an inside wall. The wall is perfectly dry. I may say there is a cavity of zin. round the safe filled up with borax and cement.—NEMO.

## REPLIES.

[12152.]—**Architect's Charges.**—I think that "Art" should charge five per cent. on all the work executed, two and a half on all portions of the building designed, but not executed; and a charge based upon the time occupied for the designs for fittings. Time occupied travelling to the job is a much-discussed question, operating in favour of local architects, and really one must consider that 2½ per cent. is paid for superintendence.—H. L.

[12152.]—**Architect's Charges.**—Unless the owner gave special instructions to prepare designs for fittings, I would consider that an architect had exceeded his commission in doing so, and that he was not justified in asking payment for the same. Internal fittings are simply furniture fixed in position with screws, nails, &c., to the building. The architect's business is to make all the details and drawings for the building only, and if he attends well to this he may leave the furniture and interior fittings to those who, by their education and training, are better able to do it. It savours much of the egotist for an architect to lay down the law in this matter. Most cultivated men and women have more or less their own tastes and fancies in regard to the interior decoration of their homes, and this need in no way offend the architect, who is only there to provide the building proper. It is well known that the largest manufacturers of fittings employ the best talent that can be obtained in the preparation of designs—men who have made a life-long study of the subject, and who have the best opportunities for the work. It might perhaps be as well if "Art" would condescend to become more like the despised "so-called architects, civil engineers, and surveyors": he would perhaps add to his business and find it more to his profit than dabbling with fittings. Architects are not all heaven-born with genius to do the work required for every department of art. I have been thirty years an architect, and have never found time to interfere with the furnishing of my clients' homes, nor have I any desire to do so.—ED. CALVERT.

[12154.]—**Dictionary of Terms.—Perspective.** There are about a score of dictionaries in the R.I.B.A. library. The most complete work is the dictionary of the Architectural Publication Society. See also the later pages of Gwilt.—H. L.

The partnership hitherto subsisting between F. A. Tugwell and S. Tugwell, of Scarborough, architects and surveyors, under the style of F. A. and S. Tugwell, has been dissolved.

At the meeting held at St. Alban's Cathedral on Saturday afternoon, it was decided to proceed with the completion of the high altar screen, from the designs by Sir Arthur W. Blomfield, A.R.A., in accordance with a faculty recently procured. Mr. Harry Hems, of Exeter, was instructed to proceed with the work in conjunction with Mr. Alfred Gilbert, R.A., M.V.O.

On Sunday week, at St. George's, Perry Hill, a large three-light stained-glass memorial window was dedicated by Canon Rhodes Bristow. This window is the beginning of a series, each to represent three great Churchmen from different centuries, and contains Archbishop Benson; Bishop Patteson, the Martyr-Bishop of Melanesia; and Archbishop Alexander, Primate of All Ireland. The arms of the respective sees appear in the trefoils. The window was designed and executed by Messrs. Bacon, of Newman-street. In the sanctuary of the same church two interesting stained-glass windows were erected a short time ago, executed by the same firm, representing the three great missionary Bishops of Europe, Asia, and Africa (St. Leo the Great, St. Ignatius, and St. Cyprian), and of Great Britain and Ireland (St. Augustine, St. Columba, and St. Patrick).

## WATER SUPPLY AND SANITARY MATTERS.

LONDON WATER COMMISSION.—The Royal Commission on the question of the water supply for London resumed their sittings on Monday at the Guildhall, Westminster. Viscount Llandaff, the chairman, announced that it was intended to refer the examination of the different estimates of the Welsh scheme and the Thames storage proposal to Colonel Rathborne, C.E., who would privately hear any witnesses that might be tendered on the subject. Counsel, on behalf of the London County Council, protested against the course proposed, and said they would object very much to Colonel Rathborne anticipating the action of Parliament by any report upon the Welsh scheme. The representatives of the water companies offered no objection to the suggested inquiry. The chairman said an inquiry before Parliament would not be in the least prejudicial. The Commissioners had simply called in an expert to assist them in regard to the estimates. Mr. C. Hawksley, C.E., then gave further evidence in support of the case of the water companies. In his experience water undertakings were better managed by private companies than by public authorities. Mr. E. M. Eaton, C.E., expressed himself as being in entire agreement with the evidence given by Mr. Hawksley. On Tuesday evidence was given by Sir W. Crookes to the effect that filtration was effectual in the removal of microbes from the Thames water, whether in flood or not; that microbes were developed much more freely in conduits and pipes than in reservoirs; and that the whole question of microbes was sentimental rather than practical. Professor Dewar gave evidence generally in accord with that of Sir W. Crookes. Sir E. Frankland, of the Local Government Board, was under examination when the commission adjourned.

NANTLE VALE.—The works of water supply, which have been executed by Mrs. Bugbird and Son, were on Saturday formally handed over to the local authorities. They represent a cost of about £5,000, Mr. Lloyd Jones, county surveyor, Carnarvon, being the engineer of the scheme. The water is drawn from Dulyn Lake, situate in the mountains above Nebo.

## CHIPS.

The well-known Christ Church in New-street, Birmingham, is being demolished by workmen in the employ of Messrs. J. Benton and Sons, of Great Barr-street, in that city.

A new Bible Christian schoolroom at Tintagel, North Cornwall, was opened on the 10th inst. It has been built from plans by Mr. Mason, of Marshgate, architect, the stone being given by the Earl of Wharfedale. On the first floor there is a room seated for 200 persons.

The new mission church of St. Saviour in St. John's parish, Coventry, has been opened by the Bishop of Worcester.

At Cwmbran, near Caerleon, a new police-court and station was opened on Thursday in last week. The building is situated near the railway station, and has been erected from plans by Mr. W. Tanner, county surveyor of Monmouthshire.

No. 62, Rodney-street, Liverpool, is an historic mansion. It was the residence of Sir John Gladstone, and in one of its upper rooms there first saw the light William Ewart Gladstone, on December 29, 1809. Permission has now been conceded by the owner of the property to the Historic Society of Lancashire and Cheshire to affix a commemorative tablet to the house—a tablet which will record the dates of the birth and death of the great statesman.

A literary institute is to be built at Gateshead, from plans by Messrs. Armstrong and Knowles, of Newcastle.

At the last meeting of the Council of the Royal Society of Painter-Etchers and Engravers, the following gentlemen were elected members of the society:—Messrs. Meyer, Milner, Newbolt, Tomkins, and Wright.

The dedication of the stained-glass window, which has been placed in the church of St. Mary Stoke, Ipswich, as a memorial to the late rector, Canon Bulstrode, took place on Sunday. The window, of which Messrs. Heaton, Butler, and Bayne, of London, are the artists, is the one nearest to the chancel on the south side of the nave. The first light represents the Annunciation, the central light contains a representation of the Blessed Virgin with the Infant Saviour in her arms, and the third light a picture of St. John leading the Blessed Virgin from the cross, after our Lord had commended her to his care. In the tracery at the head of the window, the connection of St. Mary Stoke with the cathedral church of Ely (the Dean and Chapter of Ely being the patrons of the benefice) is marked by the introduction of the arms not of the diocese of Ely, but of the priory church of Ely, that is, of the Dean and Chapter.



## Our Office Table.

THE Examination Committee of the Society of Architects report that the first examination for admission to the Society was held on the 5th, 6th, and 7th of October, 1898. Three candidates originally entered, but one withdrew owing to unavoidable circumstances. Of the remaining two, one failed to obtain the minimum quantity of marks required for a pass, while the other, Mr. A. Scott, of 16, William-street, Drogheda, obtained over 75 per cent. of marks, and has been awarded the silver medal of the Society. The next examination under the auspices of the Society will be held at St. James's Hall, Piccadilly, W., on the 12th, 13th, and 14th of April next, commencing each day at 10 a.m., and terminating at 5 p.m., with an interval of one hour from 1 to 2 p.m. The latest date of entering for the examination is March 23. Candidates under 22 years of age will not be permitted to sit for examination. The fee will be £2 2s., and no examination papers will be issued to candidates who have not paid their fee in advance. In the event of failure to qualify in any of the compulsory subjects, a candidate may be admitted to a subsequent examination in these for a fee of £1 1s. All those who qualify will be admitted to membership of the Society, after election, on payment of half the usual entrance fee. The Gold Medal of the Society will be presented to the candidate passing highest in the examination, provided he shall have obtained a Special Certificate of Honours. A Silver Medal may also be awarded to such candidate as may be recommended by the examiners. The examiners may also recommend the award of a certain number of Bronze Medals, the number to be determined by the standard reached by the candidates at each examination.

A VALUABLE addition to the art treasures of the British Museum is made by the bequest from Baron Ferdinand de Rothschild of his cinque centos collection. This includes plate, enamels, bijouterie, carving in boxwood, glass, arms, and armour, and other articles, being the principal works of art in the smoking-room at Waddesdon, and also a book of drawings entitled "Funeral Processions," and all his illuminated missals and manuscripts. It is estimated that the value of the entire bequest to the nation is fully £300,000. It will be a perpetual reproach and source of regret if the Trustees should, as it is alleged they propose doing, stow away this magnificent collection in the out-of-the-way, badly-approached, and inappropriate corner of the Museum now used as the workroom and library of the Department of Greek and Roman Antiquities.

DURING the past year important additions and rearrangements have taken place in every section of the collections in the Museum of Science and Art at Edinburgh. The most noticeable new feature is a cast of the statue of St. George, sculptured by Donatello for the outer wall of the Orsan Michele at Florence. The statue, with the niche in which it stands, has been reproduced for the first time in this country as a complete architectural composition. Casts of the panels of the bronze gates, designed in competition for the Baptistery of Florence by Ghiberti and Brunelleschi, are hung side by side. A few bronze and brass *cire perdu* casts from the city of Benin are shown in the ethnological section, and also some of the finds made by Professor Flinders Petrie in his recent excavations in Egypt. The additions to the Furniture Hall include some Flemish tapestry and two cabinets—one a fine example of 16th-century work from Lyons, the other a highly-decorated specimen of Louis XV. work.

THE Company of Plumbers entertained to dinner on Wednesday night, at the Salters' Hall, the Lord Mayor and the Sheriffs of London. Mr. Alderman Richard Hind, the Master of the Company, presided, and there were present Mr. Frederick Machin, Warden; Mr. Charles Hudson, Renter Warden; and Mr. W. R. G. Coles, Clerk. The guests included the Lord Mayor of Belfast, the Lord Mayor of Leeds, the Lord Mayor of Sheffield, Sir R. Hanson, M.P., Sir George Kekewich, Mr. T. W. Russell, M.P., Sir Henry Craik, and others. The Master proposed "The Lord Mayor and Corporation"; the Lord Mayor responded. Mr. P. Stebbings gave the toast of "The Houses of Parliament," to which Mr. T. W. Russell replied, in a humorous speech, in which he expressed approval of the principle of registration for plumbers. The Lord Mayor proposed

the toast of "The Plumbers' Company," the Master of the Company replying.

THE picturesque ruins of Invergie Castle, near Peterhead, the ancient seat of the Earls Marischal, were demolished by dynamite on Saturday afternoon. A part of the ruins fell on the previous Sunday, during the storm of wind and rain, and as the remains of the castle stood in close proximity to a much-frequented public road, it was thought advisable by Colonel Ferguson, on whose estate the historic ruin is situated, to demolish the remaining portion in case of accident to passers-by. Considering that the castle is nearly 600 years old, and that it is considerably more than a century since it was occupied, it was until recently, the *Scotman* remarks, in a fairly good state of preservation, and with a little expenditure could have been maintained the prominent landmark which it was for many years to come.

At a meeting of the Architectural Section of Glasgow Philosophical Society, held on Monday evening, Mr. James Chalmers read a paper on "The Mansions of Scotland." Mr. Macgregor Chalmers presided. The lecturer dealt more particularly with the works of the late David Bryce, R.S.A., Edinburgh, who erected about fifty Scottish mansions. His work contained all that was good in that of Adam and his other contemporaries, and, in the opinion of the lecturer, none of the mansions erected since Bryce's death excelled, if they even equalled, Ballinkrain or Sir Robert Jardine's Castle-milk, as representing possibly his finest Scottish baronial buildings, or Langton Grange, near Duns, as illustrating his Elizabethan mansions. The lecturer gave illustrations of the castles and mansions from which Bryce received much of his inspiration, and gave reminiscences of the architect's life and character. The remaining part of the lecture was occupied with a comparison of Mr. Bryce's Ballinkrain on the one hand, and Bute House, which might be considered not only one of the most modern, but the most pretentious of Scottish mansion-houses, on the other.

MESSRS. WM. POTTS AND SON'S, clock manufacturers, Guildford-street, Leeds, have just completed in the Grand Arcade at Leeds something really worth seeing in the shape of a public clock with bells, automaton figures, cock, &c. The dial is of polished copper, while the hands are symbolic of the sun and moon. On each side stands an armour-clad knight bearing a battle-axe, with which he strikes the quarter-hours upon a bell hung before him. These are the only two figures in view until the hour arrives, when, after the quarters and the hour have been struck, a door opens, and from it emerges a procession of five figures representative of the British Empire. First comes a British soldier, who on reaching the centre of the platform faces to the front and makes a military salute. He is followed by a kilted Highlander, an Irishman carrying a threatening-looking shillelagh, a Canadian boatman, and a turbaned Hindoo, each of whom in turn faces to the front, bows, and marches off. This is not all, however; as soon as the last of the figures has retreated a life-size rooster perches above the dial, flaps his wings, and crows three times, when the performance is over for another hour. The same firm are fixing a large illuminated quarter-chime clock at the parish church, Leeds.

At the last meeting of the City Court of Common Council a contract was signed between the Corporation and Mr. J. Strachan, for the construction of a tramway and railways in connection with the Foreign Cattle Market at Deptford, at a cost of £3,997 15s.

At the meeting, on Saturday, of the Herefordshire County Council it was reported that a contract has been entered into with Messrs. William Bowers and Co. for the enlargement of the county and borough of Hereford Lunatic Asylum at a cost of £22,525. Of this £17,794 will be payable by the county, and £4,730 by the city. The work is to be completed within two years.

The nave and aisles of the new church of St. Alban, Westcliff-on-Sea, Essex, have been dedicated by Archdeacon Stevens. Westcliff-on-Sea is to the south-west of the parish of Prittlewell, of which Southend-on-Sea forms a large part, and building operations are progressing rapidly in this district, some fifty-two roads having been marked out for building purposes, or partially built upon. The old font from St. Mary-le-Bow, Cheapside, has, with its handsome cover, dated 1675, been presented to the church.

## MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Surveyors' Institution. "The Rating of Collieries," by Edward Boyle, Q.C. 8 p.m.  
Royal Institute of British Architects. Address to Students by the President, Professor G. Aitchison, R.A. 8 p.m.  
Society of Arts. "Bacterial Purification of Sewage," Cantor Lecture No. 2, by Dr. Samuel Rideal. 8 p.m.  
Liverpool Architectural Society. "Enamels," by Robert Hilton, Law Library, Liverpool. 6 p.m.  
Leeds and Yorkshire Architectural Society. "A Summer in Umbria," by H. M. Fletcher, M.A.

TUESDAY.—Society of Arts. "Rhodesia and its Mines in 1898," by W. Fischer Wilkinson. 4.30 p.m.  
Institution of Civil Engineers. Discussion on "Steel Rails: their Wear and Micro-photography." 8 p.m.

WEDNESDAY.—Society of Arts. "Tuberculosis in Animals," by W. Hunting. 8 p.m.

THURSDAY.—Society of Architects. "The Supervision and Regulation of Building Operations, as Exercised by the Edinburgh Dean of Guild Court," by David Lyon, Clerk to the Dean of Guild, Edinburgh. St. James's Hall, Piccadilly. 8 p.m.

## The Society of Architects.

Founded 1884. Incorporated 1893.

THE THIRD ORDINARY MEETING of the Society of Architects for the Session 1898-99 will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, January 26th, 1899, at Eight o'clock p.m., when a Paper will be read by DAVID LYON, Esq., Clerk to the Edinburgh Dean of Guild, entitled "THE SUPERVISION AND REGULATION OF BUILDING OPERATIONS AS EXERCISED BY THE EDINBURGH DEAN OF GUILD COURT."

ELLIS MARSLAND, Hon. Sec.  
G. MCARTHUR BUTLER, Sec.

## CHIPS.

The Bishop of London will open the ward for cancer and the nurses' home at the new Hospital for Women, Euston-road, on February 1.

A carved oak pulpit is being made by Messrs. Sharp and Emery, of Dublin, for Clonfert Cathedral at a cost of £190. It will be similar in design to the pulpit given by Lord Ardilaun to Raheny Church. The pulpit is the gift of Mr. Thomas Roderick O'Connor, in memory of his mother. Mr. O'Connor has already presented the cathedral with two stained-glass windows, and a memorial brass, in commemoration of the Queen's Diamond Jubilee.

Colonel John Morgan, the mayor of Brecon, has signified his intention of laying down, at his own cost, plant for the electric-lighting of the town. It is estimated that this will practically mean a gift of £6,000.

A question as to how to arrive at the "average weekly earnings" of a workman under the Compensation Act was decided by the Court of Appeal on Saturday. In a claim against the Barrow Hematite Steel Company, the Judge, settling the amount of a man's weekly wage by the sum he could earn in a year, divided the total by the number of weeks actually worked, and the company appealed. The Lords Justices held that the total salary, for the purposes of the section, must be divided by the number of weeks in the year, and not by the number a man was really at work. They, therefore, allowed the appeal.

The Lord Provost's Committee of Dundee Town Council have been informed that the statue of her Majesty, intrusted to Mr. Harry Bates, London, to be erected in Dundee by way of celebrating her Majesty's Jubilee, is now completed. It was decided that steps be at once taken to have the statue brought North, and it was provisionally agreed that it should be erected on the site occupied by the fountain immediately in front of the grand staircase of the Albert Institute, and to remove the fountain to a site on the north side of the Albert Institute buildings.

On behalf of the Local Government Board, Dr. G. S. Buchanan held an inquiry at Malvern on Friday respecting an application made by the Malvern Hospital Committee to the Worcestershire County Council for sanction to a loan for the purposes of an infectious hospital. Mr. Thornley (clerk to the County Council) explained that a loan of £9,850 had already received sanction, and a further £684 was required. The hospital will be erected at Bundy's Farm, Half Key, two miles from Malvern, from plans by the surveyor to the urban district council; it will provide 22 beds.

At the Norwich Consistory Court at the Cathedral, Norwich, on Saturday, Mr. Overbury made a formal application for a faculty for building a porch and clock-tower on the south side of the Church of St. Mary, Walton, near Felixstowe, on the site of a tower which has been a low ivy-clad ruin for many generations. Mr. Chancellor Blofeld said the application would be granted.



## Trade News.

### WAGES MOVEMENTS.

**THE SKILLED LABOUR MARKET.**—The monthly report of the Labour Department states that the general state of employment continues good. In the 113 trade-unions making returns, with an aggregate membership of 470,391, 13,612 (or 2.9 per cent.) were reported as unemployed at the end of December, compared with 2.3 per cent. a month before, and 5.3 per cent. in the 113 unions, with a membership of 460,866, from which returns were received for December, 1897. Employment in the building trades has continued good, though painters and decorators and plumbers are not so busy. The percentage of unemployed union members at the end of December was 1.8, compared with 1.1 in November, and 2.8 in December, 1897. The furnishing trades, though still well employed, are scarcely so busy in some branches. The percentage of unemployed union members at the end of December was 3.8, compared with 2.3 in November, and 4.7 in December of 1897. Twenty-nine fresh disputes occurred in December, 1898, involving 6,319 workpeople. Three of these disputes affected the building trades.

**LONDON PLASTERERS.**—A strike of plasterers has taken place at the works of three firms of London builders—Messrs. Higgs and Hill, Crown Works, South Lambeth; Messrs. G. H. Bywaters and Sons, King-street and Golden-square; and the Veronese Company, resulting from a demand by Mr. Hennessey, the secretary of the National Association of Operative Plasterers, that the foremen plasterers of these three firms should join that union. The building trade in the Metropolis is just now extremely active, and all the plasterers withdrawn have got employment elsewhere. It is stated that unless the officials of the National Association of Operative Plasterers retire from the position which has been adopted on their behalf, that all foremen plasterers shall become members of their body, there is very little doubt that in a short time the members of that trade union will be locked out by all members of the Central Association of Master Builders in London, and there is every probability that a similar course will be pursued in the provinces also.

**NOEWICH.**—Trouble has arisen in the building trade in this city, a number of bricklayers having struck work on a question arising out of the use of Broseley tiles. The men object to the employment of a slater to tile the roofs of several buildings now in course of erection, their contention being that the laying of pantiles and all tiles other than slates belongs to the bricklayers.

**NEWPORT, MON.**—The federated building trades of Newport have notified the masters of their requirements on and after May 1 next. In October last the Newport Master Builders' Association gave the workmen six months' notice as to certain alterations in the agreement subsisting between them; and now the men, having federated all workers engaged in the building trades, have replied with effect. The federation asks for an increased wage as follows:—Carpenters, plasterers, masons, and plumbers, 9d. per hour; mason fixers, 9½d.; bricklayers, 8d.; painters, 8d.; general labourers, 6d.; and scaffolders, drainers, and engine tenters, 6½d. per hour. The federation also demur to working with non-unionists; hitherto society men and non-society men have worked amicably side by side. The masters require several alterations, some of which are the outcome of the prolonged strike of last spring and summer. The masters demur to the federation being able to call out their members by giving two hours' notice, and wish to obtain an extension of the conciliation idea, by which there shall be no suspension of labour pending the decision of the Conciliation Committee, which is composed jointly of masters and men. They also wish to enforce a schedule that the wages of the average skilled workman shall be 8d. per hour.

**PERTH.**—The operative joiners of Perth have communicated with the secretary of the Masters' Association asking an increase on the present rate of wages. The present rate is 8d. per hour, and the men ask an additional ½d. an hour. A meeting of the masters is to be held to consider the demand, and, as trade is brisk in the district, it is expected the demand will be conceded.

The stained-glass window placed in the chapel in Lathom Park in memory of the late Countess of Lathom has been completed, and was recently informally unveiled.

New classrooms which have been added to St. Peter's National Schools, Ipswich, were opened on Friday by Sir Charles Dalrymple, M.P. The existing schools, which were erected in 1837, have been remodelled, and accommodation is provided for 100 additional boys. Mr. Frank Brown, of Ipswich, was the architect, and Messrs. W. Grayston and Sons, of the same town, were the builders.

### CHIPS.

Alterations are being made to the Court House, Caerphilly, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

The death is announced of Mr. James Johnston, late master of works and sanitary inspector for the burgh of Clydebank. Mr. Johnston was master of works at the erection of the Singers' factory at Kilbirnie, and on its completion he obtained the burgh surveyorship, which failing health compelled him to resign two years ago.

Mr. E. J. Stown, C.E., assistant borough surveyor to the corporation of Huddersfield, late of Plymouth, has been appointed engineer to the tramway department of the Manchester Corporation. The corporation are about to take over the existing tramways in the city, at present worked by horses, and intend reconstructing the same for electric traction.

The town council of Southampton adopted at their last meeting a report by Messrs. Kincard, Waller, and Manville recommending the improvement of the tramway system, the equipment of three additional miles of tramway-line and six miles of roadway, and the employment of electric traction by the overhead trolley system (already agreed to in principle by the corporation). It was decided to invite tenders for the various works, estimated to cost in all £64,000.

At Watford Place, Herts, on Tuesday week, Mr. E. H. Bicknell, an inspector from the Local Government Board, held an inquiry respecting the proposal of the Watford Rural District Council to establish a sewage farm for Radlett, close to Colney-street. Evidence in support of the proposal was given by Mr. Ernest H. Luiley, surveyor to the rural council, and Mr. Santo Crimp, C.E., of Westminster, and for the opponents of the scheme by Professor W. H. Corfield and by Mr. H. F. Mence, surveyor to the St. Alban's Rural District Council.

Mr. E. A. Sandford Fawcett, Local Government Board inspector, held an inquiry at the town-hall, Felixstowe, on Wednesday week, with regard to an application by the urban district council for permission to borrow £631 for forming a kerbed footpath in High-street and Lower-street, Walton. There was no opposition.

At a meeting of the Grimsby Town Council, on Friday, it was decided to apply to the Local Government Board for consent to borrow £43,500 for the carrying out of necessary works for electric light and power.

Mr. G. Topham Forrest, architect in the city engineer's office, Leeds, has been appointed to the post of assistant architect under the county surveyor at the County Hall, Wakefield.

The Jubilee Nurses' Institution, Cherville-street, Romsey, was opened by Princess Beatrice of Battenberg, on Wednesday week. It is built of red brick, with stone dressings, and contains two sitting-rooms, an accident ward, a kitchen, a bath-room, lavatory, and usual offices, three bedrooms, and one sick ward. The rooms are all supplied with gas, and electric bells are fitted to each. The contract for the building was carried out by Messrs. Wheeler and Son, at a cost of £425, from plans prepared by Mr. J. Jenvey, architect, of Romsey.

At the last meeting of the Bury St. Edmund's Town Council the sanction of the Local Government Board to the borrowing of £15,250 for electric lighting purposes, to be repaid in 25 years, was announced. The committee had obtained tenders for the erection of the necessary buildings, but recommended that fresh tenders be advertised for.

In the Chancery Division, on Friday, before Mr. Justice North, the case of Bulley v. Stephens came on for hearing. It was a motion on behalf of the plaintiff, Charles Henry Bulley, a builder, of St. Marychurch, Devon, for an injunction restraining the defendant, John Stephens, of Dartmouth, from selling under a mortgage leasehold property at Babbacombe valued at over £1,200. The defendant is the mortgagee, and the plaintiff is the mortgagor, and it was said that there was now owing to the former £900 under the mortgage, and a half year's interest. The action was dismissed.

Mr. H. P. Boulnois, Local Government Board inspector, conducted an inquiry at the public offices Tipton, on Friday, with respect to the application of the urban district council for sanction to borrow for gasworks extensions.

On Friday the Nantwich Urban District Council decided to adopt the bacteriological system of sewage disposal, and to invite Mr. Baldwin Latham to advise them upon the erection of works. The town sewage has hitherto gone into the River Weaver, and for a number of years pressure had been brought to bear on the council to provide sewerage works. The report of the Manchester bacteriological experts, of whom Mr. Baldwin Latham was one, gave the Nantwich Council their opportunity.

## LATEST PRICES.

### IRON, &c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0	to £6 10 0
Rolled-Steel Joists, English.....	6 10 0	" 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0
Bar Iron, good flats.....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0
Do., Welsh.....	5 15 0	" 5 17 6
Boiler Plates, Iron—		
South Staffs.....	7 17 6	" 8 5 0
Best Snedshill.....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £6 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	to £11 0 0
Best ditto.....	11 5 0	" 11 10 0

	Per ton.	Per ton.
Cast-Iron Columns.....	£6 5 0	to £8 15 0
Cast-Iron Stanchions.....	6 5 0	" 8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	" 8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	" 7 15 0
Galvanised.....	10 10 0	" 11 10 0

Cast-Iron Sash Weights.....	4 2 6	" 4 5 0
Cut Clasp Nails, 3in. to 6in.....	9 0 0	" 10 0 0
Cut Floor Brads.....	8 15 0	" 9 15 0
Wire Nails (Points de Paris)—		

	0 to 7	8	9	10	11	12	13	14	15	B.W.G.
9/0	9/6	10/0	10/9	11/6	12/6	13/6	15/3	17/3		per cwt.

Cast-Iron Socket Pipes—		
3in. diameter.....	£5 10 0	to £5 15 0
4in. to 6in.....	5 5 0	" 5 10 0
7in. to 24in. (all sizes).....	4 15 0	" 5 0 0
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]		

Fig Iron—		Per ton.
Cold Blast, Lilleshall.....	105s.	to 110s.
Hot Blast, ditto.....	57s. 6d.	to 62s. 6d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:

Gas-Tubes.....	75p.c.
Water-Tubes.....	70
Steam-Tubes.....	62½
Galvanised Gas-Tubes.....	60
Galvanised Water-Tubes.....	55
Galvanised Steam-Tubes.....	45

	10cwt. casks.	5cwt. casks.
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	Per ton.	Per ton.
Zinc, English.....	£28 0 0	to £28 10 0
Do., Vieille Montagne.....	29 10 0	" 29 15 0
Sheet Lead, 3lb. per sq. ft. super.....	15 0 0	" 16 0 0
Fig Lead, in 2lb. pigs.....	14 7 6	" 15 7 6
Lead Shot, in cwt. bags.....	18 0 0	" 19 0 0
Copper Sheets, sheathing and rods.....	69 0 0	" 70 0 0
Copper, British Cake and Ingots.....	55 10 0	" 56 0 0
Tin, Straits.....	91 15 0	" 92 15 0
Do., English Ingots.....	95 0 0	" 96 0 0
Spelter, Silesian.....	23 0 0	" 23 10 0

### TIMBER.

	per load	£13	0 0	to	£15 10 0
Teak, Burmah.....					
" Bangkok.....		10 10 0	"	14 10 0	
Quebec Pine, yellow.....		4 7 6	"	6 5 0	
" Oak.....		4 0 0	"	6 0 0	
" Birch.....		3 0 0	"	5 0 0	
" Elm.....		4 12 6	"	5 15 0	
" Ash.....		3 17 6	"	5 5 0	
Dantisc and Memel Oak.....		3 5 0	"	3 15 0	
Fir.....		2 0 0	"	4 0 0	
Wainscot, Riga p. log.....		3 15 0	"	5 15 0	
Lath, Dantisc, p.f.....		4 10 0	"	5 10 0	
St. Petersburg.....		4 0 0	"	6 10 0	
Greenheart.....		8 0 0	"	8 5 0	
Box.....		4 0 0	"	15 0 0	
Sequoia, U.S.A. ....per cube foot		0 1 9	"	0 2 0	

Mahogany, Cuba, per super foot		
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1in. thick.....	0 0 5½	" 0 0 7
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" Honduras.....	0 0 4	" 0 0 6
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" Mexican.....	0 0 3½	" 0 0 4
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Cedar, Cuba.....	0 0 4	" 0 0 4½
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" Honduras.....	0 0 3½	" 0 0 4½
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Satinwood.....	0 0 9	" 0 1 9
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Walnut, Italian.....	0 0 8	" 0 0 7
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Deals, per St. Petersburg Standard, 120—12ft. by 1½in.		
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by 1½in.:		
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Quebec Pine, 1st.....	£18 15 0	to £25 5 0
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" 2nd.....	13 15 0	" 17 0 0
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" 3rd.....	6 0 0	" 10 0 0
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Canada Spruce, 1st.....	8 10 0	" 10 10 0
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" 2nd and 3rd.....	7 5 0	" 8 10 0
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New Brunswick.....	7 5 0	" 8 0 0
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Riga.....	8 5 0	" 9 5 0
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St. Petersburg.....	11 15 0	" 14 5 0
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Swedish.....	9 15 0	" 16 15 0
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Finland.....	9 15 0	" 10 5 0
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White Sea.....	10 15 0	" 18 0 0
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Battens, all sorts.....	5 0 0	" 16 0 0
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Flooring Boards, per square of 1in.:		
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1st prepared.....	£0 9 6	" £0 16 3
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2nd ditto.....	0 8 0	" 0 13 3
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Other qualities.....	0 6 3	" 0 7 0
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Staves, per standard M.:		
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Quebec pipe.....		
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U.S. ditto.....	£35 0 0	" £42 10 0
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Memel, cr. pipe.....	210 0 0	" 220 0 0
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Memel, brack.....	130 0 0	" 190 0 0
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### OILS.

	per ton.	£16 10 0	to	£17 0 0
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Linseed.....				
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Rapeseed, English pale.....		22 0 0	"	22 5 0
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Do., brown.....		20 15 0	"	21 0 0
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Cottonseed, refined.....		14 10 0	"	15 5 0
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Olive, Spanish.....		23 10 0	"	29 0 0
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Seal, pale.....		21 5 0	"	21 10 0
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Cocunut, Cochín.....		30 0 0	"	30 10 0
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Do., Ceylon.....		25 15 0	"	26 0 0
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Palm, Lagos.....		22 0 0	"	22 5 0
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Oleine.....		18 15 0	"	19 15 0
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Lubricating U.S..... per gal.		0 6 3	"	0 7 6
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Petroleum, refined.....		0 6 0	"	0 6½
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Tar, Stockholm..... per barrel		1 0 0	"	1 5 0
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Do., Archange.....		0 15 0	"	0 13 0
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Turpentine, American..... per ton		38 15 0	"	39 0 0
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## LIST OF COMPETITIONS OPEN.

Bradford—Central Fire Brigade Station	£100, £50, £30	The City Surveyor's Office, Bradford	Feb. 1
Tottenham—Refuse Destructor	£25, £15, £10	P. E. Murphy, Engineer U.D.C. 712, High-road, Tottenham	" 7
Dartford—York-road Board Schools (1,650 places)	30gs., 10gs.	Arthur S. Dixon, Clerk to School Board, Dartford	" 10
Northwich—Dwelling House (£25 rent) for Erection on Land Liable to Subsidence	£20, £10, £5	F. A. Cowley, Clerk to Salt Compensation Board, Northwich	" 24
Knutsford—Cemetery Buildings	£20 and £10	W. J. Downes, Surveyor U.D.C., Knutsford	" 28
Forfar—Isolation Hospital (Assessor)	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee	Mar. 31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£150, £100, £50	The City Surveyor's Office, Bradford	April 14
Nelson—New Church of St. Philip's		H. Duerdon, Hon. Secretary, 180, Barkerhouse-road, Nelson	—
Charlbury—Drinking Fountain (£120 limit)		The Vicar, Charlbury, Oxon	—
Gosport—Technical Institute and Public Library (about £4,000; limited to Architects within 100 miles of Gosport; Assessor)	£100, £25, £10	P. Tostevin, Sec., District Council Offices, Gosport	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Delph—Business Premises	Industrial Co-operative Society	The Secretary, Industrial Co-operative Society, Delph, Oldham	Jan. 21
Castleford—Six Dwelling Houses, Crowther-street	J. Rowland	A. Hartley, Architect, Carlton Chambers, Castleford	" 21
Burntcliffe—Shoe Factory, Hudson-road	J. Rawlin	Smith and Tweedale, F.F.R.I.B.A., 12, South-parade, Leeds	" 21
Greensborough—Villa	Board of Guardians	J. Platts, Architect, Old Bank Buildings, Rotherham	" 21
Utoxeter—Vagrant Wards	Major Cregan, R.E.	E. Forshaw, Architect, 69, High-street, Burton-on-Trent	" 21
Carlisle—Two Houses, Strawberry-terrace	Central London School Managers	A. W. Johnston, Architect, 81, Castle-street, Carlisle	" 21
Pennywell—Two Cottages	Vestry of All Saints, Poplar	M. G. Slade, 3, The Crescent, Limerick	" 21
Hanwell—Block of School Buildings, Cuckoo-lane	Morecambe Tower Company	J. T. Newman and Jacques, Architects, 2, Fen-court, London, E.C.	" 21
Dunoon—Court House and Police Station	Vestry of All Saints, Poplar	W. Fraser, Architect, Burgh Buildings, Dunoon	" 21
Morecambe—Shops, Calton Lodge Estate	School Committee	W. H. and A. Sugden, Architects, Keighley	" 21
Millwall—Public Baths in Glengall-road	R. Parker	Clarkson Brothers, Architects, 133, High-street, Poplar, E.	" 21
Londonderry—Five Houses, Duke-street	Governors of Gelligaer County Sch.	J. G. Ferguson and Son, Architects, 20, Pump-street, Londonderry	" 21
Newtowncunningham—Teachers' Residence	Great Central Railway Co.	M. A. Robinson, Architect, Richmond-street, Londonderry	" 23
Rawtenstall—Five Cottages, Annie-street	Guardians of Croydon Union	F. J. Hobson, Architect, King-street, Rawtenstall, Lancs.	" 23
Hengoed—Intermediate School and Hostel for 80 Girls	Leeds School Board	James and Morgan, Architects, Charles Street Chambers, Cardiff	" 23
Bethesda—Schoolroom, &c., Jerusalem C.M. Chapel	Industrial Co-operative Society	G. S. Jones, 12, Gordon-terrace, Bethesda	" 23
Guide Bridge—Refreshment Rooms at Station	Guardians	The Engineer's Office, London-road Station, Manchester	" 23
Thornton Heath—Laundry Buildings at Workhouse Infirmary	Bredbury and Romley U.D.C.	P. West, Surveyor, 23, Coombe-road, Croydon	" 24
Leeds—Repairs to Various Schools	H.M. Commissioners of Works	W. Packer, Clerk, School Board Offices, Leeds	" 24
Staines—Stabling	Guardians	The Secretary, Clarence-street, Staines	" 24
Northallerton—Bathroom, &c., at Workhouse	Bredbury and Romley U.D.C.	Fairbank and Son, Engineers, 13, Lendal, York	" 24
Bredbury—Meter House, Two Trees-lane	H.M. Commissioners of Works	J. W. Bain, Clerk, Bredbury	" 24
Stalybridge—New Post Office	Guardians	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
Blairstown—Alteration, Pemie Manse	T. Davies	L. and J. Falconer, Architects, Blairstown	" 25
Cranbrook—Boiler House, &c.	School Board	T. H. Crampton, Clerk, Cranbrook, Kent	" 25
Porth—Additions to Imperial Hotel	L. & Y. and L. & N.W. Joint Rys.	A. O. Evans, Architect, Pontypriid	" 25
Little Ilford—School Buildings, &c., Bessborough-road	Commercial Cable Co.	S. Jackson, Architect, 65, Fenchurch-street, E.C.	" 25
Blackpool—Additions to Central Station Buildings	Iale of Thanet Union Guardians	The Engineer's Office, Hunt's Bank, Manchester	" 25
Manchester—St. Mary's Hospital, Oxford-st. and Gloucester-st.	Corporation	A. Waterhouse & Son, Architects, 20, New Cavendish-st., London, W.	" 25
Waterville, Co. Kerry—Cable Station and Residences	School Board	J. F. Fuller, F.S.A., Architect, Brunswick Chambers, Dublin	" 25
Manstone—Cottage Home Buildings	Stepney Union Guardians	Leonard Grant, Architect, High-street, Sittingbourne	" 25
Barnard Castle—Science Buildings at North-Eastern County School	Brown and Co.	Clark and Moscrop, F.F.R.I.B.A., Architects, Darlington	" 26
Glasgow—Public Baths, Whitevale-street	Urban District Council	John Lindsay, Interim Clerk, City Chambers, Glasgow	" 26
Oldham—Roundthorn Schools	Webster and Co.	J. Howcroft, Architect, Clegg-street, Oldham	" 26
Garwood—Additions to Farm	Guardians	James Tindal, Joiner, Fording	" 26
Ratcliffe, E.—Additions, &c., to Workhouse, Salmon-lane	Wilson, Walker, and Co.	S. A. Lewis, Clerk, Guardians' Offices, Barnes-street, Stepney, E.	" 27
Leeds—Converting Bank Premises into Shops and Offices, Commercial-street	Strexford Urban District Council	Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Ilkley—Four Houses in Richmond-place	Charles Wright	E. Barton Johnson, Architect and Surveyor, Ilkley	" 28
Aston Manor—Additional Washing Baths at Public Baths	Co-operative Society	H. Richardson, A.M.I.C.E., Engineer, Council House, Aston	" 28
Leeds—Shop Premises and Bakery, North-street	Goodhall and Suddick	Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Bakewell—Workhouse Infirmary, &c.	Guardians	E. M. Longsdon, Architect, Town Hall, Bakewell	" 28
Leeds—Settling Tanks at Tannery, Sheepscar-street	H.M. Commissioners of Works	Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Old Trafford—Technical Institute and Public Library	Mynyddialwyn School Board	John Bowden, 14, Ridgfield, Manchester	" 28
Leeds—Alteration of Shop Premises and Jubilee Hotel, Victoria-square	Electricity Committee of Corporation	Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Trimdon—Shop	Board of Guardians	The Secretary, Station Town Co-operative Society, Wingate	" 28
Leeds—Printing Warehouse, Cookridge-road	Ripponden Commercial Co., Ltd.	Thomas Winn, Architect, 92, Albion-street, Leeds	" 28
Halifax—Pair of Villas, Manor Heath-road	Town Council	Arthur G. Dalzell, Architect, 15, Commercial-street, Halifax	" 30
Birmingham—Nurses' Mess-room, &c., Workhouse Infirmary	Corporation	R. H. Ward, Architect, Paradise-street, Birmingham	" 30
Granton—New Gasworks	Equitable Industrial Co-op. Society	W. R. Herring, Chief Engineer, Gasworks, Edinburgh	" 30
Manchester—New Government Offices	Guardians	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 30
Trinant—Additions to Board School	Mrs. G. Kenshole	Rosser and Roberts, Architects, Abercane	" 30
Glasgow—Generating Station at Pollokshaws-road	Askes Haberdashers' Sch. Managers	Andrew Myles, Architect, 143, West Regent-street, Glasgow	" 30
Northallerton—Workhouse Bathroom	School Board	Fairbank and Son, C.E., 13, Lendal, York	" 31
Ripponden—Fireproof Mill	Baths Committee	Horsfall and Son, Architects, 22A, Commercial-street, Halifax	" 31
Berwick-on-Tweed—Lock-Up and Police Station	School Board	R. Burns Dick, 55, Northumberland-street, Newcastle-on-Tyne	" 31
Cardiff—Extensions to Electric Lighting Station, Eldon-road	T. and J. Arkell	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	" 31
Prudhoe—Rebuilding Dr. Syntax Hotel	Urban District Council	R. Burns Dick, Architect, 55, Northumberland-street, Newcastle	" 31
Booth—Technical School, Balliol-road	Gwalio Hotel Company	E. Reid, Q. Surv., 7, Westminster Chambers, Crosshall-st., Liverpool	Feb. 1
Burnley—Extension of Central Stores, Hammerton-street	Prudential Assurance Company	Thos. Bell, Architect, 14, Grimshaw-street, Burnley	" 1
York—Staircases at Workhouse	Grays Thurrock U.D.C.	Penty and Penty, Architects, Lendal Chambers, York	" 2
Mountain Ash—Rebuilding the Allen's Arms	R. P. Cooper, C.C.	Geo. Kenshole, Duffryn House, Ystrad Mynach	" 3
Luddenden Foot—Stabling and Additions to Grove Brewery	F. Boocock	Joseph F. Walsh, Architect, Bank Chambers, Halifax	" 3
West Hampstead—School	Hyde and Co., Rusholme Brewery	Widnell and Trollope, 20, Tothill-street, Westminster, S.W.	" 4
West Hartlepool—Grill and Restaurant, Club-Room, Shops, and Offices, Church-street	Farmers' and Cleveland Dairies Co.	J. Blackwell, Architect, West Hartlepool	" 6
Newcastle-upon-Tyne—Additions to Spital Tongues School	W. J. Rogers	W. Lister Newcombe, F.R.I.B.A., 89, Pilgrim-st., Newcastle-on-T.	" 6
Leeds—Alteration of Public Baths in Cookridge-street	Allen Nield	Walter Hanstock and Son, Architects, Branch-road, Batley	" 6
Benllech—Extensions to Welsh C.M. Chapel	Mrs. Hutton	J. Owen, Architect, Menai Bridge, Anglesey	" 6
Normanton-by-Deby—Additions to Schools	Diamond Match Co.	Naylor and Sale, Architects, Iron Gate, Derby	" 6
Swindon—Rebuilding Foresters' Arms Inn	W. J. Sellers	W. Drew, M.S.A., 22, Victoria-street, Swindon	" 11
Wimbledon—Isolation Hospital	Stanley Conservative Club Co.	C. H. Cooper, Surveyor, Council Offices, Broadway, Wimbledon	" 13
Leeds—Additions to St. George's Church	Whitaker Bros.	Henry Walker, Architect, 8, Upper Fountain-street, Leeds	" 14
Rugby—Public Offices, High-street		D. G. Macdonald, A.M.I.C.E., Surveyor, Rugby	" 15
Llandrindod Wells—Stables and Cottage		Swash and Bain, Architects, Bank Chambers, Newport, Mon.	"
Cartmel—Alterations to Cavendish Arms		Settle and Farmer, Architects, County-square, Ulverston	"
Huddersfield—Offices		A. Waterhouse and Son, Architects, New Cavendish-street, W.	"
Brampton—Two Houses		J. S. Thompson, Solicitor, 18, Bank-street, Carlisle	"
Grays—Cast-Iron Band-Stand and Shelter in Public Park		A. C. James, Surveyor, Grays, Essex	"
Shenstone—Lodge and Four Cottages		William Perry, Architect, Lichfield	"
Bransley—Sub-Post-office, &c.		J. M. Fawcett and Son, Architects, 26, Albion-street, Leeds	"
Rusholme—Brewery, Dickenson-road		Harrap and Duffield, Architects, 24, Queen-street, London, E.C.	"
Nottingham—Dairy Premises, Park-street		Evans and Son's Offices, Wheeler-gate, Nottingham	"
Burnley—Five Houses in Arkwright-street		A. Robinson, Architect, 321, Padiham-road, Burnley	"
Crymlyn—Rebuilding Masons' Arms Inn		Swash and Bain, Architects, Midland Bank Chambers, Newport	"
Leeds—Photographic Printing Works, Rowland-road		J. Swanwick, Architect, 6, Upper Fountain-street, Leeds	"
Bawtry—Alterations to Holland House		Joseph F. Walsh, Architect, Bank Chambers, Halifax	"
Exmouth—New Roof and Additions to 4, The Beacon		Philip Kerley, Architect, Exmouth	"
Felixstowe—Villa		G. W. Thompson, Architect, Granville House, Arundel-st., London	"
Seaford—Composition Building		The Secretary, Linacre-road, Seaford	"
Brampton—Two Houses		J. Studholme Thompson, Solicitor, Bank-street, Carlisle	"
Exmouth—Four Houses		Philip Kerley, Architect, Exmouth	"
Hull—Additions to Church Institute, Albion-street		Brodick, Lowther, & Walker, Archts, York Chmbs, 77, Lowgate, Hull	"
Bury, Lancs—Club		C. H. Openshaw, Architect and Surveyor, Fleet-square, Bury	"
Leeds—Two Pairs of Semi-Detached Houses, North Grange-rd.		Kendal and Bakes, Calveley Chambers, Victoria-square, Leeds	"
Bridlington Quay—Four Terrace Houses		Chorley, Cannon, and Chorley, Architects, 15, Park-row, Leeds	"



## BUILDINGS—continued.

Whitby—Alterations, Talbot Hotel .....	J. J. Milligan, Architect, 77, Baxtergate, Whitby.....	—
Exmouth—Six Semi-Detached Villas, Montpellier-road .....	Philip Kerley, Architect, Exmouth.....	—
Bradford—Four Houses at Bankfoot .....	Brayshaw and Dixon, Architects, Bowling Old-lane, Bradford .....	—
Gwendraeth—New School and Additions.....	J. B. Morgan, M.S.A., Architect, 17, New-road, Llanelly.....	—
Ashton-under-Lyne—Pair of Villas, George Mellor-road .....	George and Son, Architects, Old-square, Ashton-under-Lyne.....	—
Whitehead—Lecture Hall .....	Herbert Sykes, M.S.A., Ann-street, Belfast .....	—
Steeeton—Eighteen Cottages .....	J. Judson and Moore, Architects, Keighley.....	—
Hull—Printing Works in Chapel-lane .....	Brodrick, Lowther, & Walker, Archts, York Chmbs, 77, Lowgate, Hull .....	—
Peterborough—House, Charles-street .....	J. G. Stallebrass, Architect, North-street, Peterborough .....	—
Ulverston—Villa, Kilner's Park .....	Settle and Farmers, Architects, Ulverston .....	—
Steeeton—Institute .....	J. Judson and Moore, Architects, Keighley.....	—
Middlesbrough—Alterations to Two Shops, Corporation-road.....	Robt. Moore, 27, Albert-road, Middlesbrough .....	—
Rogerstone—Fourteen Semi-Detached Houses .....	Swalwell and Creighton, Architects, Dock-street, Newport, Mon. ....	—
Leeds—Southern Higher-Grade School, Burton-road .....	J. Mitchell Bottomley, Architect, Bank Chambers, Park-row, Leeds .....	—
Merecambe—Warehouse, &c., Curzon-road .....	Rayner and Sager, Alfred-street, Blackpool .....	—
Harrogate—Twenty-four Lock-up Shops, Lowther Arcade .....	G. E. Bolshaw, Architect, 189, Lord-street, Southport .....	—

## ENGINEERING.

Glasgow—Generating Plant, Electricity Works .....	Corporation .....	W. A. Chamen, Engineer, 75, Waterloo-street, Glasgow .....	Jan. 21
Neath—Filter Bed .....	Corporation .....	D. M. Jenkins, Borough Engineer, Gwyn Hall, Neath .....	" 23
Govan—Electric-Lighting Plant .....	Commissioners .....	W. Arnot, C.E., 79, West Regent-street, Glasgow .....	" 23
Belfast—Cranes, &c. ....	Harbour Commissioners .....	G. F. Giles, Harbour Engineer, Belfast.....	" 23
Poplar and Greenwich—Tunnel for Pedestrian Traffic under the Thames .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	" 24
Glasgow—Pipelaying .....	Corporation .....	W. Foulis, Gas Engineer, 45, John-street, Glasgow .....	" 24
Erith—Alterations to Engines, Crossness Outfall.....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	" 24
North Woolwich—Overhead Traveller at New Pumping Station .....	London County Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	" 24
Winchmore Hill, N.—Electric Light Installation at the Northern Hospital .....	Metropolitan Asylums Board .....	Burstall & Monkhouse, Engrs., 14, Old Queen-street, Westminster .....	" 25
Hull—Water Softener, &c. ....	Corporation .....	A. E. White, City Engineer, Town Hall, Hull .....	" 25
Edinburgh—Hoist Works at Public Library .....	Newhaven and Seaford Commnsrs. ....	Hew Morrison, Clerk to Library Committee, Edinburgh .....	" 25
Newhaven and Seaford—Sea Wall .....	Sheffield United Gaslight Co. ....	W. H. Pawson, Clerk, Newhaven and Seaford .....	" 27
Sheffield—Two Cast-Iron Condensers .....	Pickering Rural District Council .....	Mr. Hanbury Thomas, Secretary, Commercial-street, Sheffield .....	" 28
Cropton—Water Supply .....	Hants County Council .....	Robert Kitching, Clerk, Eastgate, Pickering .....	" 28
Breamore—Steel Highway Bridge .....	Harbour Commissioners .....	W. J. Taylor, County Surveyor, Winchester .....	" 28
Belfast—Tipping-Crane, &c. ....	Rural District Council .....	G. F. L. Giles, Harbour Engineer, Harbour Office, Belfast .....	" 30
Midhurst—Covered Concrete Service Reservoir and C.I. Mains .....	Harbour Commissioners .....	J. Taylor, Sons, & Santo Crimp, C.E., 27, Gt. George-st., Westminster .....	" 30
Belfast—Locomotive Steam Crane .....	London County Council .....	G. F. L. Giles, Harbour Engineer, Harbour Office, Belfast .....	" 30
London—Four Gas-Engines at Victoria Embankment Electric Lighting Station .....	Corporation .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	" 31
Burton-on-Trent—Widening of Bridge crossing the Midland Railway, Horninglow-street .....	Harbour Board .....	George T. Lynam, Borough Engineer, Burton-on-Trent.....	Feb. 1
Townsville—Steam Pivot Crane (25-ton) .....	Corporation .....	The Chairman, Harbour Board, Townsville, North Queensland.....	" 1
Bradford—Electric Lighting Installation .....	Cockermouth R.D.C. ....	George McGuire, Town Clerk, Town Hall, Bradford .....	" 1
Brigham—Water Main (5in.) .....	Cockermouth R.D.C. ....	J. B. Wilson, A.M.I.C.E., Court Buildings, Cockermouth.....	" 3
Brackenthwaite—Two Bridges over Hope Beck .....	Caledonian Railway Company .....	J. B. Wilson, A.M.I.C.E., Court Buildings, Cockermouth.....	" 3
Newton—Widening of Railway .....	Harbour Commissioners .....	George Graham, C.E., Buchanan-street Station, Glasgow .....	" 6
Belfast—Steel Barges (Twelve) .....	Corporation .....	G. F. L. Giles, Harbour Engineer, Harbour Office, Belfast .....	" 6
Lowestoft—Electric Lighting Plant .....	Cowal District Committee .....	W. C. C. Hawtayne, Consulting Engineer, 9, Queen Street-place, E.C. ....	" 6
Kames—Reservoir, &c. ....	Birmingham Corporation .....	J. and A. Leslie and Reid, C.E., 72A, George-street, Edinburgh.....	" 8
Hagley to Frankley—Aqueduct (5½ miles) .....	Government .....	James Manserg, Engineer, 5, Victoria-street, Westminster .....	" 10
Alexandria, Egypt—Two Swing Bridges over Canal.....	Municipal Council .....	The Inspector of Third Circle Irrigation, Alexandria .....	" 16
Christiania—Porcelain Telegraph and Telephone Insulators (140,400) .....	Government of Pará .....	Norwegian State Telegraph Administration, Christiania .....	" 26
Shanghai—Electric Trolley Tramways (23 miles) .....	Corporation .....	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....	Mar. 15
Belem—Waterworks .....	London County Council .....	The Treasury of Pará .....	" 15

## FENCING AND WALLS.

Cheltenham—Reconstruction of Retaining Reservoir Wall .....	Corporation .....	The Borough Surveyor, Municipal Offices, Cheltenham .....	Jan. 23
Southwark Park—Oak Boundary Fencing .....	London County Council .....	The Parks Department, 9, Spring-gardens, S.W. ....	" 24
Bury, Lancs—Ornamental Wrought-Iron Railings (70 yards), at Buckley Wells .....	Sewering Committee .....	The Borough Engineer, Bank-street, Bury .....	" 25
Upper Witton—Boundary Walls, Small-pox Hospital .....	Aston Manor Urban District Council .....	H. Richardson, A.M.I.C.E., Engineer, Council House, Aston .....	" 25
Taunton—Inclosing Greenway Recreation Ground with Iron Fencing .....	Town Council .....	The Borough Surveyor, Corporation-street, Taunton .....	" 28
Tipton—Unclimbable Wrought-Iron Fencing, Victoria Park .....	Urban District Council .....	W. H. Jukes, Surveyor, Owen-street, Tipton.....	" 28

## FURNITURE AND FITTINGS.

Belfast—For Residential Flat and Office, East Bridge-street ..	Electric Committee .....	V. A. H. McCown, City Electrical Engineer, Belfast .....	Jan. 21
Batley—Internal Fittings, Warwick-road Branch .....	Batley Co-operative Society.....	H. B. Buckley, Architect, Old Vicarage, Batley .....	" 23
Barrow-in-Furness—Desks, &c., Three Schools.....	School Board .....	W. Hutchinson, Clerk, Town Hall, Barrow.....	—

## PAINTING.

Manchester—All Stations on Line .....	Lancashire and Yorkshire Ry. Co. ....	The Engineer's Offices, Hunt's Bank, Manchester.....	Feb. 6
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## PLUMBING AND GLAZING.

Castleford—Six Dwelling-Houses, Crowther-street .....	J. Rowland .....	A. Hartley, Architect, Carlton Chambers, Castleford .....	Jan. 21
Glasgow—Electricity Station, Pollokshaw-road .....	Electricity Committee of Corporation .....	Andrew Myles, Architect, 143, West Regent-street, Glasgow .....	" 30

## ROADS AND STREETS.

Dartmouth—Footpaths .....	Urban District Council .....	T. O. Veale, Surveyor, Dartmouth .....	Jan. 21
Doxford—New Road .....	Jas. Stevenson and Son, Surveyors, Berwick-upon-Tweed .....	" 21	
Woodford—Paving Gainsborough and Stonecroft Roads and Radley-lane .....	Urban District Council .....	J. Elliott Smales, Surveyor, Council Offices, Woodford Green, Essex .....	" 23
Sheffield—Construction of Roads (500 yards) .....	W. H. Greaves Bagshawe .....	J. Dobson Townsend, Surveyor, Independent Buildings, Sheffield .....	" 23
Beckenham—Widening Bromley-road .....	Urban District Council .....	John A. Angell, Surveyor, Beckenham .....	" 23
Stoke Prior—Street Works .....	Bromsgrove Rural District Council .....	H. W. Smith, Surveyor, Foregate-street, Worcester .....	" 23
Bargoed—Construction of Roads .....	Corporation .....	George Kenshole, Architect, Ystrad Mynach .....	" 24
Dewsbury—Paving and Flagging Day's Yard .....	Corporation .....	Henry Deardon, Borough Surveyor, Town Hall, Dewsbury .....	" 24
Whitchurch—Street and Sewer Works .....	Corporation .....	Charles Rigg, Architect, Albert Chambers, High-street, Cardiff .....	" 24
Southsea—Construction of Road .....	Corporation .....	Algonon E. Johnson, C.E., Egerton-street, Wrexham .....	" 24
Bury, Lancs—Paving and Kerbing Streets .....	Sewering Committee .....	The Borough Engineer, Bank-street, Bury .....	" 25
Newington Green—Widening of Road .....	Vestry of St. Mary, Islington .....	J. Patten Barber, Chief Surveyor, Vestry Hall, Upper-street, N. ....	" 25
Cardiff—Paving and Channelling Streets .....	Corporation .....	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff.....	" 25
Hull—Paving, &c., South Side Victoria Dock .....	North-Eastern Railway Company .....	T. M. Newell, Engineer, Dock Office, Hull .....	" 25
Withington—Making-up Streets .....	Urban District Council .....	A. H. Mountain, A.M.I.C.E., Surveyor, Town Hall, Withington .....	" 26
Middlesbrough—Street Repairs .....	Streets Committee .....	Frank Baker, C.E., F.G.S., Borough Eng., Mun. Bldgs, Middlesbrough .....	" 26
Sunderland—Roadwork, &c. ....	Corporation .....	J. F. C. Snell, A.M.I.C.E., Dunning-street, Sunderland .....	" 27
Thornton—Paving Works .....	Urban District Council .....	John Drake and Son, Winterbank, Queensbury, near Bradford .....	" 28
Hornsey, N.—Road and Sewer Works .....	Urban District Council .....	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N. ....	" 30
Enfield—Making-up St. Mark's-rd., Bush Hill Park, & East-rd. ....	Urban District Council .....	R. Collins, Surveyor, Court House, Enfield .....	Feb. 1
Mexborough—Construction of Helena-street .....	Urban District Council .....	G. Fenwick Carter, C.E., Surveyor, Council Offices, Mexborough .....	" 1
St. Thomas—Maintenance and Repair of Roads (Three Years) ..	Rural District Council .....	James Bray, Surveyor, Alphonson .....	" 1
Burgess Hill—Footpath at Church-road .....	Urban District Council .....	A. F. Hardwick, Clerk, Burgess Hill, Sussex .....	" 2
London, N.W.—Paving Finchley-road with Jarrah Wood .....	Vestry of St. John, Hampstead .....	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead .....	" 2
Cardiff—Road Formation & Sewer Works, Penllyn Castle Estate ..	Urban District Council .....	Veall and Sant, Architects, Cardiff .....	—
Heckmondwike—Constructing Birkhead-street .....	Urban District Council .....	J. Smith and Sons, Surveyors, 14, Tanfield Chambers, Bradford.....	—

## SANITARY.

Withnell—Sewage Works .....	Urban District Council .....	T. Beaver, Surveyor, Brinscall, Lancs.....	Jan. 21
Carlisle—Laying in Sewer .....	Rural District Council .....	George Armstrong, Architect, 24, Bank-street, Carlisle.....	" 23
Pooley Bridge—Stoneware Sewers .....	West Ward Rural District Council .....	Taylor, Sons, & Santo Crimp, C.E., 27, Gt. George-street, Westminster .....	" 23
Chadderton—Sewering and Paving Streets .....	Urban District Council .....	William Eckerley, Surveyor, Town Hall, Chadderton .....	" 24
Leeds—Urinal at North-street Recreation Ground .....	Urban District Council .....	The City Engineer's Office, Municipal Buildings, Leeds .....	" 24
Sutton—Sewering, Kerbing, &c., of Roads .....	Urban District Council .....	C. C. Smith, Surveyor, Council Offices, Public Hall, Sutton, Surrey .....	" 25
Withington—Sewers .....	Urban District Council .....	A. H. Mountain, A.M.I.C.E., Surveyor, Town Hall, Withington .....	" 26
Hartley Wintney—Sewers, &c. ....	Rural District Council .....	Fairbank and Son, C.E., 13, Lendal, York .....	" 27
Castleton—Drainage Works .....	Chapel-en-le-Frith R.D.C. ....	Sterling and Swann, Engineers, Town Hall, Chapel-en-le-Frith .....	" 28
Amphill—Sewers (Five Miles) .....	Urban District Council .....	Thomas Hennell, Engineer, 6, Delahay-street, Westminster.....	" 30
Beckham, S.E.—Underground Convenience, Rye-lane .....	Cumberwell Vestry .....	C. W. Tagg, Clerk, Vestry Hall, Cumberwell, S.E. ....	" 31
Chipping Norton—Main Drainage Works .....	Town Council .....	Nicholson Lailey, F.G.S., A.M.I.C.E., 16, Gt. George-st., Westminster .....	" 31
Swindon—Sewering and Paving .....	Urban District Council .....	W. E. Morris, 42, Cricklade-street, Swindon .....	Feb. 8



STEEL AND IRON.

Lower Edmonton, N.—Cast-Iron Pipes and Columns .....	Urban District Council .....	G. Eedes Eachus, Engineer, Town Hall, Lower Edmonton .....	Jan. 24
Glasgow—Cast-Iron Pipes (2,500 lineal yards) .....	Corporation .....	W. Foulis, Gas Engineer, 44, John-street, Glasgow .....	" 24
London, E.C.—Rails and Fishplates .....	Madras Railway Co. ....	Julian Byrne, Secretary, 61, New Broad-street, London, E.C. ....	" 25
St. Annes-on-Sea—Flanged Pipes (195 tons of 24in.) .....	Urban District Council .....	Henry Bancroft, Civil Engineer, 88, Mowley-street, Manchester .....	" 28
Edinburgh—Straight Pipes (650) .....	Gas Commissioners .....	W. R. Herring, Chief Engineer, Gasworks, Edinburgh .....	" 30

STORES.

Brigg—Granite (11,000 tons) and Slag (3,000 tons) .....	Glanford Brigg R.D.C. ....	Frank C. Hett, Clerk, Brigg .....	Jan. 21
Banbury—Hartshill Stone (One Year) .....	Town Council .....	N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury .....	" 21
Brighton—C.I. Pipes for Corporation Waterworks (One Year)...	Town Council .....	Francis J. Tillstone, Town Clerk, Town Hall, Brighton .....	" 23
Bury—Retorts, Firebricks, and Fireclay .....	Corporation .....	H. Simmonds, General Engineer, Gasworks, Bury, Lancs. ....	" 23
London, E.C.—Cast-Steel Axle Boxes, Creosoted Timber Sleepers, &c. ....	Bombay, Baroda, and C.I. Rly. Co. ....	T. W. Wood, Secretary, 45, Finsbury-circus, London, E.C. ....	" 25
Forfar—Road Materials, &c. ....	District Committee .....	Donald Ross, Surveyor, Brechin-road, Kirriemuir .....	" 25
London, E.C.—Brass Boiler Tubes, Portland Cement, Spring Steel, &c. ....	East Indian Railway Co. ....	A. P. Dunstan, Secretary, Nicholas-lane, London, E.C. ....	" 25
Surbiton—Works and Materials .....	Urban District Council .....	James Bell, Clerk, Victoria-road, Surbiton .....	" 26
Sleaford, Lincs—Granite (10,000 tons) and Slag (8,000 tons) .....	Rural District Council .....	Edmund Clements, Clerk, 24, Southgate, Sleaford .....	" 28
Putney, Streatham, Tooting, and Wandsworth—Works and Materials (One, Two, or Three Years) .....	Wandsworth Dist. Board of Works .....	Henry George Hills, Clerk, East Hill, Wandsworth, S.W. ....	" 31
Handsworth—Drain-Pipes, &c. (One Year) .....	Urban District Council .....	E. Kenworthy, Surveyor, Council House, Handsworth .....	" 31
Wandsworth—Broken Granite, Lamp Columns, &c. ....	Wandsworth Dist. Board of Works .....	Henry George Hills, Clerk, East Hill, Wandsworth, S.W. ....	" 31
Norwich—Broken Granite (One Year) .....	Norfolk County Council .....	T. H. B. Heslop, M.I.C.E., County Surveyor, Norwich .....	Feb. 4
London, S.E.—Road Materials, Ironwork, Timber (One Year)...	Vestry of St. Mary, Newington .....	L. J. Dunham, Clerk, Vestry Hall, Walworth, S.E. ....	" 6
Farnworth—Hard Setts (3,000 tons) .....	District Council .....	David Crossley, Clerk, Council Offices, Farnworth .....	—

CHIPS.

The urban district council of Cromer have decided, subject to the approval of the Local Government Board, to adopt a septic system of sewage disposal prepared by Messrs. Cameron, Commins, and Martin, of Exeter. The estimated outlay is £2,000.

A carriage works company in the North have secured a site of about 50 acres of land from the London and North-western Company at Gresty, near Crewe, and purpose to erect works at once. These will furnish employment for between 500 and 1,000 men.

The Handsworth Urban District Council have applied to the Local Government Board for sanction to borrow £17,500 for works of sewerage, £15,030 for a depot in Queen's Head-lane, £4,000 for street improvements, £2,362 for improvements and additions to Victoria Park, £2,200 for the erection of a fire station, and £770 for a refuse destructor. In consequence of this application, Mr. H. P. Boulnois, one of the inspectors of the Local Government Board, held an inquiry on Friday at the Council House, Handsworth. Details of the proposals were given by Mr. E. Kenworthy, surveyor.

The town council of Batley have adopted by a large majority a resolution authorising the erection of a new town-hall at a cost not exceeding £30,000.

At Downpatrick Quarter Session, on Saturday, James Jennings, labourer, was awarded 17s. for life under the provisions of the Workmen's Compensation Act for the loss of both eyes in an explosion of dynamite at Belfast Waterworks.

A new Baptist hall has been erected in Buddle-road, Benwell, from designs by Messrs. Badenoch and Bruce, of Newcastle-on-Tyne. It seats 250 persons, and there are also classrooms and infants' room. Mr. R. W. Maughan was the contractor.

The town council of Southwold, having applied to the Local Government Board for sanction to borrow £6,000 for works of sea defence, on Tuesday week Mr. E. A. Sandford, A.M.I.C.E., attended at the town-hall in that borough to hold an inquiry. The town clerk (Mr. E. R. Cooper) placed the requirements of the corporation before the inspector, and the surveyor (Mr. Ball) explained the plans, stating that, in addition to the proposed works, some £2,000 was now being expended on groynes.

St. John's mission church at Driffield is now being demolished, and will be replaced by a new church, to be erected at a cost of £4,000, towards which £1,500 has been obtained from the Marriott fund.

New board schools have just been opened at Roydon, near Diss. Mr. H. G. Bishop, of Stowmarket, was the architect, and Mr. Eldon J. Smith, of Bunwell, the contractor.

The parish church of South Wytham, Grantham, Lincolnshire, well known for its architectural beauties, has been compulsorily closed on account of its dangerous state, and the rector makes an appeal for funds to aid in the restoration. The cost of rebuilding the fabric amounts to £2,000, and the Earl of Dysart has consented to subscribe half that sum, if the remainder be forthcoming.

The preliminary arrangements for the holding of the forthcoming art loan exhibition in the art gallery at the City Guildhall are in full progress. The exhibition, which will be opened on April 10th, will represent the great painter Turner by an adequate collection of his works in oils and in water-colours, and also by a collection of plates from the *Liber Studiorum*.

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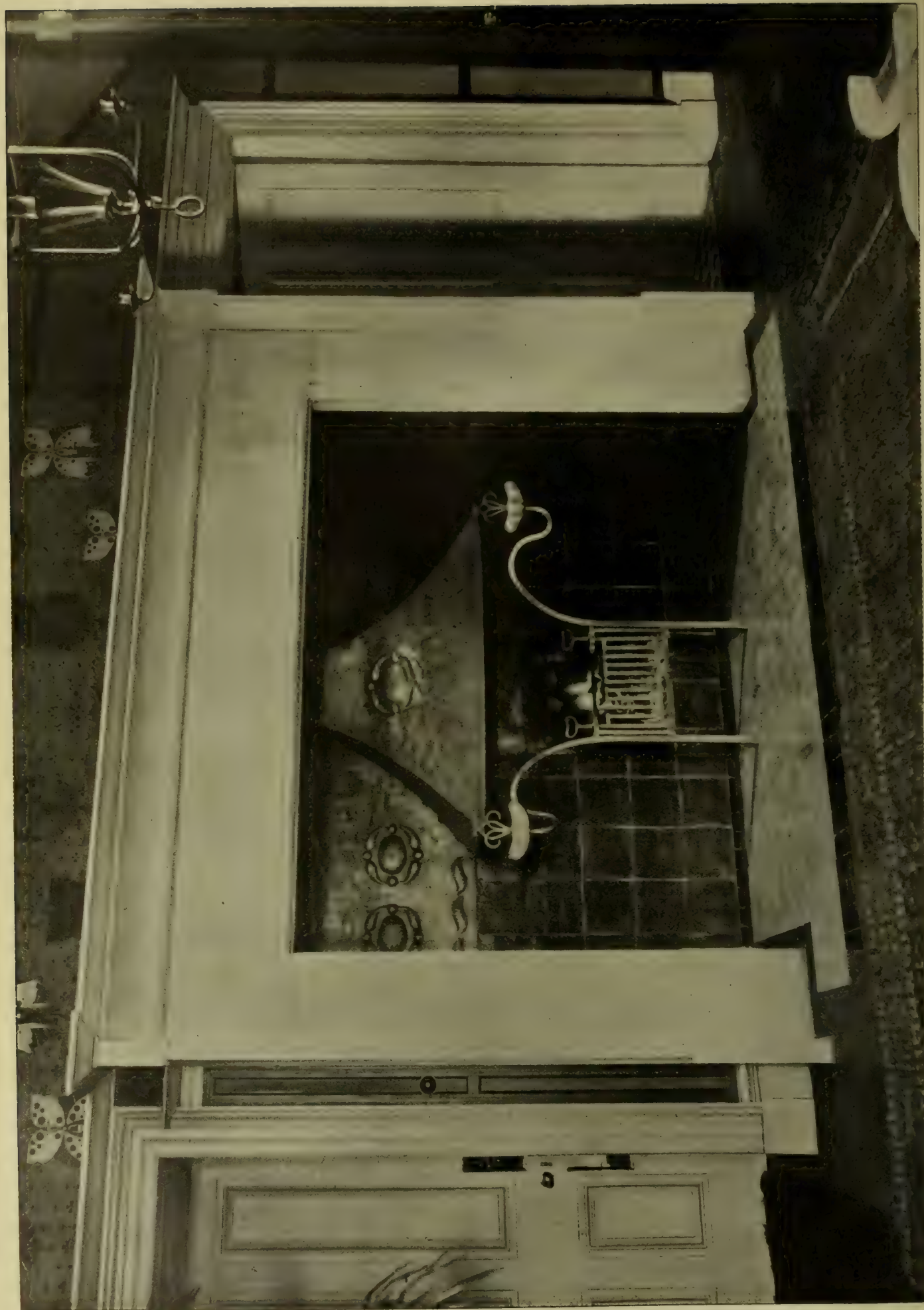
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HALL FIREPLACE, LEADCAMEROCH, FOR MR. J. B. GOW.









STAIRCASE, LEADCAMEROCH, FOR MR. J. B. GOW.  
GEO. WALTON, ARCHITECT.

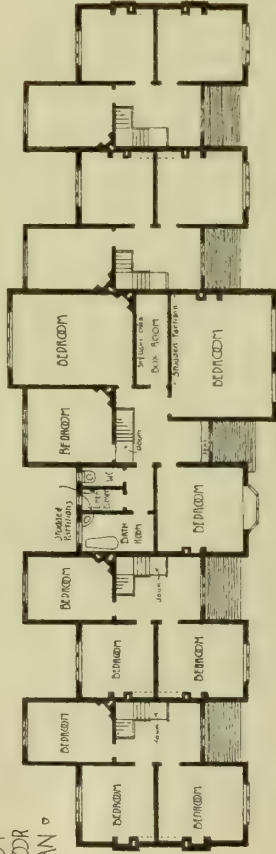




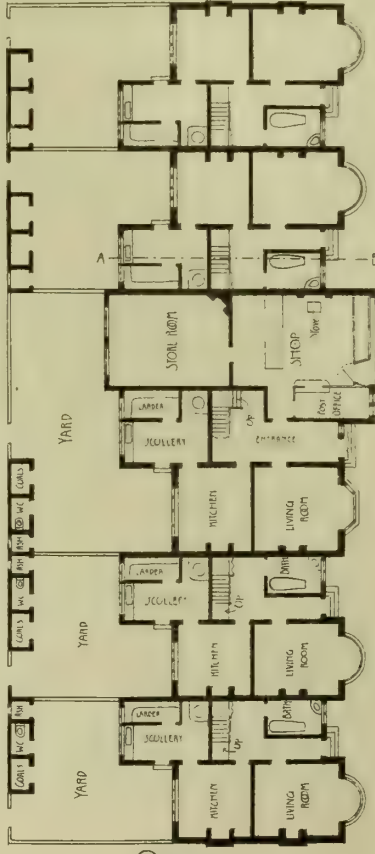


BNDC  
PLACED FIRST

FIRST  
FLOOR  
PLAN



SCALE OF  
FEET FOR  
PLANS

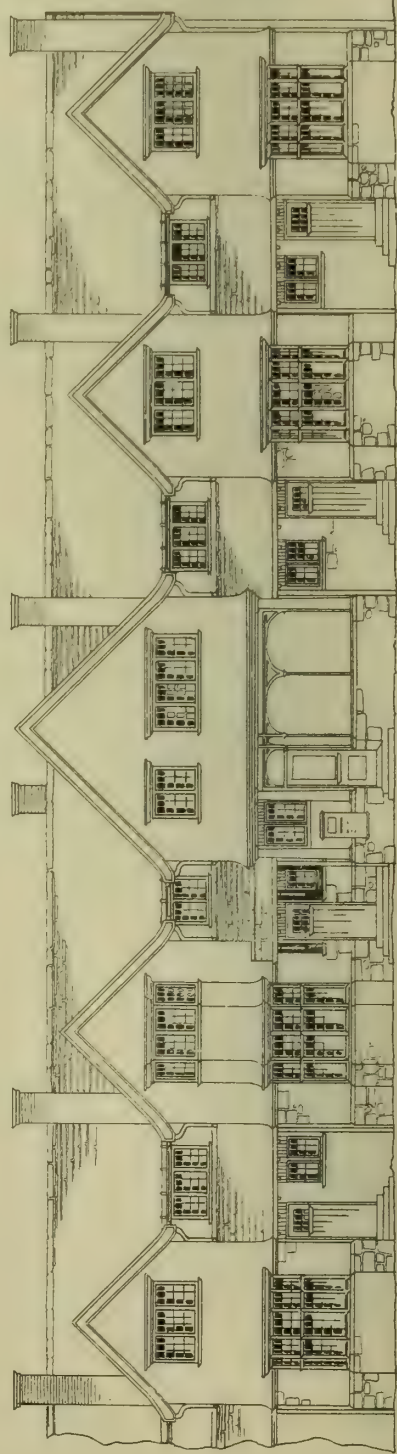


GROUND  
FLOOR  
PLAN

# A VILLAGE SHOP and POST OFFICE With residence and FOUR COTTAGES

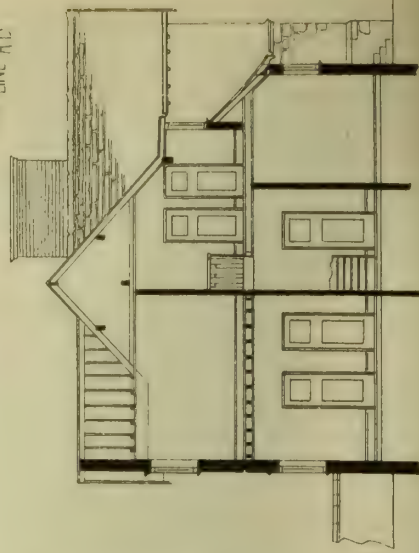
by Mc Gilligan

SECTION  
THRO' °  
COTTAGE  
ON LINE A-B

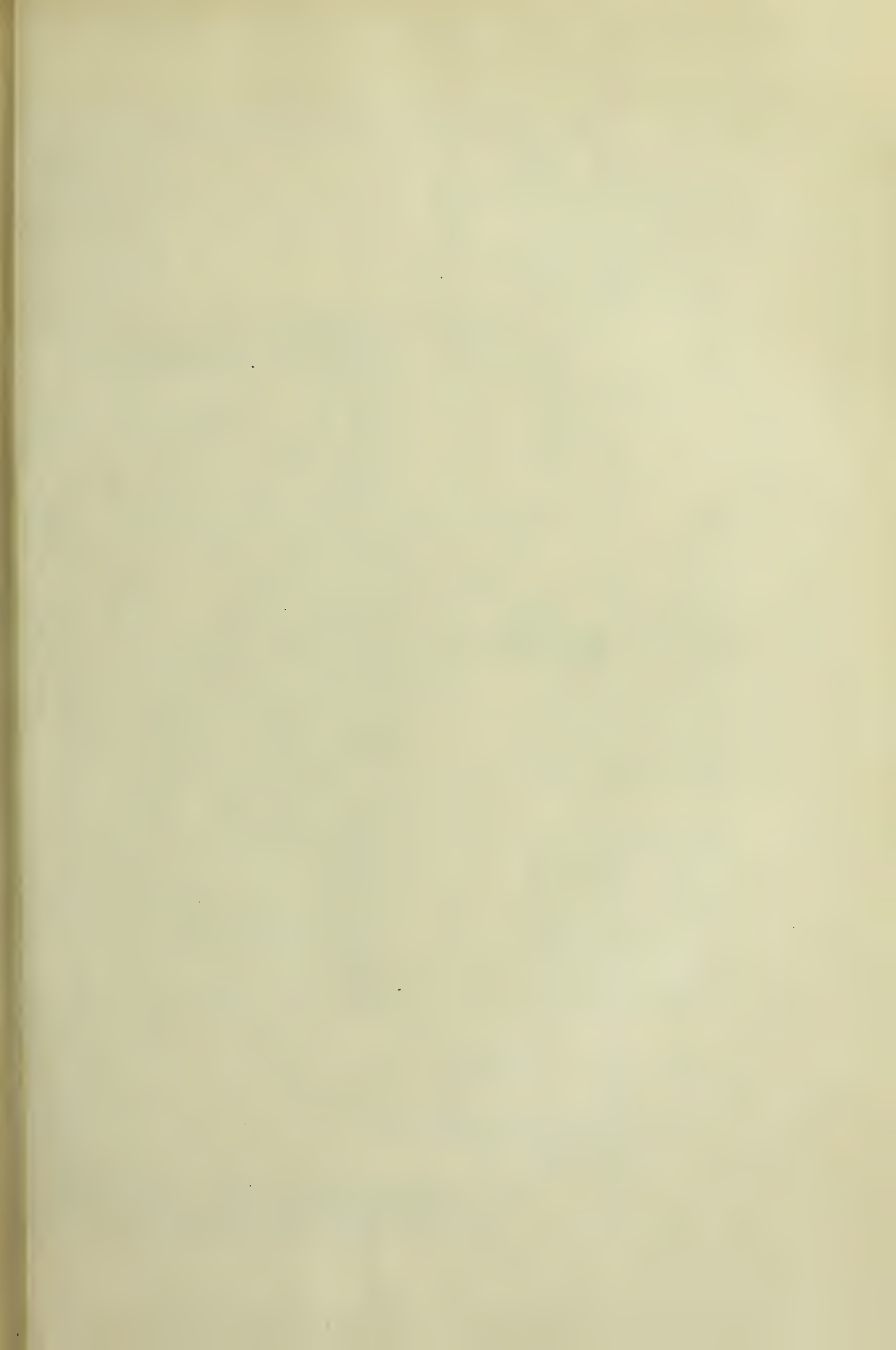


ELEVATION °

SCALE OF FEET FOR ELEVATIONS and SECTION

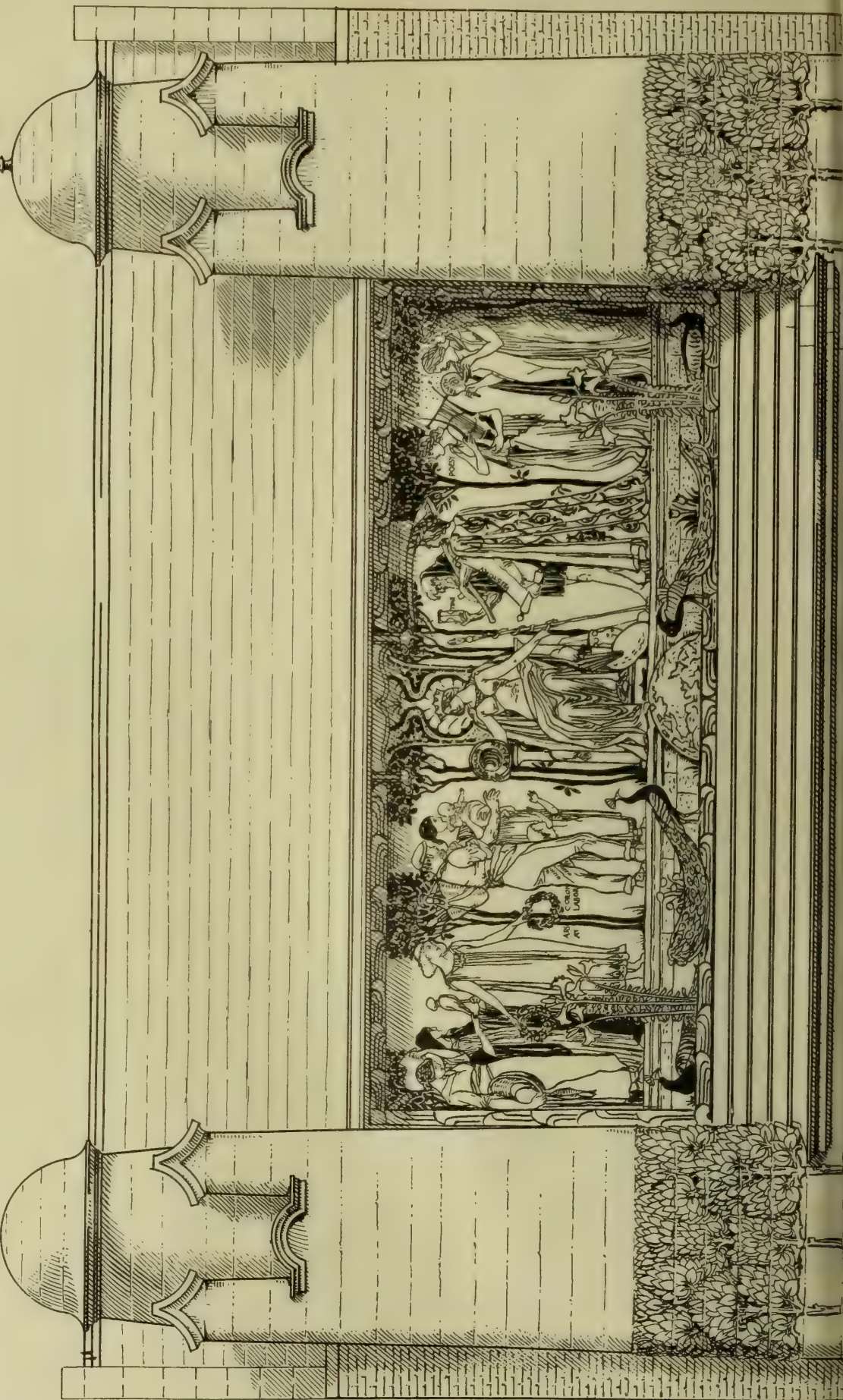




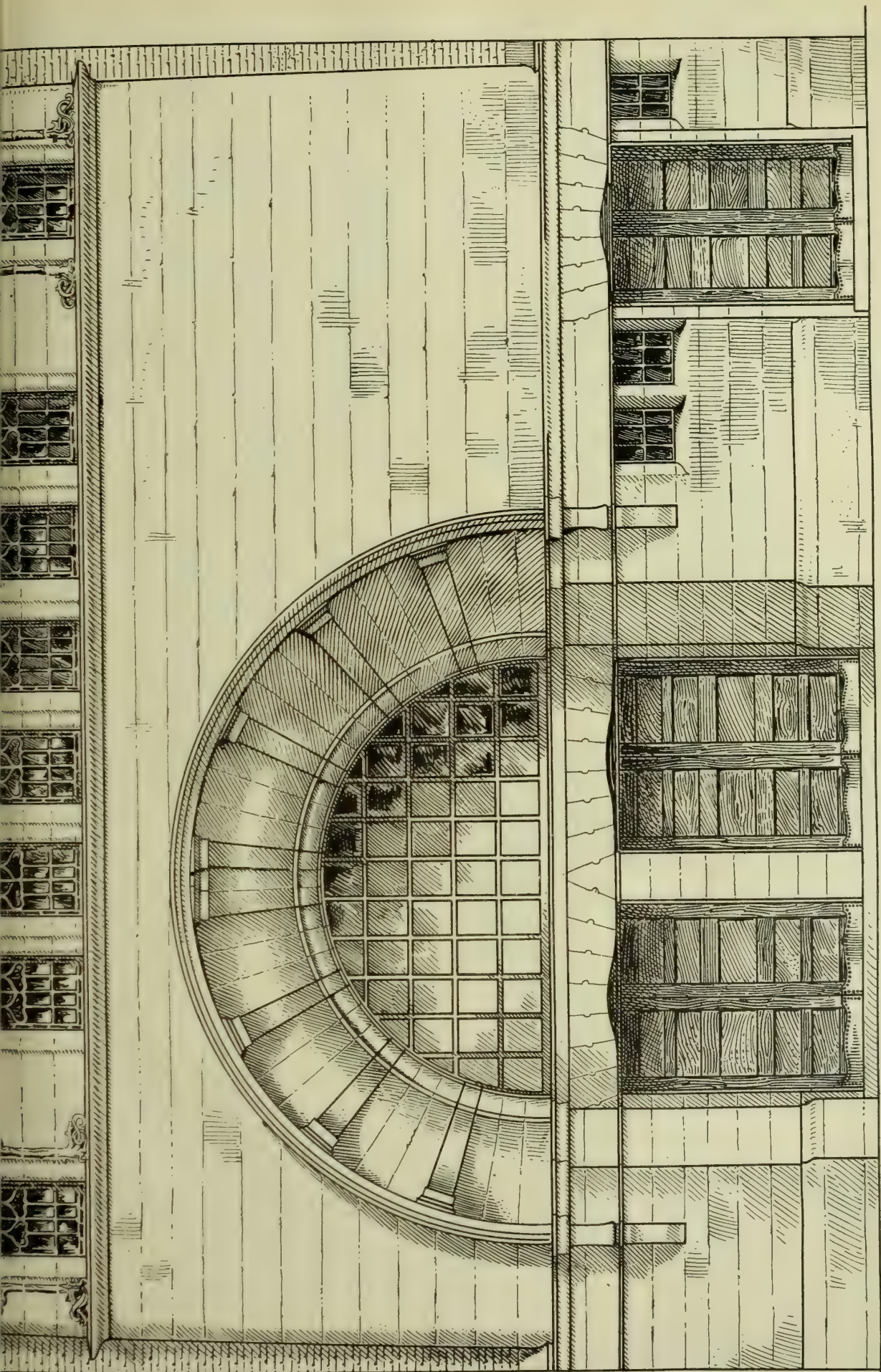




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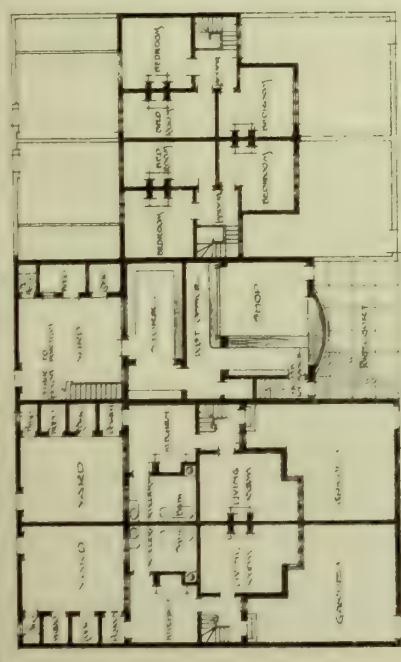




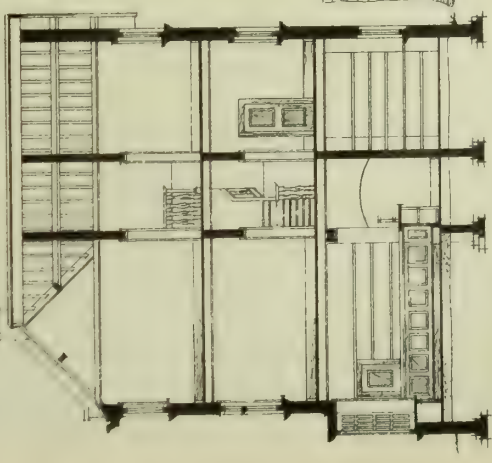
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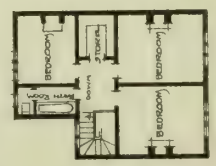
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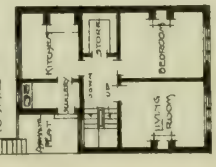
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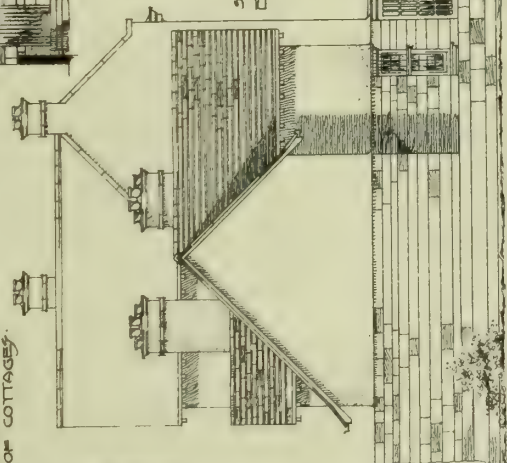
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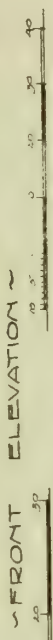
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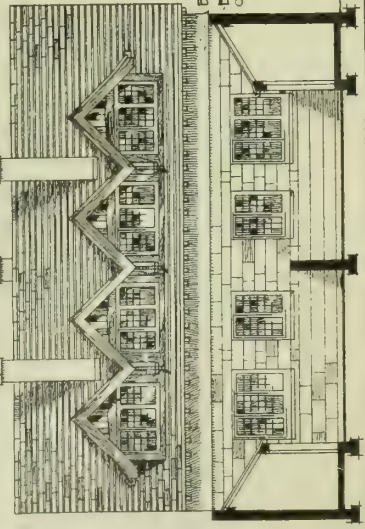
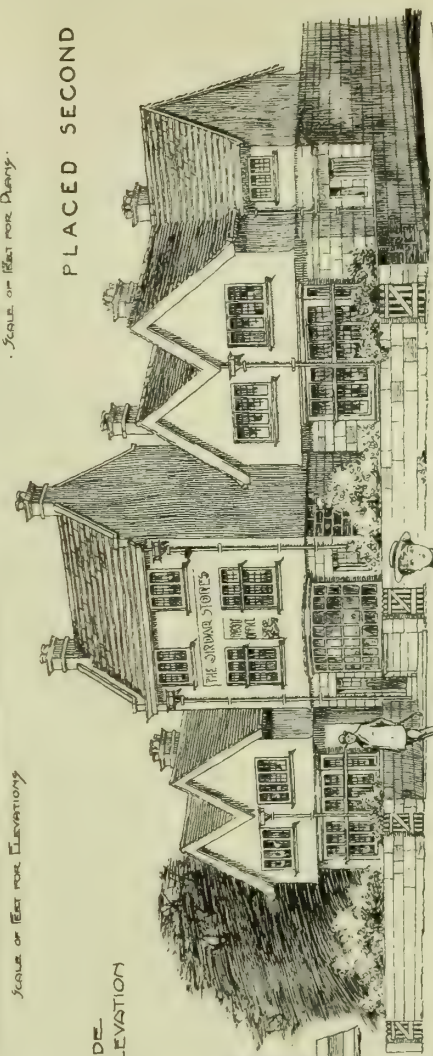
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SIDE ELEVATION



FRONT ELEVATION



BACK ELEVATION OF COTTAGES









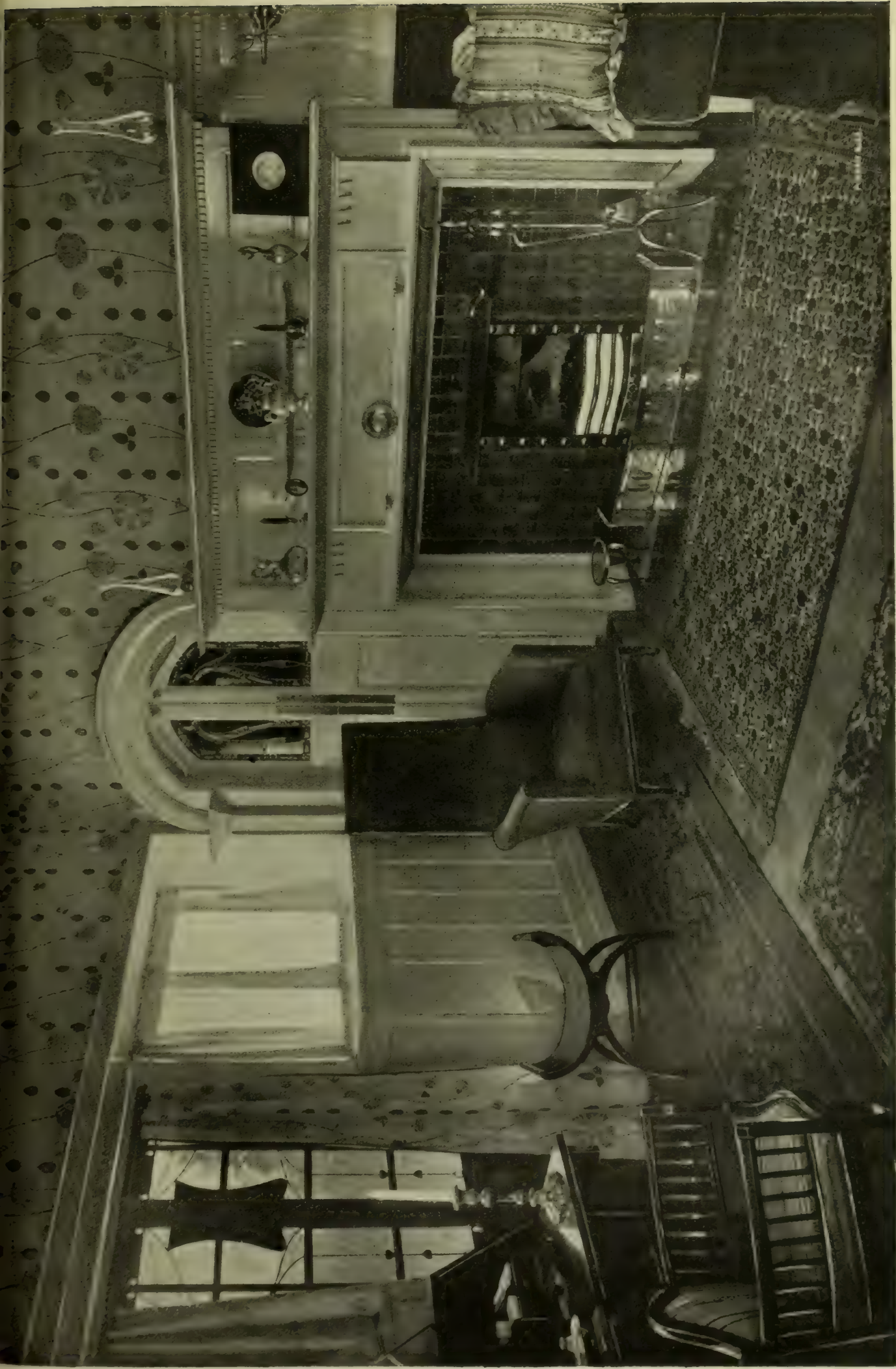


ENTRANCE HALL, LEADCAMEROCH, FOR MR. J. B. GOW.  
GEO. WALTON, ARCHTCT.









*Photo Process Block by J. A. Marshall & Co.*

DRAWING ROOM, LEADCAMEROCH, FOR MR. J. B. GOW.

GEO. WALTON, ARCHITECT.







# THE BUILDING NEWS AND ENGINEERING JOURNAL.

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## BUILDING SUPERVISION IN THE METROPOLIS.

COMPLAINTS and grievances of the dual control exercised by district and vestry surveyors are frequently made, which show that the present overlapping of areas in the Metropolis is fraught with much inconvenience, delay, and disagreement. Nor can we wonder at the want of agreement between authorities having different rules and by-laws. Look at the many Acts affecting the Metropolis as to sanitary matters alone. The Metropolis Management Act, 1855, gives power to the vestry or district board to regulate, inspect, and order all drainage; the Public Health (London) Act, 1891, which extends the Public Health Act to the Metropolis, confers power on the London County Council to make by-laws with respect to various sanitary matters, as to the removal of refuse, the proper construction of sanitary fittings and apparatus; and their by-laws extend to various important details—as soil-pipes, cesspools, and the like; and then there is the London Building Act of 1894, which controls the equally important matters of low-lying sites, open spaces, roofs, height of buildings, habitable rooms, separation of buildings, &c. All these Acts and by-laws have been framed to meet increasing and urgent wants from time to time; but they have grown into a bewildering and confusing mass of legislation, very baffling to the innocent and well-intentioned builder, as well as exceedingly welcome to the "old hand" or speculative builder. The multiplication of applications and notices now required is quite perplexing and unnecessary for public protection; but this state of perplexity will continue till the surveyor of the local authority is merged into the district surveyor, or their powers are clearly defined. It is not uncommon for a set of plans to have to be submitted to two or more authorities, and what one authority passes the other finds fault with. Then delay ensues, the matter has to be discussed by committees of antagonistic bodies, who act under different Acts of Parliament.

The paper read by Mr. W. Weaver at the Surveyors' Institution on "The London Building Act and the Official Supervision of Buildings," and the discussion thereon (see our report, p. 55), opened up a few questions. The working of the Act is not all that it should or might be. Mr. Weaver thought the remedy for the defects in the present system of supervision was to be sought for not so much in amendment of the Act as in the system of supervision adopted in enforcing it. The author advocated the transfer to the local authorities of the duties now performed by the district surveyor, which would, he thought, result in public benefit and administrative economy. That there is much to be said for such an arrangement cannot be open to any doubt. That the details of construction, sanitary and otherwise, would be more efficiently supervised by one than two conflicting authorities is a reasonable inference. Anyone proposing to erect a building would, in such a case, give notice to the local surveyor, whose offices would be at the town hall of the district. At this local centre every detail and requirement would be supplied, as it is at the public offices of a provincial town. Instead of having to submit plans for sewerage in duplicate to the parish or vestry, to conform to the requirements of the vestry official or in matters like those of walls and

frontage, and be subjected to his supervision after the structure is in progress, and the walls approved by the district surveyor, he would have to obey only one master. We can easily imagine a building advanced beyond the foundations in accordance with the requirements of the Building Act, when the vestry official interferes, and orders the removal of a drain or some setting back of the line of frontage. The district surveyor knows nothing of these matters, and merely directs his attention to the concrete in foundations or on site, the thickness of footings and walls, qualities of bricks and mortar, &c., while he may be ignorant of the existence of an old drain or cesspool immediately beneath the kitchen or parlour. Supervision ceases when the building is being covered in, thus giving the opportunity to a dishonest builder to erect a projection or a wooden shed to his building beyond the limits allowed, thus practically defeating the intention of the Act, and increasing the risk of fire. In fact, the supervision of the surveyor does not last long enough in some cases, in others it is vexatious.

As to the qualifications or training of a district surveyor—a question that arose out of the discussion—there are two opinions. By many, the training necessary for a surveyor competent to supervise buildings and to enforce compliance with Building Acts and by-laws should be rather different from that necessary for an architect. They argue that a district surveyor has to enforce regulations of the Act—details such as drainage, thickness of walls, composition of mortar, foundations, and that he has to suppress his artistic talents and architectural instincts. That, as the official policeman of the Building Act, he must not look on any extenuating circumstance of design, but dispassionately administer the law. The exercise of his duties is to some extent contradictory to art; to examine bricks and analyse mortar and concrete, to see that walls are of schedule thickness and timbers of certain scantling, that bearings are sound, and the like, must be foreign to skill in designing; the man with a good memory who has the sections of the Act at his fingers' ends, who is more technical in legal points and decisions, is the man to fill such an office. But the architectural training of the district surveyor counts for something. Like a man who has had a good or complete education, it may not be absolutely essential to his vocation, yet it exercises unconsciously a restraining and beneficial influence upon his decisions. Although he may in time forget a good deal of what he has learned, nothing will erase his sense of architectural propriety or proportion. It has been an all-abiding discipline to his mind. Of course we do not mean a mere cramming for the R.I.B.A. examination, a production of testimonials, a knowledge of historic art epochs, of drawing or of details, but a thorough training in the design and construction of buildings. Such a preparation as that afforded by a general practice as an architect must be of value. Of course, such a training is not all that is necessary for a surveyor. He must have had some experience in legal questions as well as in practical details and surveyor's duties, and some officials are without these special qualifications. If the district surveyor and the parish surveyor are to be merged, the dual qualifications will be more necessary. We should certainly be sorry to see some parish surveyors intrusted with important building supervision, however competent they may be in such matters as paving, scavenging, and the like. On this question the remarks by Mr. H. Lovegrove in his letter last week are to the point. The supervision of buildings demands, among other things, a practical knowledge derived from experience of the manner buildings were designed and carried out. Possibly out

of two methods, that which the architect favoured is better for the purpose than that which a local surveyor looking only to the letter of the Act might require to be done.

There are advantages and disadvantages also in local supervision. At present there is much friction experienced in passing plans and obtaining instructions between the central and local authorities; every owner and builder affirms this, and it seems reasonable that a man about to build, say, at Kensington, should only have to consult his local authority, and be done with it. The building committee of a vestry or their surveyor ought to know best the requirements of a building in their locality, whereas the central board in London may make an undesirable demand. On the other hand, local supervision is apt to be influenced by party interests. The building committees of the vestries are not always unprejudiced: sometimes there are members who have personal interests to serve, a fact too well known to admit of any question. In the abstract, the advantage of having only one responsible supervision over buildings is undisputed; but much of the overlapping and friction might be avoided if the jurisdiction of each of the officials covered the same area, instead of, as now, interfering with each other. It is very objectionable that a man who erects a building in one district should be amenable to the control of an authority in an adjoining and overlapping area. Till these areas are readjusted and made continuous, the evils that are complained of will remain. The whole question of unification of building supervision in the Metropolis will have before long to be considered, and is one of immediate concern to the profession. The Building Act of London, comprehensive as it is, is complex as a piece of legislation;—many of the provisions allow of different interpretations, and are unquestionably too meddlesome and interfering with owners' rights when administered without discretion.

## MODEL SPECIFICATIONS.—XLIX.

### ZINC WORKER—COPPERSMITH.

ZINC is much used as a roof-covering, and is lighter and cheaper than lead. The method of laying zinc sheets is similar: the sheets are about 6ft., 7ft., and 8ft. long by 2ft. 8in. and 3ft. wide. The best known zinc is that from the mines of the Vieille Montagne Company, supplied by Messrs. F. Braby and Co. Iron, lime, or copper should never be placed in contact with zinc, as the moisture creates a destructive action, and sea air is injurious. Zinc should be laid on deal, not oak, boarding, and iron nails should be avoided. Freedom for expansion and contraction is important, and soldering is to be sparingly used. The proper gauges for roofing are Nos. 14, 15, and 16: the latter is the most efficient and durable, and should be used for gutters. The edges of wall flashings, sheets projecting over gutters, and the like, should be turned or doubled to form a half-head, so as to stiffen the edge of sheet and give a finish (see sketches); and flashings should be turned into joints 1½in. The vertical joints are made by wood fillets or rolls, about 2ft. 10½in. from centres, the sheets being turned up on each side against the rolls (see section 2). The hatched part shows the zinc clip, which is about 2in. wide, and placed about 3ft. apart. The side edges of sheets turned up are secured by the clips as shown by the doubling, without rigidly fixing the sheets. A cap of zinc is then placed over the roll, and this is secured by "fork connections," or pieces of pointed zinc 3in. along one end of which is soldered to the inner surface of cap on each side, the other point being free to engage on to the clip as the roll cap slides over. Messrs. Braby and



Co. make also saddle-pieces and stop-ends to finish the rolls.

The welt or fold joint is explained by reference to section 3, the hatched portion showing the clip, which is doubled in between the edges of the sheets shown by black lines. By this mode of connection play is left for expansion. Our general view shows these joints, position of clips, also the mode of forming the ridge by a roll-cap, the eaves, the bead of flashing against wall, &c. Upon slopes of less than one-seventh span drips should be formed, as shown in sketches at the end of each sheet. The stopped end of roll-cap is bent over with the edge of sheet (see side view). For slopes of over one-seventh the sheets may be joined by welts, or folded together at the horizontal joints.

Corrugated zinc roofs are sometimes used, the centre of ribs or corrugations being about 1ft. 3in. from centres, or a sheet 2ft. 6in. wide is made to cover three of the ribs or rafters. The zinc should be laid on boarding, and the sheets be secured by patent holding-down clips. The Vieille Montagne Co. recommend Nos. 14 and 13 zinc gauge for roof coverings and flats; Nos. 15 and 16 for gutters; Nos. 13 and 14 are used where economy is essential. All these numbers have proper corresponding weights and thicknesses. For further particulars we recommend a perusal of Messrs F. Braby's useful pamphlet.

1. *General*.—The zinc to be of the best quality, of uniform colour, free from spots, tough, malleable, and to be laid upon the best methods. No nails or solder to be used in any part. Or—

The zinc roofing to be the best malleable Vieille Montagne Co.'s sheet zinc, laid according to the method prescribed by the Company, or under their directions.

2. *Rolls and Drips*.—The wood rolls to be 1½in. by 1½in. of deal, spaced 2ft. 10½in. from centre to centre, and to be twice played. The drips to flats to be 2½in. deep, and 2in. deep to gutters, spaced about 7ft. 6in. apart.

(Roofs and flats are best boarded and covered with felt, which ought to be lapped at joints and tacked with copper (or clout nails) 3in. apart. McNeill's roofing felt is one of the best felts for this purpose.)

3. *Roll Cap Roofing*.—The sloped roof over shop to be laid with No. 14 (or 15) gauge zinc. The sheets to be laid between wood rolls, turned up at sides, and secured by zinc clips 2in. wide nailed to boarding 3ft. apart, passing under rolls, and turned down over the edges of sheets. The rolls to be covered by zinc roll caps secured by fork connections. The top and bottom edges of sheets to be secured by welts, and by zinc clips 2in. wide, nailed to boarding, doubled in between edges of top and bottom sheets to make a secure joint.

4. *Ridge*.—The ridge to be covered with a zinc roll cap, the edges bent round to form head, fastened by holding down fork.

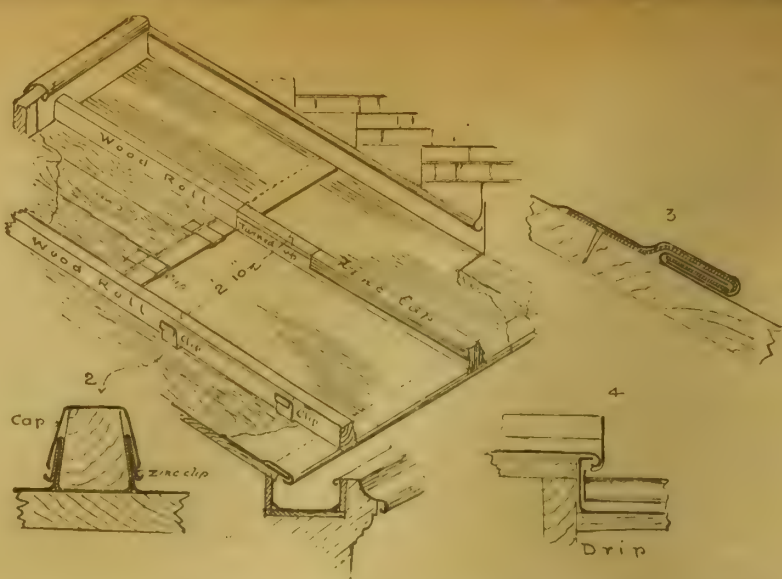
5. *Flashings*.—The flashings against wall to be of No. 15 gauge zinc, stepped 1½in. into joints of brickwork, and pointed with neat cement, the lower edge being bent to form a bead over sheet, which is to be turned up 6in.

6. *Eaves*.—The eaves are to be formed as shown in detail, the lower edge of sheet to be bent to form a bead projecting over gutter, a strip of No. 16 zinc being nailed along edge of boarding to form a drip.

7. *Gutter*.—The gutters to be laid with No. 16 gauge zinc laid to a fall of 2in. in 16ft., 9in. wide, the zinc to go 10in. under boarding, the sheets to be secured by clips.

8. *Sloped Roof*.—The roof to be covered with No. 14 (18½oz.) or No. 15 (21½oz. to the square foot) best Vieille Montagne zinc, laid to a fall of 1 in 14, with wood rolls 2ft. 10½in. from centre to centre. The sheets to be jointed horizontally by welts, and the edges of sheets secured by 2in. wide zinc clips nailed to boarding, the sheets being doubled in between the slips (see sketch 3). The wood rolls to have zinc clips 2in. wide 3ft. apart passing underneath them, the ends of clips being turned down over the sheets which are turned up, thus securing them, and the rolls to be covered by zinc roll caps secured by fork connections.

9. *Verandah*.—Cover the verandah with the best malleable Vieille Montagne zinc, No. 16 gauge, to curve as shown in detail drawings, with rolls 1ft. 3in. from centres, covered with zinc roll caps, stopped ends, &c. The sheets to be secured by clips



(or welts), and with hips, and the sheets turned up 4in. against wall, with flashing finished with beaded edge, with all necessary galvanised screws to the satisfaction of architect.

10. *Roofing of Flat*.—The zinc to be of the best quality, of uniform colour, free from spots, tough, and easily bent. The flats to be boarded, and be covered with No. 16-gauge zinc in sheets 3ft. wide, with wood rolls 2ft. 10½in. to centres, laid in direction of slope, and to have a fall of not less than 1½in. in 10ft., with 2½in. drips 7ft. 6in. apart. The zinc sheets are to allow of expansion and contraction, and no soldering is to be used; but the sheets are to be secured by zinc clips, 2in. wide, 3ft. apart, passing under the wood rolls, and their ends turned down over the turned-up edges of the sheets (see sketch 2), with zinc-roll capping over, and these are to be secured by fork connections. The ends of rolls to be finished with a folded saddle-piece and stop-end. All contact with iron or lead is to be avoided. Or—

The flat over kitchen to be laid with No. 15 (or No. 16) gauge sheet zinc, laid to falls, as shown in plan and section (or 2in. in 8ft.), between 1½in. double-played roll fillets, placed 2ft. 10½in. (centres), secured by 2in. zinc clips, 3ft. apart, and to have No. 15-gauge zinc roll-caps, secured by forked connections. The drips to be as shown, 2½in. deep, with the lower sheet turned up and overlapped with beaded edge of top sheet. The ends of rolls to have saddle-pieces and stopped ends. Turn up zinc against wall 4in., with beaded flushing over, of No. 14-gauge zinc wedged into joints and pointed in cement. The ridge to be covered with No. 15 gauge zinc roll cap, with both edges bent or beaded. The eaves to be well played, and to finish with a beaded edge over gutter.

(A plan of zinc flat, showing position of drips, rolls, and their distance apart, gutters, &c., should be supplied, with the fall, length of sheets, and other details figured or marked thereon.)

11. *Corrugated Roof*.—Cover roof with No. 15 (or 16) gauge sheet zinc, laid with corrugations (as detail), the sheets secured to rolls (15in. apart from centres) with screws with bossed sockets, and turn up 4in. against wall. All the horizontal joints to have welts (secured by zinc clips, 2in. wide, nailed to boarding, doubled in between edges of top and bottom sheets to make secure joint). The flashings to be of No. 14in. or 15in. gauge zinc, tucked into joints and pointed with cement, and the lower edge formed into a bead. The eaves to be well played, and the edge formed into a bead. (This Italian corrugated zinc roof is suitable only for roofs of good pitch; sometimes there is no boarding, but the rafters are spaced and rounded at their upper edge to make the corrugations. But boarded roofs are better for zinc roofs, and may be felted.)

12. *R. W. Pipes*.—The R. W. pipes to be 3in. (or 3½in.) diameter, with all required bends, heads, shoes, and to be of No. 15 gauge zinc.

13. *Zinc Cistern*.—The cistern to be lined with No. 14 (or 16) gauge sheet zinc, soldered at angles, and the upper edges tacked with zinc nails, with outlets and pipe connections. (Zinc is only used for such purposes in inferior work.)

14. *Gutters*.—The gutters to be of No. 15 gauge zinc, 3½ (or 5in.) moulded, fixed with stays, every 1ft. 6in. apart, screwed to wood fascia, with covering plates at joints.

15. *Zinc Cupolas*.—Provide and fix on roof No. 15

gauge cupola, according to detail, on timber framing, to the architect's satisfaction, or provide p.c. sum for same.

16. *Ventilators*.—Provide and fix, of No. 14 gauge, three or more ventilators to roof of p.c. value, covered on upright face with perforated zinc.

#### COPPERSMITH.

As a roof covering copper has many advantages over lead; it is light, durable, and can easily be manipulated. Copper weighing 16oz. to the foot is said to be as good as lead weighing 6lb. to the foot, an important consideration where lightness and durability are concerned. Copper is not injuriously affected by the atmosphere, and the pleasant green colour it assumes protects the metal. Then its expansion is very little compared with lead or zinc.

For ordinary roofing, flats, and turrets, the copper should be 16oz. (or 24 B.W.G.) to the foot, and this weight is nearly equal in price to lead of 6lb. to the foot. The mode of laying is the same as for lead or zinc, the roof or flat should be boarded, and wood rolls used, about 2ft. 4in. apart, with welted horizontal joints. The caps ought to be welted on to the struts. For cupolas, flèches, ornamental finials, and features where the copper is much bent, the weight may be 24oz. to the foot. For flèches, cupolas, turrets, copper is the best covering, as it is light, and the details do not require any wooden stiffening, which is only necessary as a central support. Copper also does not "crawl down" like lead. Rolls with welted caps may be specified for cupolas; but for ornamental designs the copper may be laid in small copper tiles, embossed, fixed on the under side. Copper is rolled in sheets, 4ft. long, 2ft. and 3ft. 6in. wide; for roofs the sheets are 5ft., 6ft., 7ft., and 8ft. long and 3ft. wide.

1. *Flat Copper Roof*.—The roofs to be covered with 24 gauge copper, weighing 16oz. to the foot, laid on boarding with wood rolls 2ft. 4in. apart, with welted caps over turned on sheets. The horizontal joints to be made where shown, the sheets folded together (or with secure welts). Or—

Cover the roof of pavilion with copper sheets, 24 gauge, weighing 16oz. to the foot, on boarding with rolls, as shown in drawing, 2ft. apart, with welted caps and welted joints, stopped ends, &c., complete. Or—

Cover the roof of pavilion (or cupola) with copper tiles, 24 gauge, cut to the shape shown in drawing with embossed pattern, bent to hang in battens. The finial to be of 21 gauge copper (24oz.) shaped or moulded to design on wood support with brass screws, to the architect's satisfaction.

2. *Copper Pipes*.—Provide copper tubes for hot water 2½in. diameter of 1½lb. per foot run. The joints to be screwed couplings, with bent angles.

3. *Dowels*.—Provide and fix to all joints of masonry, where necessary, copper dowels lin. square and



4in. (or 6in.) long, the ends tailed into stones and run with oil cement.

4. *Verandah*.—Lay verandah roof with 18oz. (or 20oz.) copper, according to detail, with rolls, 1ft. 9in. apart, with welted caps, stopped ends, &c., with all nails and seams and moulded gutter to architect's approval. The sheets to be turned up against wall 4in., with flushings finished with welted edge. The eaves to be well rounded off.

## THE CANTILEVER BRIDGE: ITS DESIGN AND CONSTRUCTION.—VII.

IN addition to interesting all, and we trust instructing some, of our readers in our present series of articles, we have a third object in view. It is that of describing and illustrating, so far as the space at our command permits, some of the principal bridges erected both at home and abroad, upon the cantilever principle, so that it may become apparent how that particular type of construction has been prominently developed during very recent years. While adhering to theory, the student and beginner must pay equal, if not more, attention to practice. It is not sufficient to be able to delineate on paper a fairly proportioned and pleasing design, and to accurately estimate and calculate the amount of the different stresses upon the various members of it. Something more is wanted, and that is a practical acquaintance with the building up or putting together structures of iron and steel. It is of little or no use to determine the stresses upon the different parts of a girder or truss, if the connection and mode of attachment of the one part to another is not arranged *secundum artem*. No beam, girder, or truss, to whatever type of design it may belong, whether simple or compound, is stronger than its weakest part. This is a constructive axiom, and that it is one which is frequently neglected is abundantly testified to by the failures which have repeatedly occurred, in which the bridges or other examples did not give way, as they should have done, *en masse*, but finally collapsed by the successive yielding and fracture of individual members. Indeed, failures of this description would probably take place much oftener than they do were it not for the large working factor of safety employed by engineers. This factor is very properly insisted upon by all Government officials and local authorities charged with the supervision of all architectural and engineering works the use of which involves the safety of the lives and limbs of the public.

A skeleton elevation is given in Fig. 1 of a new cantilever bridge spanning the Danube, and connecting the old town of Buda, situated on its right bank, with its modern neighbour, Pesth, on the left. It is a road-bridge, consisting of three spans, viz., a pair of side or anchor arms, and a central span, which is composed of two cantilever arms and an independent middle girder. Each of the side spans is 260ft. in length. The cantilever arms project 211ft. from their supports over the piers, and the middle girder is 155ft. between its bearings at A and B, making a total length of 1,100ft. The general construction of the bridge is given in the cross-sectional sketch in Fig. 2, over one of the piers. There is a roadway 35ft. wide, and two footpaths 13ft. each in width. These latter are carried out from the main girders on short cantilevers, which are connected with them and also with the trellis cross-girders supporting the roadway. The uprights forming the piers are braced together for their total height, but a small part only is shown in Fig. 2, sufficient to indicate the method adopted. Over the piers both the cantilever and anchor arms are fixed, but the latter are free to move on a roller bed-plate at its bearing on the abutments. Though unquestionably the cantilever principle attains its maximum value when utilised for large spans, yet it is not so uneconomical a type for bridges of more moderate dimensions, as is generally stated. In the example under notice the centre span does not exceed 580ft., which in these days of gigantic structures of this description, such as the Forth Bridge, is by no means an excessive measurement. Steel arches, few in number, it must be admitted, have been erected with spans exceeding 580ft., and the limit for the maximum span of the ordinary bowstring and horizontal lattice girders built of the same material is put at from 700ft. to 800ft. When, however, spans of 1,600ft. and 1,700ft. are reached, the suspension principle is the only rival to be feared by the cantilever. It is certain

that in the competition between America and England as to which country should possess the longest-span bridge, the race will be between these two types.

The design represented in Fig. 3 is a half-elevation of the cantilever bridge erected over the river near the Falls of Niagara, and may be regarded as a typical form for estimating and calculating the various stresses to which the different members of the structure are subjected. This truss has a central span of 390ft., which includes a pair of cantilever arms, each 175ft. in length, and an intermediate independent girder 120ft. long. The anchor arms have a length of 195ft. each, and the total length is equal to 910ft., which allows a width of pier equal to 25ft., which is consequently the dimension of the panel over

two arms over the pier are not connected by diagonal or bracing of any other kind, no shearing-stress can be transferred from one arm to the other. At the same time, the vertical members near the ends of the arms A B and C C<sub>1</sub> over the pier, are strengthened at their intersection with the long diagonal ties by the horizontal and inclined struts shown in the figure. It is obvious that the anchor and cantilever spans, regarded apart from the central girder or truss, forming in reality a double cantilever, bears a very considerable resemblance to an ordinary swing-bridge when it is closed. For, as the double cantilever may be supported at one point located over the centre of the pier, or upon two, as in the example in Fig. 3, so may a swing-bridge. It may rest upon the turn-table, which in its turn is supported upon a central pivot. This is termed the centre-bearing method, and is chiefly used for bridges of comparatively short spans, and consequently commensurate light loads and weight.

This arrangement is represented in Fig. 4, and clearly indicates that a centre bearing swing-bridge is a continuous truss or girder, more frequently the latter, since the plate girder is a simple and economical type for bridges of this description when of moderate span. The second method is shown in Fig. 5, and is much more frequently employed than the other, and is known as the rim-bearing method, and in which the turntable rests upon a number of wheels which permit of it turning freely upon the pier. Rim-bearing swing-bridges, as will be seen from the illustration, are properly bridges of three spans, and are always treated as such. There is one point of difference which exists between the central pivot and the rim-bearing systems which requires notice. In the former the trusses must be continuous, that is, braced together over the pier. In the latter, they may be wholly, partially, or completely non-continuous. So far, therefore, as the central pivot or central bearing is concerned, the necessity of continuity constitutes another valid and excellent reason for employing the plate-type of girder, as its continuity is irreplaceable. The central pivot belonging to the first arrangement may turn in a socket, or may rest upon bevelled rollers or plain balls. In the other method the balls and rollers are replaced by wheels. When a rim-bearing continuous truss is employed, the diagonal braces over the pier—that is, the braces in the central panel—must be made of a suitably heavy sectional area, in order to insure perfect continuity throughout the whole structure.

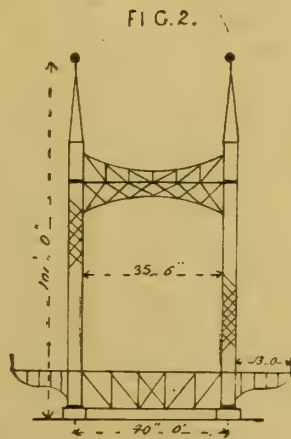
A double trussed continuous cantilever, swinging on a centre-bearing pivot, is shown in skeleton elevation in Fig. 4, in which both of the panels on each side of the central pier are braced together by diagonal compression and tension members. If the ends of the double truss A C do not rest or bear upon the supports at A and C, there will manifestly be no reactions at those points—that is, at the abutments. The analogy existing between this example of a swing-bridge and the anchor-span and cantilever arm of a true three-span cantilever bridge is at once apparent.

Let A B be taken to represent the anchor span, and B C the cantilever arm, of any one of the different elevations we have given of that particular type of bridge. Suppose a heavy rolling load—a train, for example—advances on the anchor-span A B. It will cause the arm A B to gradually deflect, until at last the end A is brought to its bearing on the support at that point, and the positive or downward pressure is resisted and nullified by the upward reaction of the left-handed support. The deflection of the left half of the double truss or the anchor-arm lifts up, or tends to lift up, the right-handed half of the truss, or the cantilever arm B C, which, therefore, has no reaction. When the moving load has advanced so far as to be uniformly distributed over both arms, or to cover the whole truss, there may or may not be any reactions at either A and C, or at both, according to whether the half trusses are equal in span and weight. Let M equal the moment of the half-truss A B and M<sub>1</sub>, that of B C over the central support B. If there are no reactions, then we have the general equation—

$$M = M_1 \dots \dots \dots (1)$$

In that case the two half-spans, or the anchor and cantilever arms, balance each other. When a swing-bridge fulfils these conditions, American engineers term it "a tipper."

The example in Fig. 5 represents a diagrammatical elevation of a continuous swing-truss or



the pier. It will be seen that the double cantilevers are supported on the pier at two points, instead of being fixed together at one point over it. It should be noticed that there is no bracing introduced over the piers between the end verticals of the anchor and cantilever arms respectively, and the arms are, therefore, free to turn to a limited extent at these points, as if they were centred on a single pivot. We shall subsequently compare the two cases of cantilever bridges being supported at one and at two points over the piers, for the subject is an important one, and does not usually receive the proper amount of consideration due to it. Viewed from this standard, the whole bridge may be considered to consist of three separate parts, comprising two double cantilever arms and the central independent girder. Only half of the elevation of the truss is shown in Fig. 3, as the loading, both dead and live, will be assumed to be uniformly distributed per linear unit over the entire structure, which carries a double railway track. In computing the stresses, therefore, the three parts—which are the anchor and the cantilever spans and the middle girder—may be treated separately. It is immaterial with which we commence, though, from the fact that the whole of the load, both dead and live, carried by the central truss is transferred to the ends of the cantilever arms, it is usual to calculate the strength of the independent girder first.

It must be remembered that as the ends of the



double cantilever span belonging to the rim-bearing type. The method of calculating the reactions of cantilever girders of this description was fully treated of in our last article. Particular attention should be given to the manner in which the reactions and stresses are affected, accordingly as one of two supports are given to the truss over the central pier. Let  $R_1$ ,  $R_2$ , and  $R_3$  be the reactions at the supports A, B, and C in Fig. 4, and  $R_4$ ,  $R_5$ ,  $R_6$ , and  $R_7$  equal those at the points A, B, C, and D in Fig. 5. In making a comparison between the two examples under similar conditions with respect to loading, we always have  $R_1 = R_4$ . From this identity it follows that the stresses upon the different members of the anchor arms are the same whichever principle of bearing be adopted. With respect to the reactions at the central support, it is evident that the separate loads transmitted to it at B and C in Fig. 5 might be replaced by a single load acting through the centre of gravity of the pier, exactly as occurs in the design in Fig. 4. The one case, so far as these reactions alone at the central pier are regarded, become practically the same as the other, and we obtain the following relation—

$$R_7 = (R_5 + R_6) \dots \dots \dots (2)$$

A partially continuous cantilever truss is one in which the diagonal bracing in the central panel over the pier is omitted, as in the Niagara bridge in Fig. 3. While the horizontal chords of the central panel are subjected to longitudinal stresses, no shearing stresses can be conveyed by them from one arm to the other. Swing-bridges have been constructed in which a combination of the two principles has been adopted, which causes them to be partly centre-bearing and partly rim-bearing. The assumption already made in equation (2) holds good for determining the stresses on the structure due to the live load, and very much facilitates the calculation of them, which is otherwise a difficult, troublesome, and sometimes not a very accurate or certain operation. If it were required to make the anchor span and the cantilever arm completely non-continuous, it would be necessary to cut away the upper and lower chords over the pier, remove the central panel altogether, and tie back each arm to the intermediate pier. A rolling or drawbridge, consisting of a couple of spans which are each projected out over a river or other obstacle until they meet in the middle of it, is another application of the cantilever principle which has been lately introduced in some designs for roofs.

It is almost universally received as a general axiom that the cantilever principle is not suitable for bridges of small spans, or, at any rate, what are now regarded as small spans. No doubt, in instances in which the ratio of the dead to the live load is comparatively limited, the statement is true to a great extent. The central span of the Niagara bridge does not exceed 470ft., which sounds very small when contrasted with the 1,750ft. spans of the Forth Bridge. But cantilever bridges have been quite recently erected with central spans of dimensions considerably less than that of the bridge at Niagara, as the following examples will point out. Among the dozen main-road bridges occurring at intervals along the course of the Manchester Ship Canal, there are two—one at Warburton and the other at Latchford—which were originally intended to be swing-bridges. Subsequently Parliamentary powers were obtained to carry the roads over the canal on embankments and high-level fixed bridges with a headway of 75ft. Both these structures are of the Forth Bridge cantilever type, and have central spans of only 206ft., and side spans of 58ft. each. The roadway is 18ft. in width, with two footpaths 3ft. 6in. broad. After the cantilever arms had been built out from each side, the central independent girder, 90ft. in length, was hoisted bodily into its place. In this case, no temporary or false works were required, although 780 tons of steel were used in each bridge. The computation of the actual stresses upon the different members of a cantilever bridge now claims our attention, as well as the determination of their respective net sectional area, or quantity of metal.

T. C.

Mr. Langton Coke, C.E., one of the Local Government Board inspectors, held an inquiry on Friday at Burton-on-Trent respecting an application of the corporation for sanction to borrow £25,000 for gasworks extensions and public library and isolation hospital purposes.

IRON CONSTRUCTION IN DRAINAGE WORK.—VI.\*

By T. E. COLEMAN, F.S.I.

SOIL, waste, and ventilating pipes of cast iron are extensively used. Each length of pipe should be thoroughly examined before being fixed, and all castings exhibiting an uneven thickness of metal or any other defect at once rejected. The sockets must be sufficiently strong to allow of proper caulked lead or rust cement joints being made.

Figs. 80 and 81 show the elevation and section



FIG. 80.



FIG. 81.

of portion of an ordinary cast-iron soil-pipe. The socket is designed with small astragals or beads cast thereon, so as to add to the strength and appearance of the pipe at this point. The spigot end is finished with a small bead to prevent the chance entry of any portion of the jointing material into the interior of the pipe. They should be well protected with some suitable preservative in order to prevent corrosion. Pipes which have been coated with Dr. Angus Smith's solution, or "glass enamelled" inside are largely used; but they may also be obtained either galvanised or subjected to the "Bower-Barff" process. Before painting any pipes which have been dipped in the "Angus Smith" solution, a coating of "patent knotting" or shellac varnish must be applied so as to prevent the tar afterwards showing through and soiling the painted surfaces.

Care should be taken that only pipes of adequate thickness and weight are provided. For substantial work, the soil-pipes should be  $\frac{3}{8}$ in. or  $\frac{1}{2}$ in. thick, and weighing not less than the specified weights for such thicknesses.

The following table shows the weight per 6ft. length for cast-iron pipes having a thickness of  $\frac{1}{8}$ in.,  $\frac{3}{8}$ in., and  $\frac{1}{2}$ in. metal respectively, viz. :—

CAST-IRON SOIL, WASTE, AND VENTILATING PIPES.

Average Weight per 6ft. Length.			
Diameter.	$\frac{3}{8}$ in. metal.	$\frac{7}{8}$ in. metal.	$\frac{1}{2}$ in. metal.
2in.	26lb.	30lb.	34lb.
2½	32	36	40
3	37	42	48
3½	43	48	54
4	48	54	60
4½	54	62	70
5	60	69	80
6	72	84	96
8	—	—	120
9	—	—	140

Under the regulations of the London County Council, the minimum weight of cast-iron soil-pipes per 6ft. length must be as follows—viz. :—

MINIMUM WEIGHT FOR IRON SOIL-PIPES.

Diameter.	Weight per 6ft. Length.
$\frac{3}{4}$ inches	48lb.
4 "	54lb.
5 "	69lb.
6 "	84lb.

By comparison with the weights given in the previous table, it will be observed that a thickness of not less than  $\frac{3}{8}$ in. metal is required by the County Council for all cast-iron soil-pipes.

Each length of pipe should be properly secured to the wall, and every joint run with lead and well caulked. The pipes may be obtained with or without ears for fixing. They are usually fixed in 6ft. lengths, but are also obtainable in lengths of 3ft., 4ft., and 5ft. to suit varying requirements.

All iron pipes should be kept about 1½in. or 2in. from the walls, so as to allow sufficient room for making the joints, and also for the thorough scraping and painting of the entire surface at

\* All rights reserved.

any time. When pipes with ears cast on are used they may be "blocked" from the wall, as shown in Fig. 82. Each nail is arranged to pass through a "blocking-piece" consisting of a short length



FIG. 82.

of wrought-iron pipe about ½in. diameter and 2in. long. The nails or spikes must be 6in. or 7in. long, so as to become firmly attached to the wall. Hard-wood blocking-pieces are occasionally used, but are not so serviceable.

Fig. 83 illustrates another method, in which



FIG. 83.

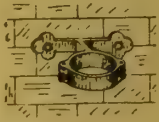
a "bridging piece" is fixed to the wall to receive the pipe ears, the whole being then bolted together.

Pipes without ears may be similarly secured by means of "holder-bats" or "ear-bands." These are made in a great variety of ornamental designs. Figs. 84 and 85 show two forms of holder-bat with ends adapted for building in or nailing to

FIG. 84.



FIG. 85.



walls. The pins or bolts of the holder-bats should be of gunmetal, to avoid rusting.

The bend at the foot of a soil-pipe should have a stout "duck's-foot" or "heel-rest" cast thereon, in order to obtain a firm bearing at its base. Fig. 86 is a sketch of the ordinary quadrant bend with heel-rest; whilst Fig. 87



FIG. 86.



FIG. 87.

shows a type of bend suitable for drains laid to a rapid fall.

The upper end of the soil-pipe must be carried above the eaves of the roof, and placed well away from any windows or ventilation openings. Bends or offsets should be avoided if possible; but if absolutely necessary, any change of direction should be gradual and without sharp angles. Fig. 88 illustrated a "swan-neck" or double bend with an easy curve. When the pipes are blocked from the walls, the projections of an



ordinary stringcourse or plinth can be easily passed without using bends or cutting away the masonry.

Sometimes the local conditions will not permit the upper end of the ventilating-pipe being carried vertically above the eaves, but necessitates it passing round the eaves gutter by means

FIG. 90.



FIG. 88.



FIG. 89.



FIG. 94.

of a bend known as a "roof siphon" (Fig. 89), and afterwards following the slope of the roof. Such bends should not be used except in extreme cases, as they greatly retard the passage of air-currents, and consequently prevent efficient ventilation. For buildings with overhanging eaves, the pipe should be carried directly through

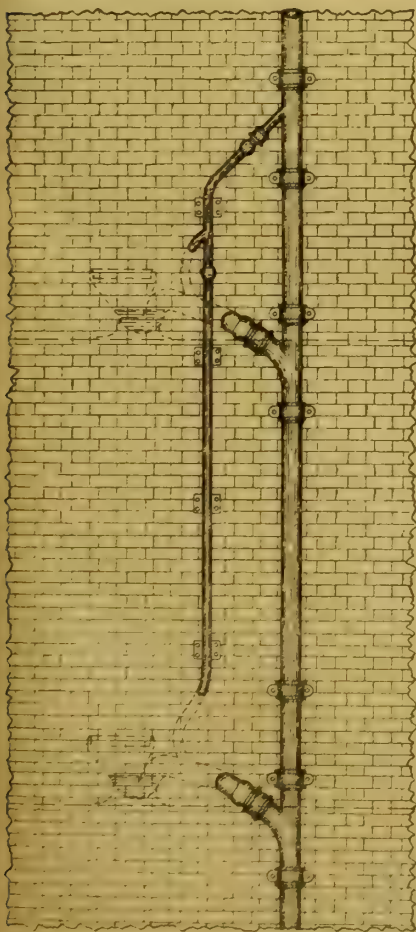


FIG. 91.

the eaves, making good the roof round the pipe with lead flashings.

The junctions of all branches with the main soil-pipe should be formed with a slight curve in the direction of the flow, instead of with the ordinary straight arm. Fig. 90 is a sketch of a double junction with curved arms, whilst Fig. 91

shows the closet branches connected to the main soil-pipe with left-hand junctions of a similar description. They may also be obtained with an access-door at each bend or junction if required.

FIG. 93.



FIG. 95.



FIG. 92.

A right hand single junction fitted with access-door is seen in Fig. 92. The internal face of the cover is designed to continue the circular section of the pipe (see Fig. 93), being firmly secured in position with brass bolts and nuts.

The connection between a lead anti-siphonage

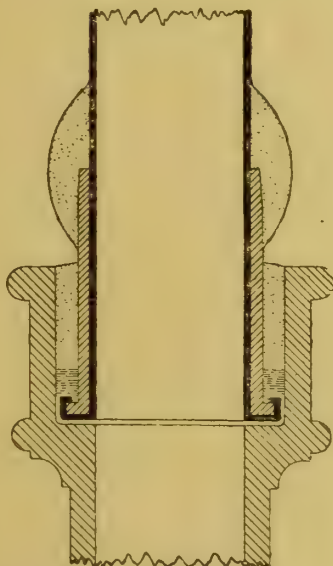


FIG. 96.

pipe and the upper end of an iron soil-pipe may be formed with an "inverted branch" similar to Fig. 94. A brass ferrule is firmly leaded into the socket or faucet of the branch, and a wiped solder joint made between the ferrule and the lead pipe.

When pipes or shafts are required for ventilation

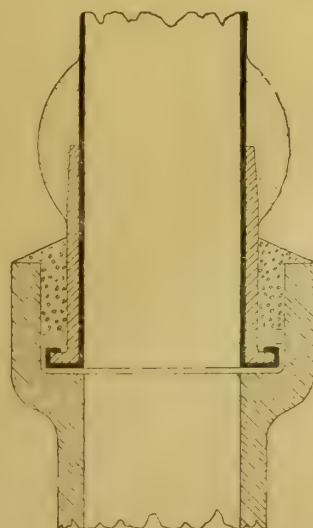


FIG. 97.

only, and are directly connected to "dumb" branch drains for this purpose, so that the interior of the drain and pipe is not kept clear by the constant passage of sewage or water, the foot of the

vertical shaft should be arranged with a cavity or "pocket," into which any falling rust-scales may collect, and thus prevent any blocking-up of the air-way. An arrangement similar to that shown in Fig. 95 is sometimes adopted. An access door may also be provided near the rust pocket for convenience in removing any accumulated rust.

The usual method of connecting water-closets with a cast-iron soil-pipe is seen in Fig. 91. The closets are each joined to a lead branch which is carried through the wall and connected on the

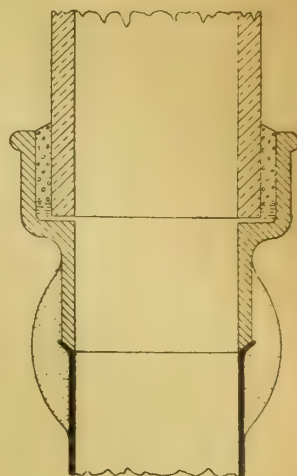


FIG. 97A.

outside of the building to the short-arm or junction of the iron soil-pipe. The joint between the lead branch and iron pipe is made by means of a brass ferrule, as shown in Fig. 96. One end of the ferrule is passed over the lead pipe and soldered thereto, the other end being inserted in the socket of the iron pipe, and the joint made with molten lead and caulked. The connection between a lead branch and the socket of a stone-ware pipe is similarly made by means of a brass ferrule (see Fig. 97), except that the annular space is run with Portland cement instead of lead.

When the closet outlet is of earthenware, the connection between the lead branch and earthenware outlet is made with a brass thimble or socket, as in Fig. 97 A. The end of the thimble is soldered to the lead pipe, the earthenware outlet being then fitted into the brass socket and the joint run with neat Portland cement. In some cases a specially prepared bituminous composition

FIG. 98.

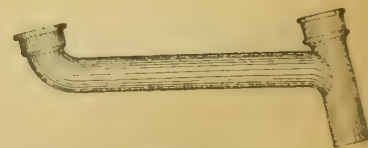
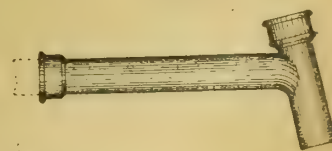


FIG. 99.

is substituted for the Portland cement just mentioned.

Instead of the lead branch and iron soil-pipe being connected *outside* the house (as illustrated in Fig. 91), the branch of the iron soil-pipe may be carried through the wall and a brass ferrule joint made within the building. The former construction is, however preferable, inasmuch that when the connection between the lead and iron is placed outside the habitation, the danger to health from a defective joint at this point is minimised.

Another method which is also adopted consists in connecting the external soil-pipe directly to the closet outlet by means of a special-made junction having a long arm provided with a stout socket. Figs. 98 and 99 are sketches showing branches of this description, as arranged for



closets with P and S outlets respectively. They can be obtained with arms varying from 12in. to 36in. long. Where longer branches are required, one or more lengths of iron pipe are connected thereto (as indicated by the dotted lines in Fig. 98). with caulked lead joints.

The joint between an earthenware closet outlet

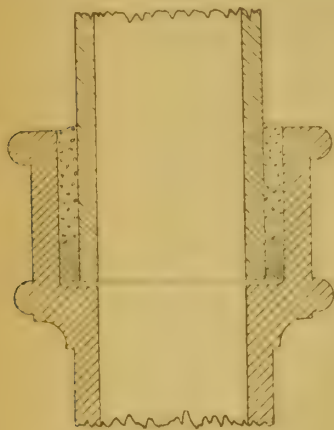


Fig. 100.

and the iron pipe is made by inserting the nozzle of the outlet within the iron socket (see Fig. 100), packing a portion of the annular space with a small quantity of yarn and filling up solid with neat Portland cement.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual meeting for the distribution of prizes was held on Monday evening, when there was a large attendance of members and students. Professor GEO. AITCHISON, R.A., the President, occupied the chair, and announced that a number of valuable architectural volumes had been bequeathed to the Institute library by the late Professor T. Hayter Lewis, whose executors had also kindly lent for exhibition that evening a number of pencil and polychromatic sketches and drawings, which would be of interest to present-day students, as illustrating what excellent work was executed more than sixty years ago. A vote of thanks was passed to Professor Hayter Lewis's executors, and the PRESIDENT, then delivered an

#### ADDRESS TO STUDENTS.

The world, he remarked, consists of the past, the present, and the future. The past is hopeless; it cannot be altered or improved: it can only be studied. The present, of which the practising architects are representatives, is too well known to dilate on; and the immediate future consists of the students, and they allow us to conjure up all sorts of visions, and to delight ourselves with fancying that their works will be stamped with the perfection that ours have missed. In an art like ours it is very difficult to know what useful experience we have to impart, because our views and those of the rising generation are probably different, if not opposed. I give you, added the President, some remarks of Professor Cockerell to the R.A. students of my day: "That they should study all styles, for they can never tell how fashion will change, and that the style they have chosen may not be abandoned." This was said when imitation Gothic was all the rage. I hope for the advancement of architecture which will take every one, and that when it does come it will not be an imitation of some dead style. At present we have no means of evoking genius, and the only means that has yet occurred to me to improve our art is by learning principles and by striving. All the sciences and arts seem to go in cycles, or, as we should say, are mounted on Fortune's wheel, and, as it turns, one art or science is at the top of the wheel while the other is in the mud, and as it goes round the positions are reversed. At the present moment, the epoch is that of the application of science, and is on the top of the wheel, while architecture is very low down. A great incentive to any study or achievement is that of being thought highly of by your contemporaries, though there is a higher stimulus in the hope of that sort of immortality which

mortals can attain. One of these inducements at the present time is impossible to be looked for—the admiration of your fellow-men; for who knows or cares whether your work is good, bad, or indifferent, except, perhaps, a brother architect? The present age is, indeed, indifferent to architecture, so that you cannot expect much honour or reverence on account of your work, or that it will cause much pleasure or delight to the living beholders. It becomes questionable whether there is enough stimulant to attract men who possess the intellectual faculties necessary for producing fine architecture, such as will be admired for two or three thousand years. To be a great architect involves a capacity for acquiring the higher branches of mathematics and be able to use them; to comprehend, at least, statics, and even to advance beyond the point at which it has then arrived; to so arrange a building as not only to fit for its purpose, but to put it in a shape that will command the admiration of skilled and cultivated beholders, and to invest the finished structure with a capability of exciting emotions that are proper to its use. Architecturally this is brought about by simplicity, perfection of proportion, by outline, by the proper disposition of light and shade, and by size and mass. To the former qualifications of the architect must be added the capacity of knowing what additional interest can be given to important parts by sculpture, and how colour can be properly applied to the whole structure. Of course it would be infinitely better for the architect to possess the whole of these qualifications; I do not know whether this was ever the case, though Sir Christopher Wren very closely approached it. We know that in whatever excellent qualities the Renaissance architects were deficient, they were mostly sculptors or painters. Where they were deficient was in construction, in invention, and in the proper expression of their buildings. All of us desire to see architecture progress, more especially in æsthetic expression. Since the application to building of cast iron, wrought iron, and steel, the engineers have surpassed even the wildest imagination of sixty years ago. The Britannia Tubular Bridge is about 500ft. span, but Sir Benjamin Baker has made a span of the Forth Bridge over 1,700ft. It is very unlikely that any architectural work would require a span of more than a tenth of that bearing, and that supposes an extension of more than double the span of the largest groined vault of the Romans, which was only about 80ft. Still, we must to a certain extent look for the advancement of architecture in a nicer adjustment of the mass to its height and to the weight to be carried, and to the form to be given to the supports for the weights and strains that come on each particular piece. In the use of iron and steel architects are very much handicapped, first on account of the slenderness of proportion which, as a rule, renders them unfit to compose with the weaker material, but mainly on account of the little resistance these materials offer to the action of fire, unless they are protected by fireclay and terracotta; and when they are so protected they very nearly assimilate in size to the supports of old-world structures. Still, if the Mediæval architects had possessed these materials and been able to work them as we can, they certainly would not have abstained from using them, as architects of the present day have mostly done. What visions does the use of cast iron raise in our minds as to the possible size and height of buildings? What new forms and shapes does not cast iron suggest when we know that it will take any form we please and any ornaments that can be cast? What visions of colour does it not evoke when it may be made resplendent with enamel? No one can say that convenience in planning is not greatly studied in the present day, but this convenience has mostly been of the purest utilitarian sort: it has been a question of how the accommodation wanted can be packed anyhow, which should not be the aim of architectural planning, which now, alas! is hardly thought of. The other thing to be aimed at is to give expression to the thoughts, cultivation, and aspirations of the present day, a subject that requires the deepest study and a perspicacity that is rare. We have ransacked all the civilised architecture of the past and made collections of it for use; but we have certainly not applied the examples with discretion. The delicate ornaments and suggestive sculpture that were applied to the embellishment of the boudoirs and pleasure-houses of Renaissance beauties are now lavished on oyster-shops, public-houses, and clothiers' warehouses, and the magnificence and

stateliness of the palaces of great nobles now deck stores or hotels. The President added that, although he did not think that the test of examination was a very complete one, it was better than nothing; but yet the profession generally thought even this too much, and utterly declined to start a more complete one for Fellows, being afraid that a knowledge of the elements of architecture might damp the ardour of genius or clip its wings; while almost all the other professions had examinations for the two classes, and had consequently advanced at a much more rapid rate. There were two points to which he would draw particular attention—first, that architecture was a structural art, and that all an architect could do, as an architect, was to build: in his structures he had to show his knowledge, taste, and skill, his learning, morals, cultivation, and aspirations. Secondly, he would point out the comparative scarcity of the use of coloured and glazed materials for external facings where the greatest beauty of colour and form might be used. It was refreshing even to think of London and other manufacturing towns presenting beautifully coloured fronts that did not want painting every year, and would render such towns cheerful, if not delightful, to look on, in the place of the dingy, sooty, and depressing houses faced with stone, brick, or plaster; and this would not only raise our spirits, but be more healthful, for glazed pottery absorbed but little moisture, and was easily cleansed from dust and soot. In conclusion, the President expressed his pleasure that ladies had been admitted to the Associateship (an allusion received with hearty cheering), for that allowed us to avail ourselves of the abilities of at least another half of the population, and as well as to offer a small meed of justice to the fair sex.

#### REVIEW OF THE WORKS SUBMITTED FOR PRIZES AND STUDENTSHIPS.

Mr. BERESFORD PITE gave an address on the competition designs and drawings submitted this year, in which he observed that the designs showed a manifest desire to return to Classic tradition, to the standards of design in mass and detail that were current before the Romanism of the Gothic and Queen Anne revivals coloured the dreams of old and young architects alike. But he feared that the paltry recognition of the force of tradition, which had been transgressed with impunity, suggested a confession of failure and a lack of hope and energy in imaginative effort. This pessimistic attitude was indicated by the designs submitted for a concert-hall in the Soane competition. The premiated set submitted by "Ben Marcato" (Mr. Mellon) were severely criticised by Mr. Pite, both from a constructional and æsthetic point of view; some details were characterised as symptoms of that road to architectural ruin which once led from Regent-street to Regent's Park. Other designs returned to the traditional Classic style, with traces of a freer influence as to detail and composition; but in almost every case without a sufficient sense of symmetrical propriety or of dignity of proportion. The Tite prize was won by "Red Rose," with a design modest and even small in size, but illustrated by powerful drawings, and very doubtful as to the Italian character of its style. He thought the design "Memoria" was the best submitted this year in this competition. In the Grissell Medal competition for a fruit market for a small town, the successful design by "Simplex" possessed, in addition to its constructional faces, some architectural appropriateness. It was to be regretted that the design by "Artichoke," which had a very pleasant and English idea of the subject, should be without sufficient constructive quality. The Silver Medal had been awarded in a way that would indicate to students the vast importance of having a fine subject: the north porch of St. Paul's lent itself admirably to fine draughtsmanship, and this, with fine design, were, Mr. Pite thought, irresistible at the Institute. For the Pugin Studentship there had been a remarkably good competition this year; it was awarded to an omnibus collection of Gothic studies, mostly English—glass, decorated screens, inked-in sketches, and measured drawings. For the Owen-Jones competition an excellent set of archaeological studies had been sent in, comprising mosaics of the Capella Palatina, drawings of S. Maria, Miracoli, S. Anastasia, Verona, and of some screen-work at Southwold. The colour was archaic, the mosaic and pavement design was interesting, the fresco hangings were faded, the



stained glass colour needed the light, and the heraldic colour had other meanings. The Owen-Jones Studentship was, he reminded students (and, incidentally, the Council), for the study of colour, not merely for the accidentals of a pavement and stained-glass competition.

Mr. H. H. STATHAM followed with some observations on the planning of concert-rooms, with primary reference to the Soane Medallion.

The PRESIDENT then proceeded to distribute the prizes and medals in accordance with the list published by us last week (p. 86), remarking that the Soane Medallion had been awarded by the Council to the design by Mr. W. A. Mellon, as being in their judgment the best of those submitted, notwithstanding that it admittedly contravened some provisions of the London Building Act.

At the close, a student, understood to be one of the signatories to a memorial of protest against the Soane award sent to the Council, rose and asked if the conditions for future competitions for the Soane Medallion were to be prescribed by the Council or whether students might design as they pleased. The PRESIDENT declared the proceedings closed, adding that next year's printed programme would afford all the information competitors might require.

### THE SOANE MEDALLION AWARD AT THE INSTITUTE.

FOR some reason or other all the designs in the Soane Medallion competition were exceedingly indifferent—so much so, that we expressed the opinion, after examining the drawings, before the prize was awarded, that neither of them deserved the Medallion. So poor indeed did we consider the selected design, that we did not think it worth while to ask the author for the loan of his drawings for illustration in the BUILDING NEWS. It is no surprise to us, therefore, that a large number of students and others connected with the Royal Institute of British Architects have memorialised the Council to reconsider the adoption of the Committee's report. Of course, after the presentation at the meeting on Monday last, and Professor Aitchison's clever avoidance of any discussion, this is no longer possible, but it ought to have been. The mistake made by the memorialists was that they did not get someone to bring forward the question before the proceedings commenced. As it was, no one rose till after the President had concluded his address, and the business of the evening was practically over. This was unfortunate, and particularly so as some recent public competitions, in which the referees were nominated by the Council, have been unsatisfactory enough in all conscience, and if any confidence in the judgment of the leading authority at Conduit-street is to obtain with the profession and the public, as it undoubtedly should do, mistakes of the kind described so clearly by the memorialists ought not to have been ratified. It is unfortunate enough that so palpable an error of judgment should even so far have been possible as to recommend such an award.

The following is the text of the document, which is signed by sixty-five names, some of which are well known by the merit of their work among students:—

[COPY.]

To the Council of the Royal Institute of British Architects.

We, the undersigned, wish hereby to lodge a formal appeal with the Council against the decision of the Prize Committee in the recent award of the Soane Medallion, with a view to obtaining a reconsideration of the above decision and a scrutiny into the various points hereinafter enumerated.

The appeal is made principally on the ground that the successful Competitor has failed to comply with the Rule as stated in the Studentships and Prizes Pamphlet—namely, that "The Regulations of the London County Council should be observed."

An attempt has been made to enumerate some of the Regulations which he has neglected to observe.

At the end are added a few points, apart from the violation of these regulations.

#### EXTRACTS FROM LONDON BUILDING ACT.

1. Dressing-rooms shall be arranged in a separate block of buildings, or divided from the place of public resort by party-walls, with only such means of communication therewith as may be approved by the Council.

#### NOTES ON THE PRIZE DRAWINGS FOR THE SOANE MEDALLION.

No separate blocks of buildings. No party-walls. Only 4in. partition shown.

2. Sufficient and separate water closet and urinal accommodation, properly ventilated to the outer air, shall be provided for the use of male and female artistes.

3. Two separate exits, not leading into the same thoroughfare or way, shall be provided to every tier or floor of such premises, also a separate means of exit shall be provided—communicating directly with the street—from each floor or level.

4. Such exits shall be arranged so as to afford a ready means of egress from both sides of each tier or floor, and shall lead directly into a thoroughfare or way.

5. Every staircase for use of audiences shall have treads not less than 11in. wide, and risers not more than 6in. high.

6. Every staircase shall be without winders.

7. Every staircase, landing, lobby, corridor, or passage intended for the use of not more than 400 persons of the audience shall not be less than 4ft. 6in. wide; but if communicating with any portion of the house intended for accommodation of a larger number than 400 persons, it shall be 6in. wider for every 100 persons until a maximum width of 9ft. is obtained.

8. No staircase shall have more than two flights of 12 steps, each without a turn.

9. No staircase shall have more than 12 steps in a flight or less than three.

10. All landings shall be 6in. thick, and squared on plan.

11. Several flights of steps shall be supported and inclosed upon all sides in brick walls not less than 9in. thick, to be carried down to the level of the footings.

12. A clear passage or gangway not less than 3ft. wide shall be formed at the sides and in the rear of the seating in every part of such premises; such passages or gangways shall at all times be kept free from chairs, flaps, seats, or other obstructions, whether permanent or otherwise.

13. All internal doors shall be so hung as not to obstruct when open the gangway passage staircase or landing.

14. No door shall open immediately upon a flight of steps, but a square landing at least the width of the doorway shall be provided between such steps and such doorway.

15. Every person who shall hereafter construct a water-closet in connection with a building shall construct such water-closet in such a position that one of its sides at the least shall be an external wall, and shall construct in one of the walls of such water-closet a window of such dimensions that the area of not less than 2sq.ft. shall open directly into the external air.

16. All doorways used by the public shall be at least 4ft. 6in. wide in the clear, with doors hung in two folds, made to open outwards towards the thoroughfare or way.

17. Highest part of pit, or of the stalls where no pit, shall not be more than 6in. above the level of the street adjoining principal entrance to the pit, nor lowest part of floor than 15ft. below.

18. Dressing-rooms to have independent exits leading directly into thoroughfare.

No w.c.'s so ventilated (six on ground floor, two on first floor).

First floor has only one exit into vestibule, but uses all four gallery staircases, none of which therefore are separate staircases.

Query?

All gallery stairs and artistes' stairs have less than 11in. treads.

Grand staircase has winders from half-landing upwards.

Ground-floor corridor 8ft. wide, and should be 9ft. for 1,340 persons.

Grand staircase has 15 steps in flight. Gallery staircases have four flights of 15 steps each, and two flights of 16 steps each.

There is one exit staircase on each side of the building with landings not square on plan.

There is not a single instance of stairs used by the public so supported or inclosed.

On ground floor there is no gangway either at the sides or in the rear of the seating. The first floor, chorus, and upper gallery have no gangways in the rear of the seating.

Doors opening on to the gallery stairs obstruct the landings. Doors from stalls obstruct free egress. Doors obstruct promenade at the rear of the building.

The two central side exits on ground floor have doorways 6in. wide, and the landing they open on to is only 3ft. 9in. wide.

There are 11 closets on ground floor not against external walls, also 1 closet in gallery. There are 19 closets on ground floor without windows, 6 on first floor, 3 in gallery.

The doorways on street level of the four-gallery staircases are about 4ft. 6in. wide. This is not wide enough for the number of people for which these staircases are intended—vide paragraphs 3 and 7.

Gallery doors opening on to exit stairs are only 3ft. 6in. wide and hung in one part.

The floor of the stalls is 4ft. 6in. above the level of the pavement.

Artistes' exits are not entirely independent.

Apart from the above points under the London County Council Regulations, it may be noted that:—

1. The four central columns and the two pilasters with adjoining walling, on the side elevation, with entablature 8ft. 6in., and balustrade 6ft. 6in., also a part of the roof, are carried on girders over the corridor of ground floor, which are in turn supported by walls 2ft. and 18in. respectively.

2. If the water-closets had been placed next to an external wall with windows for light and ventilation, the appearance of the elevation would have been considerably altered.

3. The Royal entrance, which is smaller than and adjoins the gallery entrance, opens almost immediately on to the Royal lavatory and w.c. There is only one lavatory and w.c. for both the ladies and gentlemen of the Royal party. There is no Royal cloakroom. The Royal party could only proceed to their seats by the public staircase and down the narrow gangway between the assembled public, their seats being in the uninclosed front row of the first tier.

4. There are absolutely no pay-boxes whatever.

5. The artistes, chorus, and orchestra—310 in all—have to enter and return by a staircase, which is 2ft. 9in. wide in the clear.

6. In the event of fire the open-well staircases which exist throughout would be most dangerous.

There is really no answer to the specific and very pertinent criticisms of the memorialists, and for that reason the Council of the R.I.B.A. probably made up their minds that none should be given. These are old tactics at Conduit-street, and the memorialists are evidently not up to them.

### THE ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Architectural Association was held at 9, Conduit-street, W., on Friday evening, the President, Mr. G. H. Fellowes Prynne, F.R.I.B.A., in the chair. Messrs. B. Crockett, L. U. Grace, C. B. G. Shepherd, E. C. Shrewsbury, Montague White, R. E. Peach, A. E. Potter, and C. C. Thompson were elected as members. Mr. E. HOWLEY SIM, Hon. Secretary, announced that the first visit of the season would take place on Saturday afternoon, Feb. 4, and would be made to Carlton Hotel, Haymarket, by permission of the architect, Mr. H. L. Florence.

#### ANCIENT AND MODERN BUILDINGS IN PALESTINE.

Under this title Mr. BERESFORD PITE, F.R.I.B.A., ex-President, gave a vivacious and interesting description of his recent visit on professional business in the Holy Land, illustrated by a large number of lantern slides from photographs taken by the lecturer. Having referred to the deep interest ever attaching to "those holy fields," Mr. Pite pointed out that many influences had affected the architecture of Palestine, including Phœnician, Assyrian, Greco-Roman, Roman, Arab, the Crusaders, and Turkish, while the modern element was not unrepresented, even to works of the Gothic Revival. The principal building material, a hard, coarse-grained limestone, had had a marked effect on the ornament employed. The best-preserved remains of antiquity were East of the Jordan, where, since the day of Mohammed the natives have not used buildings, but have dwelt in tents, and thus had no inducement to utilise old structures as quarries. The author referred also to the caves and rock tombs, and to the excavated cisterns and oil and wine presses, as characteristic features of the country. A general view of Jerusalem and a plan of the modern city were shown on the screen, and also photographs of the Gihon Valley, the Tomb and Tower of David, the Jaffa Gate, typical streets in Jerusalem, and also the chamber of the Knights of Malta and of the Holy Sepulchre, the Damascus Gate, the Ecce Homo arch, the Tower of Antonia, the Golden Gate, the Walling Place, the Church of the Virgin, and the famous Dome of the Rock, of which three or four views were exhibited. Other views followed, including Gethesemane, the village of Siloam, the Convent of Mar Saba, and the port of Jaffa depicted from the sea. Turning to modern Jerusalem, Mr. Pite alluded to the rapid growth and development of the city, which, he remarked, was being rapidly modernised. The water supply was obtained from cisterns in which rain-water was stored in the absence of living water. Passing on to building matters, based on his experience in a girls' school and hospital at Jerusalem, he said a firman, defining the area and height of proposed operations, had to be obtained from the local authorities before work was commenced, and that water was supplied for the works at per skin. Walls were weather-proofed on the north and east aspects by brick linings to the masonry.

#### BUILDING PRICES IN PALESTINE.

Some interesting details were given as to the



cost of building operations, based on the lecturer's experience as architect of the new English Hospital in Jerusalem, the average amount being about 10 francs per cubic metre for foundations and cisterns, and 12 francs for work above ground. Bricks cost about 7 to 12 francs per 100, or £4 to £5 per 1,000; paving tiles 6 to 8 francs per square metre, or say £1 per square; timber 4 to 6 metres long was charged from 13 to 20 francs, or 120 francs per cubic foot, or, say, five times as much as in London. Roofing tiles from Marseilles cost 25 francs per hundred, thirty of these tiles going to a square metre; they were wired to battens, and needed re-wiring about every ten years or so. The expenditure upon lime was about one-twelfth that of the whole building, or one-fifth of the cost of walling, including plastering. For a girls' school, in which plastering was not adopted, the lime cost between one-seventh and one-eighth. Walling in masonry was reckoned for each side of a wall of eleven stones, at 1 piastre (or 2½d. sterling) each for the under side, and 2 piastres each for the outer or hewn side, that was 33 piastres altogether; time payments cost about 5 or 6 piastres, and wages and hauling a further 10 piastres, bringing the outlay to, say, 50 piastres, equivalent to 12 francs 20 centimes per square metre. Calculated at per square metre, foundation-walls cost from 10 to 11 francs, work above ground 14 to 16 francs, partitions 0·60 metres in thickness 10 francs, "dolina" walls—i.e., wooden framework filled with masonry—6 francs, ventilators 8 francs, façade stones being from 1 franc 25 cents to 1 franc 50 cents extra per square metre. External pointing cost ½ franc per square metre, corner stones and quoins 2 francs apiece, lintels and cornices 3 francs per metre run, the cost of door and window-openings being about 40 francs each. The price paid for plastering, &c., from 1½ to 2 francs per square metre; for cementing new cisterns, 3½ to 4; and for ceiling plasterings, 2 francs 50c., all at per square metre. For tile roofs, wood, labour, nails, and tiles cost 12 francs, or for heavier woodwork 15 francs, per square metre. Carpentry, &c., cost per window, glazed, painted, and fixed, 36 francs; per internal door, complete, 50 francs; per shutter pair, ditto, 40 francs; and iron bars fixed ½ franc per kilo. The girls' school at Jerusalem, including the boundary wall, gatehouse, and cistern, and the clearance of site, cost about 12 francs per cubic metre, or 4d. per cubic foot. The thickness of walling averaged 2ft. External work was known as "kallin midmak," and "laktah" one face of wrought stones, with smaller stones behind to make up the required thickness, and "misseh" or hard stones for facing. Both foreign and native bricks were used, the latter being inferior. For mortar, black earth and lime were used in equal proportions, or sand and lime, the sand being rare. Putty and white-lead were employed for external work. Pottery-dust 2in. thick was utilised as a filling in for cisterns. For ventilating "Narie," a fine porous stone, is used, and also "Akkaad." The flue-pipes were built into the walls, and the roofs were tiled. Mr. Pite showed plans, elevations, and details of the new English Hospital at Jerusalem, and gave for comparison several similar institutions built by other nations in and near the Holy City, including the German and Moravian Leper Hospitals, and the Russian Hospital, all at Jerusalem, and the English Hospital at Jaffa. He also exhibited lantern-slides of the Moravian School at Bethlehem, the Russian Church a Jewish colony, and the railway started at Jerusalem, the German Church at Bethlehem, and also the French Church and Nunnery at Jerusalem.

Mr. A. E. DICKIE, architect, of Edinburgh, who has lately been conducting excavations in Jerusalem for the Palestine Exploration Fund, proposed a vote of thanks to the lecturer. This was seconded by Mr. ALEXANDER PAYNE and supported by Mr. PHENE SPIERS, F.S.A., and having been spoken to by the PRESIDENT, was carried by acclamation, and briefly acknowledged by Mr. PITE.

#### THE DESIGN FOR VAUXHALL BRIDGE.

The PRESIDENT spoke in strong terms deprecating the design recently adopted by the London County Council for the rebuilding of Vauxhall Bridge, and concluded by proposing the following resolution which had been adopted by the Committee of the Association:—

"That the Architectural Association, recognising and appreciating the efforts made by the

London County Council for the embellishment of London, views with the utmost concern the manner in which it proposes to rebuild Vauxhall Bridge, and desires to express its sense of the unfitness of the design for a work of such architectural importance."

The motion was agreed to *nem. con.*

#### THE SURVEYORS' INSTITUTION.

AT an ordinary general meeting, held on Monday evening last, a paper on "The Rating of Coal Mines" was read by Mr. E. Boyle, Q.C., who began by apologising for the unattractiveness of his subject, which was not a branch of the profession in which many surveyors were engaged. The Law Reports showed that during the last 50 years there had been but few contested cases, and not one was reported as specially decided by the High Court. This was somewhat surprising, but was due to the rough-and-ready methods generally adopted by agreement, and to the fact that collieries had formerly been under-assessed, and that in good times the amount of the assessment was not too closely criticised. The ever-growing burden of taxation compelled the assessment committees to give increased attention to such an extensive source of income, and to carefully consider the possibility of levying increased rates on an industry employing millions of capital and tens of thousands of men. Great Britain had once a practical monopoly of coal, and even in 1866 produced 60 per cent. of the world's output. In 1880 this was 40 per cent., and in 1895 had fallen to 36 per cent. The increase of output during the last 20 years had been—Great Britain, 42 per cent.; United States, 270 per cent.; and Germany, 145 per cent. Though population had increased, prices had steadily fallen. Coal had during recent years varied from 5s. to 17s. per ton at the pit's mouth, and when it was remembered that an owner thought himself fairly paid if he made 6d. per ton profit, the speculative character of the business would be apparent. Many of the most important towns in England relied on neighbouring coal for their prosperity, and even so late as 100 years ago Sussex was the chief seat of the iron trade, and, although the ore remains, there is no fuel to work it with since the oak forests have disappeared. The first iron cannon was made at Buxstead in 1543, and much of the old ironwork of London (notably the railings round St. Paul's) was of Sussex iron. Until 1874, tin, lead, and copper mines were not ratable; but coal-mines were rated under an Act 43 Eliz. cap. 2, the coal which was then worked probably lying near the surface and being cheaply got. The rent of a hereditament was usually the basis of rating; but coal-mines were seldom rented from year to year, but were let on lease, subject to the payment of a royalty beyond the rent; but as a large preliminary outlay was necessary, a lease for a long period of years was generally granted. Although the working of the mine reduced the value of the freehold, it had been decided (in "Rex v. Attwood") that mines must be ratable for what they produced—viz., the coals. Slate quarries and brick earth were also exhausted in a few years, but the rate was always put upon them. The custom of rating the "coal got" was wrong at law, for "coal got" was a chattel, and so not ratable. In some unions, gross and ratable value were taken as the same, which allowed nothing for repairs, insurance, and other expenses necessary to keep up the hereditament. One method of rating was to put a percentage on cost of shaft, and plant, to add rent and royalty, and to take the whole as the ratable value. This might possibly, but not probably, work fairly, as the author showed. If the mine were fairly rated when in full work, the rating at the beginning of the tenancy and at the end was necessarily excessive. The expense of getting the coal must of necessity differ very considerably in different mines, depending, as it did, on the depth, freedom from water, absence of heat, access, and many other considerations. Very few, if any, collieries were let on a yearly tenancy, which added to the difficulty of arriving at a fair ratable value at any given time. In the case of mines running under the sea, the workings would, of course, be only ratable as far as the parish boundary, which was the low-water line, though all within the parish would pay rates. Mr. Boyle gave instances of the several ways in which the ratable

value of coal mines might be arrived at, and came to the conclusion that the fairest way was to treat a mine as a railway or gas or water company would be dealt with—namely, on its receipts and expenditure, making due allowance for all contingencies, such as accidents or flooding, and for replacing of plant and repairs to working, &c. From a legal point of view a mine could not be assessed as could, for instance, a public-house, which was one of similar houses in a neighbourhood under similar conditions, for every mine had its own conditions, and its value depended on very much more than mere locality or the selling price of coal. The mine must be rated as exceptional properties, each on its own merit. After quoting recent decisions in support of this view, Mr. Boyle concluded by insisting on the necessity for taking into consideration every circumstance of the working of a mine in order to arrive at a just ratable value.

Letters were read from Mr. W. Wright (member of Council) and from Mr. Longden, president of the Institution of Mining Engineers. The former gave an instance of a colliery district in Notts, in which, prior to 1865, the ratable value was fixed by the overseers usually by agreement with the owners. In that year a regular valuation was made, which resulted in an arbitration, lasting for many years, the result being that a basis of 4d. per ton, on sale tonnage + 2 per cent. for coal consumed in working was agreed to. Where plant and shafts were in a different parish from the workings, it was agreed to take 3d. per ton + 2 per cent. for the working, and 1d. per ton + 2 per cent. for the plant and shaft. The rating was annually revised.

Mr. Longden said, that having been a member of an assessment committee, he could say that in most of the unions where collieries existed they were looked on as a nuisance by the farmers and tradesmen, who composed the committee, for they raised wages and made labour scarce, and they were therefore taxed as heavily as possible, as was perhaps natural in view of the enormous increase in rates of late years—in some cases from 3s. to 6s. in the pound. In most parishes where there were collieries, their ratable value was from half to one-third of the whole, and it was not until the coal was worked out that the farmers realised how much the mines had helped the rates. The general principle was to agree on a tonnage basis, unless there were exceptional circumstances. This enabled the rate to be easily calculated and collected, or, if necessary, readjusted. In the case of the Denaby Collieries, the rate appeared to be about 5d. per ton instead of 8d., as it seemed to have been previously. His experience was that 3d. per ton was paid for the coal, and the colliery itself, where in another parish, the remaining 1d.

A discussion followed, in which Mr. W. Eve, Mr. E. J. Castle, Q.C., Mr. B. Horsfall, and Mr. C. F. Jones took part, the speakers on the whole quite agreeing with the author's views, and after a short reply from Mr. Boyle, the meeting was adjourned. At the next meeting, on February 3, the discussion will be resumed on Mr. Weaver's paper on "The London Building Act and the Official Supervision of Buildings."

#### THE NOTTINGHAM AND COUNTY CONSTITUTIONAL CLUB.

THIS building was formally opened on the 25th inst. by the Duke and Duchess of Portland, having been about two years in course of erection. The competitive design has been practically carried out in its entirety, and includes the following accommodation:—Ladies' room, entered from the first vestibule, and divided from the club proper by an entrance screen overlooked by the porter's room; smoke-room and billiard-room for three tables, with large lantern-light over, and bar serving-room on ground floor; dining-room, with large circular oriel window and balconies, which occupies the whole of the Market-street frontage; private dining-room, committee-room, writing-room, reading- and two card-rooms, with serving-room and butler's pantry on first floor. Five members' bedrooms, stewards' rooms, secretary's office, kitchen, scullery, and servants' hall occupy the second floor; and men and maid-servants' bed- and bath-rooms the third floor. Connected with the club, but divided from same by two doors, is a large assembly hall, which has a special entrance and emergency exit into street at back, and will accommodate about 250 people. It is provided





RESIDENCES: TAMWORTH ROAD, GRAVELLY HILL, BIRMINGHAM.

with a platform in an arched recess, with ante-dressing, and ladies' and gentlemen's retiring-rooms, all so arranged as to be conveniently used in connection with the club, or independently. The main entrance-hall, 26ft. by 25ft., is large and spacious, and is well lighted with a large lantern (15ft. square) of stained glass. The main staircase, 6ft. wide, is built of yellow Mansfield stone with York stone steps. A circular oriel balcony, with carved panels and royal arms over an elliptical arch carried on Fuglevik granite columns and pedestals with Ionic caps, is a feature of the hall. The hall mantel and overmantel is of mahogany, with marble arch and copper canopied dog-grate set into tile recess, the floors being in marble mosaic. Three large sets of lavatories and conveniences are provided, and a skittle-alley 50ft. long, under the entrance hall, is reached by a staircase under main stairs. The front entrance porch is panelled in black Kilkenny and Languedoc marbles, and the vestibules with mahogany dado and vestibule screens filled with stained glass and bevelled plates. The registration offices of the party are also arranged in the buildings, the basements being used for beer and wine cellar and heating apparatus. The whole of the principal rooms are heated by means of ventilating radiators, and ventilated with fresh-air inlets, the foul air being extracted by Blackman's electric ventilating fans. The frontage is built of Derbyshire stone from Darley Dale, in the Renaissance style, treated with one bold and massive gable which rises to a height of about 70ft.; the principal entrance has a carved hood supported on massive corbels. A special feature has been made with a large circular oriel window on the first-floor with balconies on each side, commanding an excellent view up and down the thoroughfare. The gable is treated with bold scrolls, and finished with a dated pediment with the Lion and Unicorn on each side, and the City arms are arranged over the oriel windows. The contractor for the foundations was Mr. W. Woodsend, and for the upper portion Mr. I. Hutchinson. The whole of the wood mantels are from the architect's designs. The architect is Mr. A. R. Calvert, F.S.I., of Nottingham, who won the work in competition, assisted by Mr. W. R. Gleave, A.R.I.B.A., who

has acted as clerk of works. The cost, including furnishing, will be from £20,000 to £30,000.

#### RESIDENCES: TAMWORTH ROAD, GRAVELLY HILL, BIRMINGHAM.

THE site is in a well wooded suburb of Birmingham, and the plan is arranged to suit a nearly triangular plot of land, with an askew building line. The scheme was arranged to afford the requisite accommodation, with a good outlook, on the limited frontage, and an equal number of rooms of as nearly corresponding size in each of the two houses as could be obtained. The external facing on ground floor is of picked common red brick, with dark red pressed bricks for arches, strings, &c. The upper story is cement, roughcast, &c., and the painting is in cream and white, with roof of red tiles. Internally, the living-rooms and parlours are wainscoted and finished in Oregon pine, the joists, &c., over hall and sitting-room being cased with same, and the stairs of same material. The floor is of oak parquetry; Anaglypta is adopted for the panelled ceilings of dining-room and den, with frieze of same substance round each. The left house is somewhat plainer in finish. The cost of erection and completion, inclusive of specially designed chimneypieces, &c., and stained glass, has been under £1,700. The architect is Mr. B. C. Hughes, and the builder Mr. John Webb, both of Birmingham.

#### THE HISTORY OF GARDENS.

MR. ALBERT FORBES SIEVEKING, F.S.A., delivered a lecture on "Gardens; their History and Literature," illustrated by limelight pictures, at the London Institution on Thursday in last week. The lecturer differentiated the formal or architect's garden (open-air extension of the house, with its clipped hedges and trees of topiarian art) from the natural, irregular, Chinese, English, or landscape garden. He then showed the design of an ancient Egyptian garden from a tomb in Thebes. The problem of the "hanging gardens" of Babylon he declared to be still in "suspension"; and

passing by the ancient Persian gardens, he showed three views of existing ones, including the Shah's gardens at Teheran. The gardens of Homer and of the philosopher Epicurus brought him to the "built" garden magnificence of the Roman Empire, to illustrate which he showed Lucullus's villa at Baia, a trellised garden from a wall-painting at Herculaneum, and the restoration of Pliny the younger's Tusculan villa from his own detailed description, and pointed out how this contained the essence of the formal style and the germ of the natural or landscape school. Of monastic gardens, he showed a plan of the Abbey of Saint Gall by a monk in the ninth century, and pictures of the monasteries of Saint Germain des Prés and of Ashridge, in Herts. Mediaeval gardens were represented from the "Roman de la Rose" and the "Garden of Love," the earliest known engraving—Blois and Gaillon and St. Germain en Lage, from Ducerceau's Architecture—and De Vries's "Hortorum Formæ" to illustrate Palissy and the Potter's "Jardin Delectable." Of Early Tudor Gardens he showed the still existing "Pond Garden" at Hampton Court; and then, turning to Spain, he showed pictures of the Alcazar, the Generalife, and Aranjuez, where Velasquez painted. Italy furnished the terraced gardens of the Villas d'Este and Albani, after Piranesi's engravings and Mr. George Elgood's beautiful pictures. Of Elizabethan Gardens, he showed De Caux's Plan of Wilton (with Taylor, the water poet's euphemistic description), a plate from Crispin de Pass's "Hortus Floridus" and Sir Philip Sidney reclining in the "pleached" garden at Penshurst. Of herbals, the title-page of Gerard's first edition was shown with brief allusion to the physic gardens of Europe, De Serre's "Théâtre d'Agriculture," and Mollett's "Parterres de Broderies" led the way to Le Notre's masterpiece at Versailles. John Evelyn was not forgotten, and the Dutch style was illustrated by the garden of the Count de Nassau and Kip's Hampton Court, with its semicircular parterre of 9½ acres. Stowe was given as left by Bridgeman and sung by Pope, one of the pioneers of modern gardening. The old gardens of Oxford and Cambridge, Badminton, Chatsworth, and Chevening paved the way to the



English or landscape garden, derived from the Chinese Emperor's "Garden of Gardens." Horace Walpole, Kent, "Capability" Brown, and Humphrey Repton were all passed in review, being chosen as the typical landscape garden after Whateley's "Observations on Modern Gardening." The symbolical character of Japanese gardens was pointed out in two examples. Shenstone was cited as the exponent of what Mr. Sieveking called the "Jardin Larmoyant," or emotional and sentimental garden at the "Leasowes"; and Walter Scott was praised for holding the balance between the rival schools, while Gilpin, Uvedale Price, and Payne Knight reacted against the extreme theories of the naturalists. A tribute was paid to Mr. William Robinson's natural and wild gardening and Mr. Inigo Thomas's advocacy of the formal garden, and Mr. George Elgood's beautiful pictures illustrating English old-world gardens, and Drummond Castle, Balfour, and Stobhall Gardens (by Mr. Fred Walker, A.R.A.) represented Scotland. The lecturer took no side in the controversy between the natural and formal styles, preferring a judicious eclecticism, with the formal garden near the house, and passing, by harmonious transitions, to the park or landscape garden—from perfect art to wildest nature. He declared his belief that the garden-lover could not go far wrong if he would let Nature be his religion, beauty and art his creed, and took for his oracle Pope's verse: "Consult the genius of the place in all."

#### EXAMPLES OF DECORATIVE ART.\*

**A**N important representative work, by Messrs. Longmans, Green, and Co., is being brought out under the title of "Selected Examples of Decorative Art," published with the sanction of the Department of Science and Art, South Kensington, the first part of which is before us. The work is to be published monthly, and each number will contain twelve plates of photographic reproductions of objects in the South Kensington Museum, selected by the directors of that institution, and the work is edited by Mr. F. E. Withaus, whose experience in art matters is well known, and who will be assisted by specialists in their various branches. From a glance at the plates, we have every reason to believe that the work will be of much value to all students and teachers in art and technical schools, as the examples will supply them with a few of the finest and choicest productions in sculpture, woodwork, carving, furniture, hammered and cast iron, brass, copper, and lead work, silversmiths' work, glass, textile fabrics, &c. Part I. comprises several very beautiful examples of woodwork and carving, sculpture, gesso-work, bronze, brass, silversmiths' work, glass, &c. The first plate is a carved walnut stool, French, of the latter half of the 16th century—a bold and excellent type of carved woodwork. The ornamental carved end is particularly good in outline and bold in conception. Next we have a carved walnut door, 4ft. 7½ in. high by 23½ in. wide, the panels carved with a flat guilloche ornament, and the stiles and rails also carved in relief. The door is from Lyons, and is of the same date. A very fine specimen of gilded gesso-work is shown in a round wooden box and cover, Italian, of the 15th century, the low relief decoration of which is excellent. The cover and border have medallions representing the Signs of the Zodiac. Another example of gesso decoration is a fine wooden cassone (circa 1480): the frieze and sides and base are delicately modelled, and of Greek character. The other plates represent a Florentine marble bracket, a beautiful and chaste design; a chair-seat of cut leather (Portuguese); several very elegant examples of wine-glasses and tazze (Venetian) of the 16th and 17th centuries; cast bronze bells of Italian 15th century design, handles and door-knockers, 16th and 17th centuries; a silver-gilt pyx with enamels, German, and a monstrance of copper-gilt, Italian, 15th century; also a water-vessel of hammered brass, Flemish, of the 16th century. These examples of metal-work are of very interesting character, especially the hammered brass vessel. The mode of reproduction enables the student to distinguish every detail and ornament, the light and reflected light and shadow of the real object being before him, and

every texture and tool-mark discernible. The smaller objects, too, are in some cases nearly full-size, and the illustrations, printed from half-tone blocks, average about 12 in. by 9 in. The plates are detachable, and can be taken out for study. Each plate is 19 in. by 12½ in., and the price of each part is only 3s. net. All students and art workers should become subscribers.

#### RISKY BUILDINGS.

**L**ARGE commercial structures in the great cities of the United States are, through bad foundations or rapid building, exposed to many dangers and vicissitudes; and it is a common occurrence to hear of ingenious methods being resorted to in strengthening or restoring such buildings. The Building departments of cities like New York, Chicago, Brooklyn, have their work looked out in providing against collapses. At Brooklyn a large commercial building has recently been condemned as unsafe. It is reported as eight stories in height with a frontage of 110 ft. oblique; it has large shop windows, the upper walls are of brick, the columns are of cast iron, the floor-beams of wood; but the description given of the building shows the top-heavy nature of the construction adopted. It appears that four 14 in. circular columns are carried up in the front wall to the third story, each of these supporting at the centre a double cantilever girder of three parallel I beams 20 in. deep, and upon which a brick pier, 8 ft. by 20 in., is built. From what we can gather of the rather vague description given, the upper six stories is carried on very weak piers. In fact, the whole building appears to be carried by columns and brick outer walls. The footings of the piers are faulty; they are built of common red brick in poor mortar. The piers are capped with blue stone flags of 12 in. thickness in mortar beds, and on these cast-iron pedestals are set 45 in. square; but the capstones are broken and the columns take an unequal bearing, the piers have bulged outwards, and some have vertical cracks. What condition of affairs could be worse? The building in question, not before time, has been shored up; the front wall braced from the street, the piers have been surrounded by vertical timbers to relieve them of their floor loads, and precautions have been instituted to watch any movement so as to avert danger. There are probably many other faulty buildings of the kind in Brooklyn and elsewhere; but the amazing thing is that lofty structures, built practically on piers of brick no more than 5 ft. square and several feet high, and supporting prodigious dead loads of iron columns and floors on foundations of gravel and sand, should be permitted in great cities. Yet it seems a very common mode of supporting upper stories. In no other country but America would such experimental buildings be allowed to be erected. Let any practical man consider brick piers of about 5 ft. square and 7 ft. in height carrying iron columns of several stories, the weight on each of which would be from 300,000 to 500,000 lb.; imagine, also, not only a dead load, but the live load of eight floors, a not very firm foundation, inferior bedding of capstones, and poor brickwork. Such an experiment would be pronounced risky, not to say hazardous, in the extreme; and yet buildings are erected on this system. If the experiment was devised for testing brick piers, we might understand, though could hardly admit the value of, such testing. Can we be surprised that all the brick piers bulged out, and that the vertical cracks appeared in several of them through the capstone, or that, in one case, the crack is such that many bricks have broken across on the face of the pier? Investigations conducted within the building have revealed other dangerous symptoms of impending danger. The foundation walls show settlement cracks, floor-beams have deflected, and other weaknesses have been discovered. The descriptive account from which we take our facts shows that risky construction has been accompanied by inferior workmanship. The basement, walls, and piers have been found to have been built with no regard to bond or soundness of construction. The facts, as recorded, afford an object-lesson that ought to lead our smart but venturesome cousins to a more serious view of the responsibilities of building, to say nothing of architectural repute.

The Earl of Ancaster has undertaken, at his own cost, to restore the parish church of Haccoby.

#### OBITUARY.

MR. JOHN SAMUEL RAWLE, F.S.A., late of Elms Villas, Ealing, and for many years an examiner to the Department of Science and Art, South Kensington, died suddenly on Thursday, the 19th inst., while on a visit to St. Leonard-on-Sea. During the most prosperous period of its career, Mr. Rawle was the headmaster of the West London School of Art in Great Titchfield-street, W., and from thence he removed to Nottingham, where he maintained the high standard of the Corporation School of Art. He wrote several useful handbooks on practical geometry, drawing, and kindred subjects. Mr. Rawle was in his 60th year.

MR. JOHN MARTIN MCCURRICH, engineer to the Bristol Corporation Docks, died on Wednesday week, aged 46, as the indirect result of overwork. Mr. McCurrich was educated at Dunning and at the Perth and Dollar Academies, and subsequently at Edinburgh University. After being articled to Messrs. Bell and Miller, Glasgow and Westminster, he became resident engineer on the new dock works at Cardiff, and he was afterwards with the Great Eastern Railway Company at Liverpool-street Station, London. He was appointed assistant-engineer to the Bristol Corporation Docks in 1885 and engineer in 1890, and was afterwards elected president of the Bristol Association of Engineers. As engineer to the Bristol Docks, Mr. McCurrich designed and executed many important works, including an extensive scheme of port and river improvements for enabling deeper and longer vessels to get up to the city docks. He also designed several new schemes for extensive new docks at Avonmouth and Portishead, for the dockisation of the River Avon itself, and for the prevention of floods in the rivers Avon and Frome. The Bristol Docks committee have voted 1,000 guineas to Mr. McCurrich's widow.

#### CHIPS.

The fifth annual dinner of the London and Provincial Builders' Foremen's Association will be held at Anderson's Hotel, Fleet-street, on Saturday, Feb. 11. Mr. G. J. Elphick, of the firm of Messrs. Treasure and Son, of Shrewsbury, will occupy the chair.

Contracts for the building of a large new hotel in Guild-street, Aberdeen, adjoining the offices of the Great North of Scotland Railway, were accepted on Tuesday. The hotel will cost over £12,000.

A new institute is now being erected at Longton, Staffs, from the designs of Messrs. Wood and Hutchings, architects, Tunstall, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

At a conference held on Wednesday between representatives of the London County Council and of the local governing bodies of London, it was resolved that the maintenance and control of all open spaces under ten acres be undertaken by the sanitary authority of the district, the Council granting annually to the local authority the amount of the cost of such maintenance and control on a certificate of the Council's officials that the expense had been incurred and the work properly carried out.

In the Court of Session, Edinburgh, on Wednesday, answers were lodged to the petition presented by John Martin, builder and contractor, 53, Dundee-street, Edinburgh; P. L. Henderson, architect, 122, George-street, Edinburgh; James Kinneir, builder, Postabrig-terrace, Leith; and Redpath, Brown, and Co., ironworkers, St. Andrew-street, Edinburgh, for the judicially winding-up of Pattisons (Limited). That firm and the liquidators, in the answers, admit that the debts mentioned by the petitioners are unpaid, and that the Company is insolvent and unable to pay its debts.

At the half-yearly meeting of the London and Brighton Railway Company on Wednesday, Lord Cottesloe, who presided, explained the scheme for the improvement of Victoria Station, stating that their Bill proposed to acquire and utilise all the property lying between the railway boundary and the east side of the Buckingham Palace-road, from a point just north of Ebury Bridge to the present front of the station, without touching the Grosvenor Hotel.

The new docks at Leith are making good progress, and at the last meeting of the dock commissioners it was reported that certificates to the extent of £243,000 had been made out by the engineers in favour of Mr. John Best, of Edinburgh, the contractor.

New board schools are about to be built at Heybrook, Rochdale, from plans supplied by Mr. Townend, architect, of Rochdale.

\* Selected Examples of Decorative Art. Published with sanction of Science and Art Department. Longmans, Green, and Co.



## Building Intelligence.

**ARDNAMURCHAN, N.B.**—About three years ago the estate of Ardnamurchan was purchased by Mr. C. D. Rudd, of the South Africa Chartered Company. Ardnamurchan is one of the largest estates in Argyleshire, and extends to nearly 200 square miles. Since the estate passed into the hands of Mr. Rudd, great improvements have been executed, or are in the course of execution, all tending to its conversion into a sporting property. The eastern section of it particularly has been largely turned into a first-class deer preserve. The hills of Glenborrodale, Laga, Camusinnies, Tarbert, and Gortan have been cleared of their sheep stock and put under deer. Saddelpaths and carriage-roads, intersecting the country in every direction, are being constructed, affording employment to hundreds of local workpeople. Shielbridge Lodge has been pulled down, and is being replaced by a more commodious structure. Glenborrodale Castle, erected about forty years ago, has been razed to the ground, and the contracts have been placed for a mansion-house on its site at a cost of £37,000. Certain additions and alterations are also to be carried out in connection with Killoan shooting lodge. Last year a geological survey of the estate was made at Mr. Rudd's instance. At Ormsaigbeg a rich stratum of iron ore was struck, and arrangements are in an advanced stage for the work of excavation to be commenced, and preliminary operations are being pushed forward with expedition. The mining works will give employment to upwards of two hundred men.

**CARDIFF.**—A special meeting of the Cardiff Town-hall Committee was held on Friday. Mr. Veall called attention to the fact that in the original plans for the new town-hall Press-rooms were provided for the assizes and police-courts, but in the rearrangement these had disappeared. Mr. Lanchester, who attended on behalf of the architects, Messrs. Lanchester, Stewart, and Rickards, stated that he was informed that the Press-rooms were not necessary. One of the consultation rooms could be devoted to Press purposes. It was resolved that this be done. Some slight alterations were made, and the committee then agreed to recommend the council to pass the plans, which will be on exhibition until their next meeting.

**DEBBY.**—The Duke of Devonshire opened, on Friday, the Municipal Technical College. Situated in Green-lane, and built in the Gothic style, the new structure been erected from the designs and under the superintendence of Messrs. Waller and Sons, architects, Gloucester, and covers an area of 17,000 square feet. The different floors include a sub-basement, a basement, and first and second floors. The whole of the sub-basement is utilised for the heating and ventilating, which is on the plenum system, and in the basement are the engine-rooms, plumbing shop, and rooms for topography and manual instruction. On the ground floor are an art lecture-room, a physical laboratory, and several class-rooms, together with a committee-room and the secretary's room and office. An antique-room for art purposes, a lecture theatre for physical, chemical, and other demonstrations, and a mechanical drawing-room occupy the first floor; and on the top floor are chemical laboratories, classrooms, and an apartment for light and shade drawing. The college occupies the site of the late Central School of Art, built in 1875-6, at a cost of about £15,000, including the purchase of the site, and £25,000 has been expended on the present work of extension.

**LEITH.**—The Hospital is to be extended in commemoration of the Queen's Diamond Jubilee. The extension will take the form of an addition to the King-street pavilion, whereby the wards in the south end will be incorporated into the new building, and the present ward of six beds on each flat will be made wards of twenty beds. Dayrooms, baths, lavatories, and lifts will be provided at the ends of the wards. The present north wards will be utilised for the administrative offices, doctors' and nurses' rooms, kitchen, &c., of the new wards. The extension will allow of an increase of 27 beds in the King-street pavilion, and on completion the hospital will contain in all 102 beds, besides three isolation rooms. The accepted elevation shows a frontage to King-street on the lines of the existing work, but treated in a less severe style, and terminates with a gable and oriel window, with balustrading.

Ground on the other side of King-street, opposite the hospital, will be occupied by a new kitchen, laundry, and nurses' home. Plant for steam power will be put down for the kitchen and laundry, and it is intended to provide an installation of the electric light and motive power for lifts, &c. The nurses' home will accommodate thirty nurses. The buildings will be connected with the hospital by a subway under King-street. The total cost of the new buildings, including machinery and plant, is estimated at between £17,000 and £20,000. The plans have been prepared by Mr. W. N. Thomson, architect, Leith.

**KILLEAN, N.B.**—At Killean, Kintyre, on Friday, the new public library and museum buildings in Campbelltown, built and equipped by Mr. James Macalister Hall, of Tangy and Killean, at a cost of about £10,000, were presented to the town by the donor. The buildings, the memorial-stone of which was laid by the Duke of Argyll on Aug. 25, 1897, are of handsome design, and occupy a central site, with frontages to the harbour, St. John-street, and Shore-street. The Duke of Argyll has granted the ground free of feu duty during his lifetime. There is a library or book-store giving accommodation for over 10,000 volumes (the shelves at present contain 6,000 volumes), ladies' reading-room, general reading-room, museum or picture-gallery, and general news-room. A garden at the Shore-street front forms an adjunct to the museum for the exhibition of archaeological and other exhibits not requiring cover. The buildings and garden occupy an area of 1,450sq. yds. The architect is Mr. J. J. Burnet, Glasgow.

**THE TOWER OF LONDON.**—With a view to erecting a building more in keeping with the surroundings, the present chief guard-house at the Tower of London is being pulled down. The building is situated between the tower containing the regalia and the steps leading to the quadrangle, the White Tower being immediately in the rear. The building has now been almost entirely demolished, the wall facing the steps referred to being alone left standing. This is to be utilised in the new structure, which, in addition to forming the guard-house, will contain rooms to serve, as heretofore, for reading, educational, and recreative purposes. The alterations will take about a year to complete.

## CHIPS.

A meeting of the Trinity Church Restoration Fund Committee was held on Monday at the town-hall, Hull. The total sum collected up to date was announced to be £3,577 8s. Mr. Brodrick, the architect, reported that he had received tenders for the bells.

The Corporation of Norwich have decided that certain land at New Mills, including cottages and stoneyard, be appropriated and adapted for stables, cartsheds, stores, and workshops for the purpose of the corporation, according to the plan prepared by Mr. Arthur E. Collins, the city engineer, at a cost not exceeding £12,000. In addition, the city engineer was instructed to repair the buildings at New Mills known as the old silk mills, and make them available for stores and workshops at a further estimated outlay of £900.

The report of the directors of the Metropolitan Company states that the company's engineer (Sir J. Wolfe Barry, K.C.B.) says that arrangements for the experimental electrical working between Earl's Court and High-street, Kensington, are well advanced, and that he expects them to be completed in about nine months' time.

The new barracks at Winchester, so far as the foundations are concerned, are being rapidly advanced by the contractors for this special portion of the work. The old structure of Sir Christopher Wren and his employer, Charles II., is now fast going underground, in the form of concrete, for the foundations, which occupy the site and area of the great western ditch of the Norman and Plantagenet fortress which the railway constructors filled up with chalk, hence the deep excavations required for the foundations, in which none of the fine stonework will be buried, but will be utilised above ground for facing the barracks.

Electric power has been successfully introduced for blowing the new organ in Lincoln Cathedral. The wires conveying the current from the corporation service enter the cathedral on the south side, and are laid mainly underground. There are three motors of 3, 1½, and ¾ H.P. respectively, situate in the triforium, each working an independent set of bellows. The organist has absolute control of the motors, which he is able to start or stop by moving a switch, and the supply of wind is regulated by an automatic device.

## Engineering Notes.

**CITY AND SOUTH LONDON RAILWAY.**—The half-yearly report of this company states that the progress with the Moorgate-street extension has been uninterrupted. The works of the extension from Stockwell to Clapham-common are progressing very satisfactorily, and it is anticipated that the line will be completed ready for traffic early in the autumn of this year. The works of the extension through the heart of the City having now been completed, it is necessary that the remainder of the authorised undertaking, carrying the line to the Angel at Islington, should at once be proceeded with, and steps have already been taken to secure the site of one of the three stations along the route. In order to further facilitate and economise the working of the City and Brixton Railway, it has been arranged that, in lieu of providing a separate depot for the Brixton Company, a short tunnel should be made connecting that company's line with this company's depot at Stockwell. A Bill has been introduced into Parliament with this object. Pending these arrangements, the construction of the City and Brixton Railway has not yet been proceeded with.

**THAMES AND SEVERN CANAL.**—The old Thames and Severn Canal was again open for traffic on Friday through its entire length, and merchandise may now be sent from London down to the mouth of the River Severn by water; and it is possible to paddle a canoe inland from one side of England to the other—from Sharpness Point to the Nore Lightship. There are forty-four locks on the western side up to the famed Sapperton Tunnel, about 300ft. above the Severn at low water at Framilade, Gloucestershire, while fourteen locks have to be passed on the other side, going down to Lechdale, where the canal joins the Thames. The canal was projected a century ago by Mr. Brindley, at whose death Mr. Whitworth was appointed to carry it on. It commences at the Stroudwater Canal, near Stroud, and taking an easterly direction, runs through Stroud, Brimscombe, and, passing Cirencester and the head of the Thames, reaches Siddington, where a branch about a mile in length runs in from the town of Cirencester. Thence it passes on to South Cerney and Latton, where it is joined by a branch of the Wilts and Berks Canal, and thence, passing Cricklade and Kempsford, reaches the Thames through Inglesham Lock. The tunnel at Sapperton is 2½ miles long, 15ft. wide, and one arch 20ft. high at the highest point of the hill, which is of solid rock, and has no supporting masonry. The minimum height is 12ft. above the water. The traffic diminished year by year, and in 1894 an application was made for closing that portion of the canal between Chalford and its junction with the Thames—practically the whole length; but the neighbouring waterways opposed, and in the following year a trust was formed to take over the canal. They at once proceeded to restore the canal, and the work has now been accomplished, at a cost of about £15,000.

The concession for the Syria-Ottoman Railway from Acre and Haifa to Damascus has been re-secured by the Thames Ironworks and Shipbuilding Company.

The Great Western Railway Company have resolved to construct a passenger line between Rhos (Ruabon) and Wrexham, a distance of about four miles. The construction of the proposed line will be proceeded with at once. The land for the purpose has all been bought, and the notices to the tenants have expired. The money has been voted by the directors, and tenders for the work will be invited forthwith.

A license was granted on Monday by the Salford magistrates for a theatre of varieties to be built in the Broadway of that town. Mr. Frank Matcham, of London, is the architect, and the outlay on building will be about £30,000.

The work of laying down a second line of metals from Skegness to Firsby, to enable the increasing summer traffic to be dealt with more expeditiously, will be commenced shortly. A new waiting-room, booking-office, and station-master's residence are now being erected.

At Southport, on Tuesday, Mr. E. A. Sandford Fawcett, A.M.I.C.E., Local Government Board inspector, held an inquiry at the Southport town-hall into an application by the corporation to borrow £3,500 for the purposes of electric lighting, and £3,300 for promenade widening.



## COMPETITIONS.

**CREWE.**—A competition for a new club-house has just been held, limited to architects invited from Crewe, Southport, Burslem, and Leek. The designs of Messrs. Wm. Sugden and Son, F.R.I.B.A. (submitted under motto "Forward the Light Brigade"), have been placed first, and will be carried out by them.

**GLASGOW NEW ART GALLERIES.**—The official record of the awards in the competition for the eight seated figures to be erected on the pavilions of the new Art Galleries at Glasgow, with the names of the authors of commended designs, is as follows:—Sculptors selected: Music, Architecture, Painting, and Sculpture, E. Derwent Wood, Bloomfield Studios, London. Science, W. Birnie Rhind, Cambridge-street, Edinburgh. Religion, Johan Keller, Sauchiehall-street, Glasgow. Literature, Edward George Bramwell, London. Commerce, A. Fabbrucci, London. Commended:—Sculpture and Religion, W. Birnie Rhind. Commerce, W. W. Woodington, London. Commerce, Johan Keller. Religion, Edith Maryon, London. Painting, Wenlock Rollins, London. Science, C. Rutland, London. Literature, E. Roscoe Mullins, London.

**HULL.**—This Library competition has this week been settled. The award of the referee, Mr. Sidney R. J. Smith, has been confirmed, with the following result:—First premium, Mr. J. S. Gibson (Gibson and Russell), Gray's Inn, W.C.; second premium, Mr. H. F. Williams, Fleet-street, E.C.; third premium, Messrs. R. J. Sadgrove and A. A. Webb, Surrey-street, Strand. Mr. Gibson treats his front in a simple yet dignified manner, with a central gable and turret at angle (in the central gable is a seated figure). The reference library takes up the whole of the first floor, and corridor on ground floor runs all through building; the building to be in brick and stone. We understand it is the cheapest and most effective design submitted. The greater part of the designs were either too costly, bad in elevations, or communication only through rooms; some did not make use of the back site at all, and in some, though excellent in plan, it would not be possible to light the indicators. Some had the workrooms, &c., on second floor, and some in basement; many did not have newsroom next to lending library. Some were rejected on account of conditions, the perspectives being larger than allowed; others had coloured their drawings, and many because they were too costly and impossible. It was considered that the selected one was the most practical one consistent with the cost named. A surveyor checked cubes and cost for the committee.

**KNUTSFORD.**—Mr. George H. Willoughby, of the firm of Messrs. Woodhouse and Willoughby, King-street, Manchester, writes protesting against the unfairness of the set of "competitive conditions" issued to the profession by the urban district council of Knutsford, inviting architects to submit designs for the erection of new cemetery chapel, caretaker's house, &c. Mr. Willoughby characterises the instructions as a flagrant attempt of a public body to obtain professional services considerably below the recognised standard fees, and through the medium of inequitable and one-sided conditions. In the printed conditions issued no mention is made of the promoters' intention to call in a professional adviser; but, on the contrary, that "the council reserve the right to exclude all or any of the designs from the competition if the council consider its probable cost will exceed the outlay stated in the instructions" (note "probable"), or "if the council consider the designs sent in are not suitable." A further condition immediately follows—viz., "In the event of the council considering that no suitable design has been submitted, they will hold a further competition." Such terms, questionable and grossly unjust as they assuredly are to every self-respecting architect, pale, however, Mr. Willoughby remarks, into insignificance by comparison with the unfairness of the paragraph that follows—viz., "The architect to take out quantities for the erection of the chapel, &c., 'at his own cost,' and no extra payment will be allowed by the council in respect thereof." Finally, although the designs are to be submitted in "competition," the essence of which is an absolute preclusion from the possibility of disclosing the author's identity, yet "all plans are to be sent in with the author's name attached." The writer adds:—"It is a grave affront on the members of our body to ask them, 'with an absence of scruple amounting almost to genius,'

to prepare and submit drawings in competition on the condition that the fortunate architect—should the work go on—be paid for his services the ordinary fee of 5 per cent. on the stipulated outlay—viz., £4,000; but, at the same time, he must be prepared to pay away again 'half' his earnings to employ a surveyor to take out the quantities, as the competitive conditions naively state, 'at his own cost'—a charge which certainly ought to be borne by the council themselves."

**NEWCASTLE.**—The following are the architects selected to send in competitive designs for the new Infirmary:—Messrs. Armstrong and Knowles, R. B. Dick, J. W. Dyson, Dunn, Hansom, and Fenwick, C. T. Marshall, W. Lister-Newcombe, Oliver, and Leeson, T. W. Taylor, and Chas. Walker, of Newcastle; Gibson and Russell, H. Percy Adams, and Simpson and Allen, of London; W. Henman, Birmingham; J. H. Morton, South Shields; Frank Caws and J. Potts and Sons, of Sunderland; Clark and Moscrop, Darlington; Worthington and Son, Manchester; and F. R. N. Haswell, North Shields. Mr. Alfred Waterhouse, R.A., is to be the referee.

**STATES OF GUERNSEY.**—The new States Hall and Courthouse competition has been settled. Mr. Aston Webb, F.S.A., was the assessor. Six competitors were invited, and each receives fifty guineas honorarium. The following were the architects:—Messrs. Gibson and Russell, Gray's Inn; Mr. J. A. Gotch, F.S.A., Kettering; Mr. H. T. Hare, Bloomsbury; Mr. J. M. Brydon, Newman-street; Mr. Atkinson, Liverpool; and Mr. Edward W. Mountford, of the Adelphi. The prize has fallen to Mr. Mountford. The cost will be about £50,000.

## CHIPS.

An inquiry was held at the Guildhall, Stafford, on Tuesday week, before Mr. G. W. Willecks, Local Government Board inspector, respecting an application by the town council for the issue of a provisional order to partially repeal, alter, or amend the Stafford Corporation Act, 1896, so as to enable the corporation to borrow additional moneys for the purposes of the sewerage scheme.

Mr. Stanhope Forbes, A.R.A., has completed the mural decoration, "The Great Fire of London, A.D. 1666," which he has been commissioned by the Sun Insurance Office to paint for the Ambulatory of the Royal Exchange.

On Thursday in last week the Right Hon. James Lowther, M.P., opened the new centre block of the Margate Cottage Hospital, erected in commemoration of the Diamond Jubilee.

Messrs. Longmans and Co., are publishing the lecture delivered at Burslem on October 13, 1881, by William Morris on "Art and the Beauty of the Earth." The price is half a crown, and the book is printed with old-faced type and on hand-made paper in the style of the well-remembered Kelmscott Press publications.

At the Church of the Oratory, South Kensington, on Monday, a marriage took place between Miss Elise Janet Charlton, only daughter of the late Edward Charlton, M.D., D.C.L., of Newcastle, and of Mrs. Edward Charlton, of Victoria-road, Kensington, and Mr. Edward Doran Webb, F.S.A., architect, eldest son of the late Mr. Thomas Doran Webb, of North Wiltshire.

A stained-glass window representing St. Michael and the Dragon has been placed in the west end of Martin Hussingtree parish church, as a memorial of the late Captain J. Oswald Trotter.

The Rivers Committee of the Manchester City Council had a long discussion on Monday on the sewage problem. In the result a resolution was passed asking the authority of the council to appoint an engineer to draw up plans and estimates for proceeding to deal with the difficulty of the lines of the evidence given by the experts at the recent Local Government Board inquiry. It was decided to recommend the council to advance the salary of Mr. Gilbert J. Fowler, chemist at the sewage works, from £200 to £250, and that of Mr. A. B. Ogden, manager of the sewage works, from £160, in addition to house, &c., to £180 per annum.

Business in house property was brisk at the Mart last week, for, notwithstanding the good supply of property of this character, practically all the lots submitted changed hands at favourable prices. The registered returns for the week were £67,420.

Four stained-glass windows, representing the Four Evangelists, have been recently erected in the chancel of Clonfert Cathedral. The windows are the work of Messrs. Watson, of Youghal, who supplied the Oliver Goldsmith window for Forguey Church.

## PROFESSIONAL AND TRADE SOCIETIES.

**BRISTOL SOCIETY OF ARCHITECTS.**—At the last ordinary monthly meeting, the award was made in the students' competition for measured drawings prizes, the first prize of six guineas going to Mr. C. F. W. Denning, articulated to Mr. H. Dare Bryan; the second and third prizes being equally divided by Mr. H. F. Smith, articulated to Messrs. Crisp and Oatley, and Mr. E. G. Rodway, articulated to Mr. H. Dare Bryan. The subjects drawn were of local and historic interest, and included Kewstoke Church and Cleve Abbey, Somerset; the cupola of All Saints Church, City, the Mede tomb in St. Mary, Redcliffe, and the interesting little Georgian church on Redland Green. After the general business of the society had been transacted, a paper of much literary and artistic interest on "Rhythm in Design," was read by Mr. F. Bligh Bond, a cordial vote of thanks to whom terminated the meeting.

**SOCIETY OF ARTS.**—The meetings of the Applied Art section commence on Tuesday evening next, when Mr. Edward F. Strange will read a paper on "The Centenary Exhibition of Lithographs." At subsequent meetings during the session papers will be read on "Vitreo Enamels," by Cyril Davenport, February 21; "Craftsmanship and Its Place in a National Scheme of Art Culture," by Sir William Blake Richmond, K.C.B., R.A., March 14; "Modern Changes in Taste relating to Domestic Furniture," by George Lock, April 18; "Maiolica," by William Burton, May 2; and "Wrought Iron Signs," by J. Starkie Gardner, F.G.S., May 30.

There has now been subscribed to the Bishop How Memorial Fund £11,497 4s. 3d. Of the total £620 3s. 11d. has been given for the recumbent figure of the late bishop which it is intended to place in the cathedral. Towards the enlargement of the cathedral £10,877 0s. 4d. has been subscribed, £3,808 0s. 9d. having been received since Dec. 12. The total sum required for the enlargement scheme is £25,000.

In the parish church of Broadhembury, Devon, on Friday, a tablet was unveiled to the memory of the Rev. Augustus Montague Toplady, author of the well-known hymn "Rock of Ages," and vicar of Broadhembury from 1768 to 1778. The memorial tablet, which has been executed in marble by Mr. L. J. Watts, of Colchester, contains a medallion portrait.

At a meeting of the Leeds and Yorkshire Architectural Society held on Monday night in the old Medical School, Park-street, Leeds, Mr. H. M. Fletcher read a paper entitled "A Summer in Umbria," illustrated by lantern views of the lesser-known architecture of Central Italy.

Mr. Hopkins, the Lambeth Police-court Magistrate, delivered his judgment on Friday on a dispute between the Lambeth Vestry and the Southwark and Vauxhall Water Company, as to the terms on which the company should supply water for the streets. He decided that the price to be paid by the vestry to the company for the supply of water for the streets should be 6d. 1,000 gal., the arrangement to cease on March 23, 1904.

The measure to empower the London County Council to make a new street from Holborn to the Strand, and a widening of Southampton-row, to widen High-street, Kensington, and to make other street improvements and works has been passed by the Examiners of Bills. Another Bill of the Council proposing to alter the constitution of the Lee Conservancy Board and to enable the Council to construct railway sidings at Horton Asylum, Surrey, has also been found to have complied with Standing Orders.

Mr. John Young, general manager of Glasgow Corporation Tramways, has prepared a draft scheme for the extension of the electric overhead system of traction to the various routes in the city. He recommends that the next section to be converted should be the main east and west route, from Whiteinch to London-road, and Dalmarnock, via Bridgeton-cross. About 800 horses could be dispensed with. Mr. Young estimates an expenditure of £25,000 in providing additional car sheds at Coplawhill, and the cost of equipping the three routes at £54,000, in addition to £61,000, which would be the cost of renewing the lines in ordinary course.

The High-street of Glasgow, from the Tron Church to the junction with Parliamentary-road, has been laid with an electric tramway, which was inspected on Saturday by Major Marindin on behalf of the Board of Trade, who was accompanied by Mr. Young, the general manager, and Mr. Clark, the engineer.



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## ILLUSTRATIONS.

NEW INFIRMARY FOR THE PARISH OF ST. MARY, ISLINGTON.  
—CORONER'S COURT, POPLAR.—NURSES' HOME, WANDSWORTH AND CLAPHAM UNION INFIRMARY.—WALSOKEN CHURCH.—HOUSE AT FLEET.—COTTAGES AT MATLOCK.—RESIDENCES, TAMWORTH ROAD, GRAVELLY HILL, BIRMINGHAM.

## Our Illustrations.

NEW INFIRMARY FOR THE PARISH OF ST. MARY, ISLINGTON, HIGHGATE HILL.

This infirmary is now being erected in the grounds of the late Small Pox Hospital, Highgate-hill, and when finished will accommodate 300 inmates. The late Small Pox Hospital building is to be altered and adapted to form part of the administrative section, and will contain about 90 bedrooms for nurses, baths, lavatories, and w.c.'s, in addition to suites of rooms for the medical superintendent, assistant medical officers, and matron, &c. The declivity of the ground has rendered it necessary to make the wards on the lower part of the ground four stories high, and those on the north side only three stories high, with the roof all on one level. The whole of the wards, rooms, corridors, &c., in connection with the same will have fireproof floors, and dados, 5ft. high above the floors, of white glazed bricks, with bull-nose bricks to all angles. The external walls are executed in grey stock bricks, with red bands and arches. The wards are 100ft. apart, and are connected together by means of inclosed corridors on the two lower floors, and open corridors on the two upper floors, and also by means of open iron galleries for fire-escape purposes. The centre building forms the principal administrative block, which is two stories high, except the centre portion of same, which is three stories high, and wherein is situated dispensary, surgeon's and operation rooms, anaesthetic room, &c. The laundry, mortuary, coffin-store, and other buildings will be erected in rear of the present Small Pox Hospital; communications will be made to same from the new buildings by means of a subway. The estimate for the work is £181,583. Mr. William Smith, A.R.I.B.A., of Chancery-lane, W.C., is the architect for the work, and Messrs. Kirk and Randall, of Warren-lane Works, Woolwich, are the contractors.

CORONER'S COURT, ETC., POPLAR.

The illustrations of the above represent a very complete set of buildings of their kind about to be erected by the Board of Works for the Poplar district in the High-street, Poplar. The buildings consist of the following:—Coroner's-court block, shelter block, and mortuary block. The coroner's-court block is placed facing the High-street, and contains the following accommodation—viz., a coroner's court, coroner's and jury retiring-room, witnesses' waiting-room, w.c., and lavatory accommodation, and apartments for the caretaker. The shelter block provides accommodation for two families to be used temporarily during the disinfection of their homes, where cases of infection have occurred. The mortuary

block consists of two mortuaries, the smaller one for infected cases with accommodation for eight bodies, and the larger for twelve bodies, on the catacomb principle, and a post-mortem room with laboratory. The buildings are grouped around a quadrangle, with the entrance for hearses, &c., in Cottage-street. The designs, of which Messrs. Lansdell and Harrison, of Bow-lane, Chapside, E.C., are the architects, were selected by the professional assessor appointed by the Board in an open competition held in the latter end of 1896.

## NURSES' HOME, WANDSWORTH AND CLAPHAM UNION.

The foundation-stone of the new nurses' home in connection with the infirmary of the Wandsworth and Clapham Union, on St. John's Hill, was laid last month. The home is being erected on the northern portion of the infirmary grounds. The building will provide accommodation for 75 nurses in separate rooms, apartments for the assistant matron, and for the principal night nurse. A recreation room for the general use of the nurses is placed close to the entrance-hall, and adjoining same is a separate sitting-room for the accommodation of 30 sisters; adjacent to these two rooms is lavatory and cloakroom accommodation. Leading from the entrance-hall is a wide corridor, on either side of which the bedrooms for the nurses are arranged, and a stone staircase placed centrally in the length of the building gives access to each of the four floors, having corridors right and left of same extending the full length of the building. Sanitary and bathroom accommodation is provided in a central portion on each floor, and a lift for boxes, coal, &c., runs the full height of the building, and also nurses' box-room, store-rooms for linen, bedding, &c. Two separate external fire-escape staircases are to be built. The night nurses' bedrooms will be placed upon the top floor. Each nurse's room will have a minimum floor area of 100ft., and will have an open fireplace with register stove and fresh-air inlet and extract ventilator. A fitted wardrobe cupboard is to be fixed in each room. The building is being constructed upon a fire-resisting principle. The warming to the corridors and supplemental heating to the recreation room, &c., is by hot-water radiators. The contractors are Messrs. Thomas Gregory and Co., of Clapham Junction, and the work is being carried out from the designs and under the supervision of Messrs. Lansdell and Harrison, of Bow-lane, Chapside, E.C.

## WALSOKEN CHURCH, NORFOLK: NATIONAL BRONZE MEDAL DRAWING.

The very capable water-colour drawing of the interior of this distinguished East Anglian church which we illustrate to-day was awarded a National Bronze Medal in 1898, and we are indebted to Miss Mary S. Peck, of Wisbech, for the loan of the original picture now reproduced. Walsoken is chiefly noted for its beautiful font, which is rightly reckoned as one of the best of its kind, even among the rich and interesting churches round about King's Lynn. This district is exceptionally favoured by grand churches, such as Swaffham, Holbeach, Whaplode, Gedney, Long Sutton, Moulton, Walpole St. Peter's, Tilney All Saints, West Walton, and the Wiggenshalls, not to go further afield. Walsoken Church is roomy and lofty, with a Perpendicular clerestory over a fine Norman arcaded nave. The hammer-beamed roof is contemporary with the clerestory; but it is unusually low in pitch, and this makes the hammer-beams look as if they were tilting. The ends of these timbers have carved and coloured angels upon them, and there are other angels in the cornices, with ornate niches below the wall-posts. Full-length figures are seated under canopies. To the south side of the choir there is a very delicate and beautiful oak screen, florid in its varied traceries, and enriched with vigorous carvings. The outer order of the mouldings has for the most part gone; but sufficient remains to show what it once was like. Some have said that this screen formed part of the rood screen to the chancel; but the door is too small really to ever have been used as the main entrance to so large a choir. The rood-screen, whatever it was, occupied a position east of the arch, as the doorway to the left clearly indicates. The screen there now is set on a dwarf wall, and looks uncommonly well. The font, which comes out so conspicuously in the accompanying picture of the aisle, is elaborated with sculptures representing the Seven Sacraments of the Church, the Crucifixion filling the remaining compartment of

the octagon. It is 4ft. 4in. high, and 2ft. 9in. wide at the top. The return stalls in the chancel are partly made up, but are original, and have grandly-carved elbows. We published a detail sketch of this font, and another of the choir-stalls of Walsoken Church, in the BUILDING NEWS for Aug. 23, 1889. These drawings are well worth looking up to compare with the present illustration.

## HOUSE AT FLEET, HANTS.

This house has been designed by Messrs. Hall, Cooper, and Davis, architects, of Westminster and Scarborough. There will be several fine views from the windows, one that will overlook Fleet-road. The materials used in exterior walls are stone and half-timber; the roofs to be covered with stone slates. The interior of large dining-room to be panelled, and have timber ceiling. The ingle-nook to be in stone.

## COTTAGES, MATLOCK.

This group of cottages, now building at Matlock, calls for no special mention. The walls are of local grit-stone, with the upper part brick, rough-casted and coloured, and the roofs are of red tile. The builders are Messrs. J. and W. Lewis, of Matlock Bridge; and the architects Messrs. E. Guy Dawber and Whitwell, of Buckingham-street, Adelphi, W.C.

## CHIPS.

The new workhouse infirmary at Wakefield was opened on the 19th inst. It has been built at a cost of £37,000 from plans by Mr. William Watson, of that city.

The Liverpool Corporation, after a long discussion, have decided to erect dwellings for the labouring class in Dryden-street and Rachel-street, from plans prepared by the deputy city surveyor, and to seek sanction from the Local Government Board to borrow £13,000 for carrying out the work, and a further sum of £50,000 for the demolition of unsanitary property.

The half-yearly report of the South Eastern Railway Company states that during the past half-year excellent progress has been made with the Charing Cross widenings and those below London Bridge, and also with the Hither-green sidings, which will be ready for use about the end of this month, and will give six miles of available standing room.

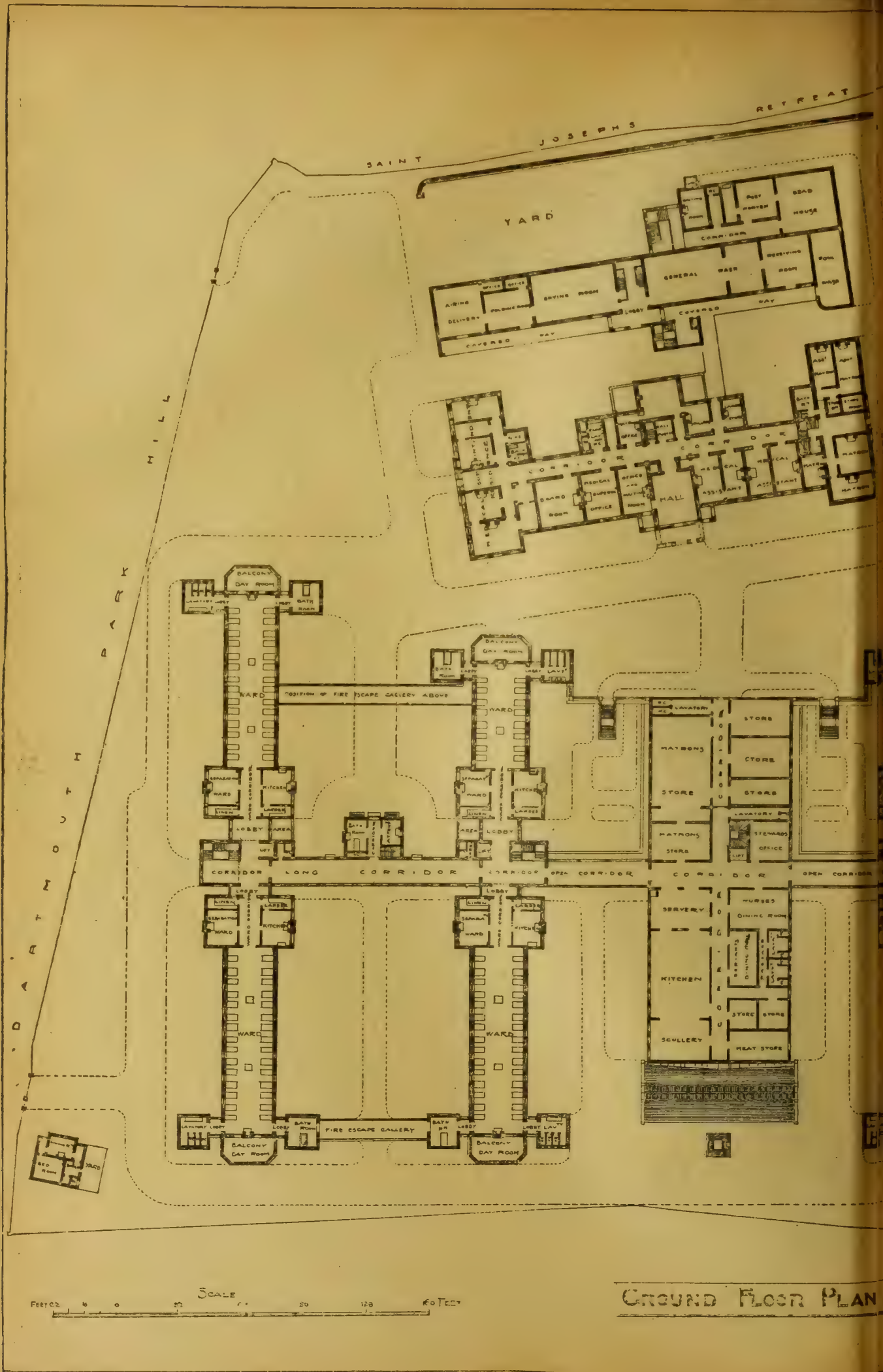
At a serious fire, which occurred on Friday evening in the basement of a six-floored warehouse, 90ft. long and 20ft. wide, in City-road, E.C., a new appliance, the invention of Commander Wells, was used for the first time. It consists of a nozzle by which the intensity of the water pressure can be instantaneously regulated to suit the particular requirements of the outbreak. This fire being a particularly smoky one, the firemen had a good chance of testing the appliance, and therewith were deemed by those present to be satisfactory.

Mr. G. R. Bellamy, who has been appointed by the city council of Liverpool to the post of general manager of the tramway system, in succession to Mr. John O'Neill, entered the service of the corporation in 1882 as gas inspector, at a salary of £200 a year. He is now gas examiner, superintendent of street lighting, and official inspector of gas-meters, with a salary of £550, and in his new capacity he will receive £800, rising to £1,000 per annum.

At a consistory court held at Norwich on Saturday a faculty was granted for additions to the church of St. John the Baptist, Felixstowe. It is proposed to complete the east end of the church, with a chancel and a morning chapel; clergy and choir vestries, on the south side of the chancel, divided by a wooden partition; an organ chamber, &c. The chancel is to be divided from the nave by a brick and stone screen, 4ft. high, and the vestries and morning chapel by screens. The addition will provide 250 more seats. The plans and specifications are by Sir Arthur Blomfield, A.R.A., the estimated cost is £2,715, of which £800 has been subscribed, while the remainder will be advanced by Messrs. Barclay's Bank.

The Judges in the First Court of Appeal had before them on Saturday an appeal from a decision of Mr. Justice Stirling with regard to alleged damage to Whitmoor Common. The Guildford, Godalming, and Woking Joint Hospital Board are erecting a small-pox hospital in the neighbourhood of the common, and the plaintiffs, as the representatives of the commoners, sought an injunction to restrain them from injuring the property in the process of carting materials to the site. The defendants pleaded that they had undertaken to repair any damage, and Mr. Justice Stirling, under these circumstances, refused an injunction. The Master of the Rolls said this was a proper conclusion, and the appeal was dismissed.

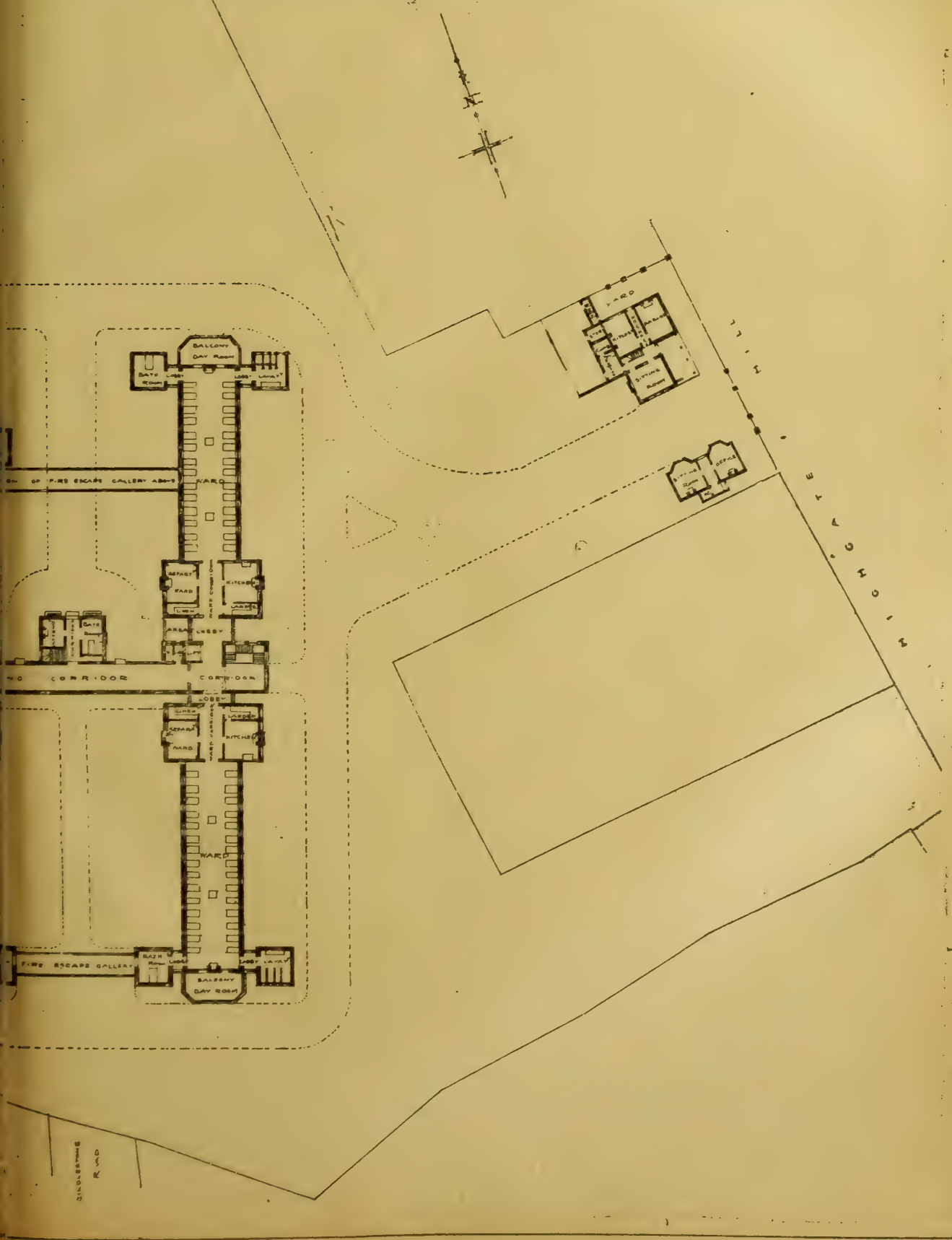




GROUND FLOOR PLAN



NEW INFIRMARY  
FOR THE GUARDIANS OF THE POOR  
OF THE  
PARISH OF ST. MARY, ISLINGTON.





## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of eight words, the first line counting as two, the minimum charge being 5s. for four lines.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisements inserted for less than 5s.

Advertisements for the current week must reach the office not later than 8 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. A Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LX., LXI., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—H. C.—S. N. Co.—D. E. S.—R. W.—O. M.—T. J. and Son.—E. H. R.

J. H. MASON. (We do not undertake to give estimates. With the information you give, moreover, it would be impossible.)

## Correspondence.

## WESTMINSTER ABBEY.

To the Editor of the BUILDING NEWS.

SIR,—The suggestion put forth as to completing (*sic*) Westminster Abbey by the addition of a spire is not a novel one; nor was Sir Christopher Wren the first to formulate a scheme for such an addition. I believe that Abbot Islip, the architect of Henry VII.'s beautiful chapel and other important additions to the Abbey, actually designed, early in the 16th century, an addition to the tower with a lantern above; but the present tower was not found strong enough to bear the added weight. Probably, had the structure been erected, the tower of Westminster Abbey would have shared the fate of so many of our cathedral towers which fell from added weight upon imperfect foundations. I am not so sure, either, that Sir Christopher Wren's spire would have been a complete success, great artist as he was, for the two western towers which he completed (Abbot Islip carried them up as far as the roof-line), though pleasing in proportion, are a somewhat curious mixture of Renaissance and Gothic. The sketch which the *Daily Mail* published with its article showed a spire which seems out of all proportion with the Abbey—a sort of adaptation of Salisbury Cathedral spire. Further, surely the traditions of the Abbey seem to indicate a reposeful treatment for any addition to the last resting-place of our illustrious dead, and such a spire would break up the whole harmony of the beautiful picture now at last open to the eye

for an adequate view. If the Abbey is to have a spire, probably a wooden structure at a moderate angle would be best; but one almost shudders to think of the fate of the architect *unfortunate* enough to design such! He would first nearly be annihilated by Protection Societies of Ancient Buildings; and when they had finished with him, if anything was left, he would have the Press and the public to tackle, and the remaining stage is too much, even, for contemplation.—I am, &c.,  
Jan. 24, 1899. CHARLES E. SAVERY.

## Intercommunication.

## QUESTIONS.

[12161].—Grouting Granite Cubes.—Would any reader advise me what is the best cement to grout granite cube paving with, whether slow or quick setting, and what proportion of sand should be mixed with it? The work is to be done in parts during the night, and the streets opened for traffic during the daytime.—SURVEYOR.

[12162].—Architect's Charges.—What is the customary charge in or near Liverpool for approving plans submitted by the lessee and for inspecting the buildings during their progress so far as may be necessary to insure the conditions being fulfilled, and certifying for lease? Is the charge a percentage on the estimated cost of the building? If so, what is it?—A SUBSCRIBER.

[12163].—Paper Floors.—These are constantly being mentioned in the paper as being used in Germany. Can anyone tell me price and durability?—INSPECTOR.

[12164].—Storage of Books in Public Library.—What is the rule for determining the space to be given up to the storage of a certain number of books? Is it customary to allow less space per (say) 1,000 in the "store" than in the lending library?—LIBRARIAN.

[12165].—Fees.—What fees are payable by the London County Council to claimant's surveyor for making claim under the Housing of the Working Classes Act for improvement scheme?—SURVEYOR.

## REPLIES.

[12162].—Architect's Charges.—In "H. L.'s" reply, the charges become still heavier upon employer owing to fees for superintendence. There should be some better understanding on the point, as it is clearly unsatisfactory at present. Ed. Calvert evidently speaks for the class of practitioner whose advice and views cannot be considered. Imagine the amusement of Messrs. Norman Shaw, Ernest George, and all those architects who design the decorations and fittings of their works throughout, at being spoken of as "heaven-born with genius." Artists like these know well there is no genius but that of hard and constant work and study, guided by artistic appreciation which gives happiness in their pursuit. No architect can be termed more than half-educated who has not made colour and decorations with all fittings in detail a careful study, as well as the technical and constructive branches of his calling.—M. A.

[12155].—Block Tin and Cement.—I was under the impression that Portland cement did not have any effect on the pipes; but I know that lime will destroy them rather quickly.—L. E.

[12157].—Baths.—In reply to "Amateur Builder," I should think that copper baths are generally used as

far as the size of the sheet makes a difference in the widths of the bays.—L. E.

[12156].—Copper Roofs.—In reply to "Inquirer," a copper roof can be laid in exactly the same manner as one of zinc, and the sheets joined also in a similar way—that is, by soldering.—COPPERSMITH.

[12158].—Copper Roofs.—Copper sheets are laid in much the same way as zinc; but being stronger, and its expansion under heat less, copper can be employed without the risks attending zinc. The sheets are laid between rolls or fillets of wood, and covered by a capping welded on both sides. The horizontal joints are welded as for zinc. Sometimes small sheets or embossed tiles of copper are used, which have their top edges turned down to hang on to battens; 16oz. copper may be used. Roofs should be boarded.—G.

[12159].—Right of Light.—You can erect a board on your ground which will prevent his windows from becoming ancient lights. If your lights are not of sufficient standing to become ancient lights, I do not think you can prevent his stopping your light as he has done.—L. E.

[12153].—Right of Light.—"Owner" can claim compensation for his neighbour's interference of light if the obstruction is serious, and he has had an unobstructed right of light of 20 years. In such a case he has a right to interfere; but he may not be able to prove his right of light. "Owner" does not say whether the projecting building adjoins his land. If so, he has a good case against his neighbour; but before making a claim a competent surveyor should be consulted.—G. H. G.

[12159].—Lime Burning.—Rivington's "Notes," Vol. III., contains designs of kilns and method of working.—L. E.

## CHIPS.

The committee of the Carnarvon Cottage Hospital have received from Mr. J. E. Greaves, the lord lieutenant of the county, the gift of a site for the new hospital. This plot of land, which is near the station, is about an acre in extent, and the new building will be proceeded with at once. The building alone will cost from £2,000 to £2,500, and wards will be provided for males and females. There will be twelve beds, matron's room, and operating room.

The Lords of the Committee of Council on Education have arranged for a series of lectures to be delivered in the Lecture Theatre of the South Kensington Museum, on the following Saturdays, at 3.30 p.m.:—Feb. 11 and 16, Mr. J. H. Pollen, "Furniture"; Feb. 26 and March 4, Mr. William Burton, "Pottery." Admission will be free.

For the erection of the new workhouse at Nottingham the lowest offer submitted was that of Messrs. J. H. Williamson and Co., of Nottingham, for £149,500, who undertook that the works should be completed in 3½ years. Messrs. Williamson subsequently discovered that they had made an error in casting up their total, and they accordingly begged to withdraw their tender. The guardians agreed that this should be done, and they have since accepted the tender of Mr. F. Evans, of Old Basford, for £150,000, the work to be completed in 3½ years.

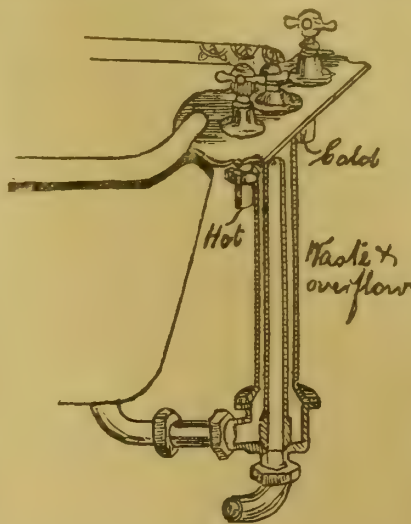
Mr. Aston Webb, F.S.A., the architect of the proposed Naval College, and Mr. Milner, the contractor for the work of laying out the grounds, have visited Dartmouth during the past week.

The Earl of Jersey, G.C.M.G., Colonel Boughiey, C.S.I., and Mr. Gerald A. R. Fitzgerald, Light Railway Commissioners, held an inquiry at the Vestry Hall, Cranbrook, on Saturday, as to the expediency of granting an application made to the Board of Trade by the Rother Valley Light Railway Company, for an order to authorise the construction of the Cranbrook, Tenterden, and Ashford Light Railway. The proposed line will be 10½ miles in length, starting at Cranbrook by a junction with the Cranbrook and Paddock Wood Railway and terminating at Tenterden near the end of another projected line between Headcorn and Tenterden. Two junctions with the Rother Valley Light Railway, now in course of construction, are contemplated. The line is estimated to cost £72,212, including the expense of tunnelling at Hartley Hill. Mr. Stevens, the engineer, described the plans, to which no opposition was offered.

New schools for the Ashley Down district are being completed for the Bristol School Board. The joint architects are Messrs. Paul and James and Mr. G. C. Laurence. Mr. E. Walters, of Montpellier, Bristol, is the contractor, and Mr. S. White the clerk of works. Accommodation is provided for 690 children, and the building materials are local bricks with Bath stone dressings and Bridgewater angular roof tiles.

The foundation-stones of the new Free Church in St. John's-road, Tunbridge Wells, were laid on Wednesday week. Mr. H. M. Caley, of Tunbridge Wells, is the architect, Mr. J. Marshall the builder, and Mr. H. Elwig Jones is the clerk of works.

Colonel T. L. Coke, M.Inst.C.E., held an inquiry in the council chamber at the town-hall of Burton-on-Trent, on Friday, relative to an application from the town council to borrow £24,940—viz., £19,790 for gas undertaking, £3,000 for public library purposes, and £2,150 for the isolation hospital.



being the best. With reference to the query as to where the hot and cold supplies should enter and the overflow be taken from, the inclosed rough sketch shows an arrangement which has been found to work very well in practice. The only advantage of a cast-iron bath that I know of is the saving in cost.—TREBLA.

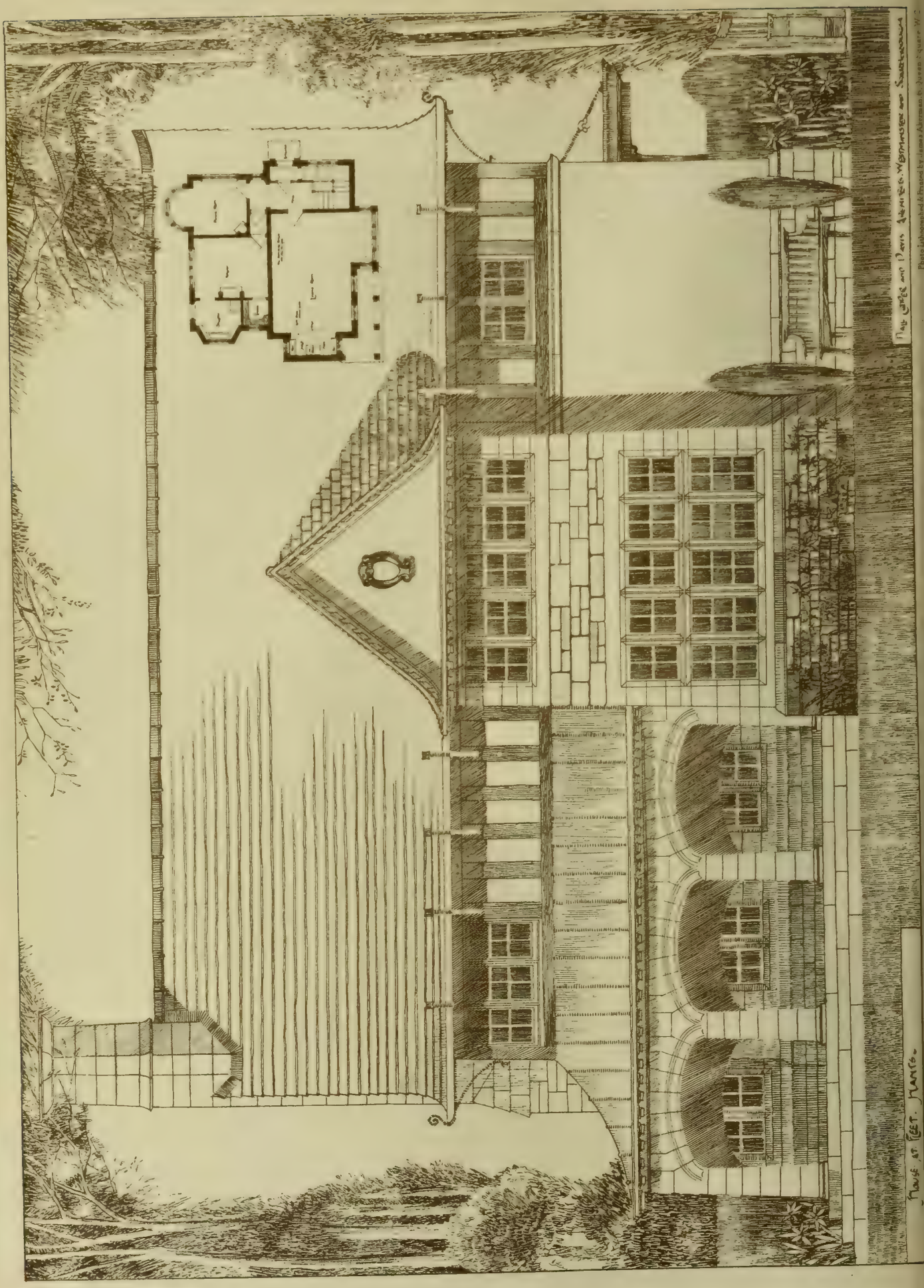
[12157].—Baths.—Where expense is no object, the porcelain bath is best; where otherwise, copper enamelled baths are considered best. The waste should be trapped in a proper manner by use of the ordinary drawn lead S or P trap.—L. E.

[12156].—Copper Roofs.—There is hardly any difference between laying zinc and copper roofs, except so







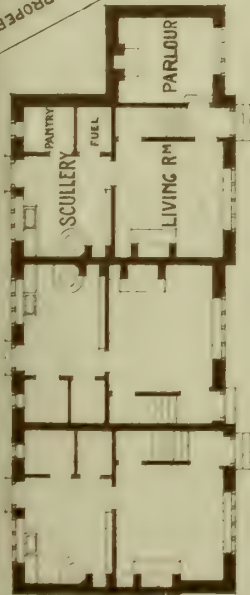


Plan of the House at 11, Grosvenor Gardens, London, W. 1.

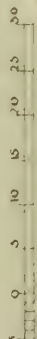
House at 11, Grosvenor Gardens, London, W. 1.

Photo Lithographed & Printed by James Alderman & Sons, 11, Grosvenor Gardens, London, W. 1.





GROUND PLAN



SCALE OF FEET



## Cottages. Matlock Dale.

E. GUY DAWBER and WHITWELL.

Architects.

ECB 447  
 History, geography, polity, and government, from 1800 to 1870







## LEGAL INTELLIGENCE.

**AN ARCHITECT'S BANKRUPTCY.**—In *RE CHARLES MITCHELL*.—In Kilmarnock Sheriff's Court last week, Charles Mitchell, architect (formerly a partner in the dissolved firm of Mitchell and Laugharne, architects and civil engineers, carrying on business in Kilmarnock, Edinburgh, and Dundee), presented a petition for his discharge as a bankrupt. Messrs. Yuille and Sons, slaters, opposed the petition, on the ground that the bankrupt's estate had only yielded a dividend of 3d. per pound to the creditors. The Sheriff-Substitute stated that the failure of the bankrupt to pay 5s. in the pound had arisen from causes for which the bankrupt could not justly be held responsible, but suspended his discharge for three months from this date. The firm of which the bankrupt was senior partner carried on business in Kilmarnock, Edinburgh, and Dundee as architects and civil engineers. His debts were mainly incurred in connection with building speculations in Kilmarnock, which were entirely a personal matter, his firm being no further concerned with them than that they were employed and paid as architects and measurers. The bankrupt embarked in these speculations with inadequate resources and disastrous results. After his sequestration in April, 1894, it turned out that all the houses which he had erected or was in course of erecting, and which he had not himself sold, were bonded to the full amount of their then estimated value. He seems not to have been guilty of personal extravagance, or to have speculated in any other way than building.

**NEWPORT BUILDERS AND OBSTRUCTED FOOTPATHS.**—Serious complaint has been made by the public of the conduct of Newport builders, who, when erecting new buildings, obstruct the footways and roadways with mortar, sand, bricks, and other building material. As a result of complaints, the corporation authorities instructed the police to take action in the matter. The police summoned two builders, who have been fined, the one 10s. and the other 10s. and costs. Another batch of seven cases of obstruction were up two days subsequent, when the Bench dismissed six cases on payment of 3s. 6d., the costs. In the seventh case the Bench imposed a fine of 5s., including costs. All the defendants promised not to offend in a similar way again.

**A BANKRUPT BUILDER COMMITTED TO PRISON.**—James E. Haswell, builder, of Fratton-grove, Fratton, again came before his Honour Judge Gye at the Portsmouth County-court on Thursday in last week to answer an application by the Official Receiver that he (Haswell), being an adjudged bankrupt, had committed contempt of Court, and should therefore be committed to prison. The alleged contempt was that bankrupt had failed to comply with an order of the Court that he should hand certain furniture over to the Official Receiver, and that by concealing certain of his assets he had not assisted his creditors to the utmost of his power in realising the estate. Further evidence having been given, the Judge delivered judgment, remarking that there was no earthly doubt in his mind, after hearing the affidavits and evidence, about the course of conduct debtor had thought fit to pursue in his bankruptcy. There could not be any shadow of doubt that the transactions in which debtor engaged were, from beginning to end, a series of frauds upon his creditors, which no doubt would have gone further had it not been stopped. Reluctant as he felt, when he found that a wholesale system of fraud had been carried on in the way in which debtor had done, supported by wholesale perjury, he would not shrink from his duty. Debtor had been guilty of contempt of Court and of gross and of wilful perjury, and he ordered him to be committed to gaol until his contempt was purged.

**A SEQUEL TO THE CRIPPLEGATE FIRE.**—WOODTHORPE V. SPENCER AND ANOTHER.—In this case, heard in the Queen's Bench on the 20th inst., by Justices Lawrence and Channell, the proceedings were initiated by the London County Council in consequence of the disastrous fire in Cripplegate, when great damage was done because the flames spread through openings connecting different buildings. The appellant Woodthorpe, who is in the employ of the Council, is the district surveyor under the London Building Act of 1894 for the northern division of the City, and he summoned before one of the City Aldermen the respondent, Mr. J. A. Spencer, for having between December 21, 1897, and January 5, 1898, contrary to the provisions of that statute, united a building known as 45a and 46a, Basinghall-street with a building known as 4, London Wall-avenue, and the other respondent, J. Husbands, for having aided and abetted the commission of the offence. The Building Act provides that buildings shall not be united except where they are wholly in one occupation or are constructed or adapted to be so, and it appeared that between the dates in question an opening or doorway was made between the two buildings on the first floor in spite of appellant's refusal to sanction such a change. This was said to be an offence against the Act, but it appeared that the original lease from the freeholder of the land required that there should be an

opening from end to end through the buildings connecting Basinghall-street with London Wall-avenue, and that the building was originally erected with an opening in the wall between the two houses on the ground floor so as to be available for occupation by one or more tenants. To meet the requirements of the tenants this opening was afterwards closed, and an opening, according to the appellant, illegally made on the second floor. Afterwards the respondents, who occupied between them the two buildings, made the opening on the first floor now complained of. The Alderman dismissed the summons, and the County Council now appealed. The Court was of opinion that the decision of the Alderman was right, and must be affirmed. The appeal was therefore dismissed with costs.

**A RAILWAY CONTRACTOR'S "EXTRAS."**—NUTTALL V. LYNTON AND BARNSTAPLE RAILWAY COMPANY.—This award of an arbitrator, stated in the form of a special case, with the object of obtaining the opinion of the Court as to the rights of the contractor, who had constructed the new line, came before Justices Bruce and Ridley in the Queen's Bench Division on Monday. The contractor, Mr. James Nuttall, entered into a contract to construct the Lynton and Barnstaple Railway—a single line about 19 miles in length—for £41,000. This sum, the company said, was for the construction of the line to the entire satisfaction of the engineer to the Board of Trade, and included earthworks, bridges, viaducts, culverts, &c. After the line had been completed, the contractor claimed a large sum in respect of "extras." In addition to the sum of £10,000 which he had been allowed and paid, the contractor claimed £30,325 8s. 6d. for blasting rock, and £6,092 in respect of excess quantities over the quantities shown in the drawings of the company's engineer. The claim was referred to arbitration, and in the result the arbitrator, Sir J. W. Szlumper, awarded the contractor £22,634 on his first claim, and £4,735 on the second. The case now came before the Court on a special case stated by the arbitrator raising two questions—first, whether he could be compelled to state a special case, and, secondly, whether his construction of the contract was correct. For the contractor, it was submitted that the terms of the contract did not debar him from recovering the sums awarded him by the arbitrator, and that the Court ought not to grant a special case where the parties intended, as in the present instance, to have matters of fact and law decided by a lay tribunal. On behalf of the company, it was submitted that they had, throughout the inquiry before the arbitrator, maintained their right to have a special case stated, and that the contractor was not, under the terms of the contract, entitled to recover in any extras beyond those which had been allowed by the company and paid. The Court reserved judgment.

**A BRISTOL ARBITRATION AWARD.**—Mr. Frank Wills, who acted as arbitrator respecting the claim made by Messrs. Wilkins and Son, builders, of Bristol, against the Western Counties Agricultural Co-operative Association, Limited, of Plymouth, has just issued his award. The plaintiffs erected for the defendants a new warehouse at Bristol, and they claimed £1,426 for extras and damages arising out of the contract. The case was heard on November 11 and December 2, and by his award the arbitrator has found for the plaintiffs for sums amounting to £848 17s. 2d., together with all costs of the reference and award.

**RE ARTHUR BURE.**—An adjourned sitting for public examination was held on Friday, the bankrupt being described as of 37, Walbrook, land agent, and residing at Bellagio, East Grinstead. From 1880 to 1891 he carried on a land agency business, partly in his own name and partly through the medium of limited companies formed by him for the purpose; but in 1891 he was adjudged bankrupt; that since 1891, notwithstanding his bankruptcy, he had continued business as a land agent, and had also been engaged in forming and exploiting joint stock companies. The statement of affairs showed total liabilities £94,651, of which £15,407 were unsecured, and the bankrupt claimed to have a surplus of £230,557. He had previously failed on three occasions—in 1874, 1880, and 1891. He alleged that he had paid or settled all the debts in the 1874 and 1880 bankruptcies, and nearly all in the 1891 bankruptcy. Mr. E. L. Hough attended as Official Receiver, and Mr. Stopher on behalf of the bankrupt. It was stated that certain accounts filed by the bankrupt since the last sitting were not sufficient, and a further adjournment was granted.

The Bishop of Bath and Wells presided over a meeting of citizens at the Guildhall, Bath, held on Tuesday, to consider the question of restoring the west front of Bath Abbey, in connection with the 400th anniversary of the edifice to be celebrated this year. A resolution authorising the rector and churchwardens to take the necessary steps was passed. The Bishop said they aimed more at the repair of what already existed than at restoration with a free hand.

## WATER SUPPLY AND SANITARY MATTERS.

**LONDON WATER COMMISSION.**—At the meeting of this commission on Monday, Mr. C. E. Groves, chemist to the Thames Conservancy, gave evidence that there had been a great improvement in the water of the Thames since the Conservancy Act of 1894 had been put in force. So far as he knew there was no dangerous element in the organic impurity, and flood water might be safely taken by the companies at the first hour of flood. It was not within his knowledge that Dr. Klein's experiments had proved the presence of pathogenic organisms in the water supplied to Londoners. Mr. H. C. Bowles, chairman of the New River Company, said complaints in reference to their supply were comparatively few, and the water was admittedly of the highest quality. It did not appear to him that any real grounds existed for making the sweeping changes advocated by the London County Council. The undertakings of the London water companies were too big to be in any one hand unless they were administered by a Government department. At Tuesday's sitting Mr. Searle, secretary to the New River Company, put in tables showing the financial position of the company from 1879 to 1897. In the latter year the net profits were £270,036. Mr. J. Francis, engineer to the company, said it was now estimated that in 1937 the daily supply would amount to 63,000,000 gallons, with an addition of 25 per cent. for the maximum. This quantity the company would be prepared to supply whenever the occasion for it arose. The witness was of opinion that the county boundaries would form most unsuitable lines of division between water-supplying authorities. The Commission adjourned till Monday.

## CHIPS.

Mr. Walter Emden, L.C.C., J.P., P.S.A., has been placed by the Board of Trade on the list of surveyors and umpires from which selections are made by the Board of Trade for appointment in cases of disputed compensation for land.

Messrs. Jas. Hill and Co., of 100A, Queen Victoria-street, send us a copy of Section "F.O." of their catalogue, dealing with fanlight-openers, metal casements, ventilators, and which will be found most useful by all architects.

An effort is being made to raise £2,000 for the repair of the ancient and picturesque church of St. Thomas the Apostle, Navestock, near Romford. Of the Norman building, which took the place of the Saxon edifice in the 11th century, the north wall of the nave is a still remaining fragment, and 13th-century work can also be discerned in the existing building.

The Pemberton almshouses and the Catherine-lane almshouses at St. Alban's have just been put into a thorough state of repair, and have been improved structurally. Three local architects, Mr. S. Flint Clarkson, Mr. F. W. Kinneir-Tarte, and Mr. T. Foster Woodman, acted jointly as honorary architects.

A special meeting of the town council of Monmouth was held on Wednesday week to meet Mr. Lailey and Messrs. Bramwell and Harris, engineers for the sewage and electric light respectively. Mr. Lailey tendered a report explaining that the excess of the actual cost of the drainage above his original estimate was due to: the cost of iron instead of clay pipes, £2,065; diversion of mains, £584 19s.; wood and cement used in deep excavations, £350; extension of drains ordered by the corporation, and old drains (of which there is no record) giving trouble and costing extra labour. Mr. Williams, from Messrs. Bramwell and Harris, reported the electric-lighting work nearing completion, and hoped to give them light by March next.

The annual dinner of the Bristol Master Builders' Association was held at the Royal Hotel, College Green, Bristol, on Thursday night in last week, and there was a large attendance, under the presidency of Mr. A. Krauss.

An appeal is made by the vicar of Palling, on the east coast of Norfolk, for £2,000 for the restoration of his church, now a pitiable wreck, and a reproach to the diocese. The architect, Mr. H. J. Green, of Norwich, reports that a great portion of the walls will have to be rebuilt, an entirely new roof will have to be put on, all the windows in the church will have to be glazed, and new stone mullions throughout, the south porch will have to be rebuilt, and the entire church re-seated and re-floored. The tower will have to be re-roofed and new woodwork placed throughout; the only remaining bell is cracked so badly that it has been removed. The old three-decker pulpit and the square pews are of deal.

Professor Ewing has informed the Vice-Chancellor that an anonymous donor has promised £500 to be expended in providing apparatus for the Engineering Laboratory. This will allow a part of the apparatus to be ordered which the enlarged laboratory will require.



## Our Office Table.

WE are glad to learn that the members of the town council of Southampton have proved amenable to reason, and have refused to allow the picturesque Bargate which spans the High-street either to be removed or mutilated, in order to facilitate the working of the tramcars by an overhead system of electricity. At the meeting of the town council on Wednesday a lengthy petition protesting against the Vandalistic proposal was presented, signed by members of the Royal Academy, Oxford University, art and antiquarian societies in London and the provinces, and over 3,000 ratepayers and others interested. This opposition had great weight, and the members referred to a committee the consideration of whether the difficulty as to the trams shall be overcome by forming a circus round the gate, which will obviously be a very expensive measure, but would facilitate general traffic, or by the simple expedient of lowering the roadway under the central arch, and forming a dip in either direction in the approaches.

UNFORTUNATELY, protests have been of no avail in influencing the minds of a town council almost at the other extremity of the kingdom—that of Aberdeen. The corporation of the "granite city" have now consented, after much hesitation, to permit the "removal" from the quadrangle of Marischal College of Greyfriars Church, in order to facilitate the scheme for extending the University buildings. The old church is the only remaining example of pre-Reformation architecture left in Aberdeen, and the last fragment of the buildings that originally belonged to the University. Its removal is the less justifiable, as a scheme had been prepared for its retention and restoration, and promises amounting to £28,000 had been offered for incorporating the church in a new group of university buildings which would have presented a harmonious masonry frontage to Broad-street.

A COURSE of lectures on matters connected with building will be given at Carpenters' Hall, London-wall, on Monday next and the four succeeding Mondays, at eight o'clock. On January 30 the lecturer will be Mr. J. Mansergh, M.Inst.C.E., and the subject "The Bringing of Water to Birmingham from the Welsh Mountains." The Master of the Carpenters' Company will preside. On February 6, when Cardinal Vaughan will take the chair, Prof. Banister Fletcher, F.R.I.B.A., will lecture on "Ornament." On the 13th, under the presidency of Sir Arthur Arnold, Mr. Basil Mott will describe the building of an Underground Railway. On the 20th, Prof. Roger Smith, F.R.I.B.A., will discourse on "Terracotta: its Nature, History, and Use." Mr. Water Crane will preside. On the 27th, Mr. William Poel, director of the Elizabethan Stage Society, will lecture on "English Playhouses in the Sixteenth, Seventeenth, and Eighteenth Centuries." Sir Squire Bancroft will be the chairman. Each lecture will have lantern illustrations. Admission can be obtained gratuitously by ticket to be obtained at Carpenters' Hall.

DR. W. R. W. STEPHENS, the Dean of Winchester, makes an appeal for further contributions towards the repair of his cathedral. Very extensive repairs of the roofs were commenced, he remarks, in April 1896, and most of them have now been completed, including the whole of the main roof of the nave, and the stone vaulting, which was in a critical and dangerous condition, the north transept and its aisles, the choir and the south aisles of the same, together with some repairs to the timber of the central tower. The total cost of these works, with the architect's commission, amounts to £11,918 10s. 11d. There is still needed about £4,400, partly to pay for the work that has been completed, and partly to meet the cost of further repairs not yet begun, but urgently needed. These latter include the roof of the south aisle of the nave, estimated at £1,060, of the large, flat roof of the retrochoir and its aisle, estimated at £1,065, and of the eastern aisle of the south transept, estimated at £435. When these are finished the whole of the main fabric of this vast Cathedral (which the Dean asserts to be the longest church in Europe, except St. Peter's at Rome), will have been put into sound and solid repair. The whole of the work has been executed by Messrs. Thompson, of Peterborough, under the superintendence of the

surveyor to the Dean and Chapter, Mr. Colson, F.R.I.B.A., of Winchester, whose plans for strengthening the nave roof and relieving the pressure of the timber on the vaulting received the approval of Sir J. Wolfe Barry, who was consulted on the matter.

At a meeting of the vestry of St. Margaret and St. John, Westminster, held on Wednesday evening at the Westminster Town-hall, the works and general purposes committee brought up a report calling attention to the risks to which the public have been exposed during the recent high winds by reason of the excessive height of hoardings on the public highway. After discussion a resolution was passed to the effect that it be a standing order of the vestry that no hoarding upon or over the public highway be sanctioned under any circumstances of a greater height than 12ft. without the previous sanction of the works committee; that every hoarding be required to be surmounted by a sufficient "fan," of such width and at such angle as will insure the public safety, and that proceedings be forthwith taken against licensees in all cases of infringement of conditions and regulations upon which the licenses are granted.

At Mason University College, Birmingham, Mr. F. A. C. Morrison has commenced a course of lectures on the history of Greek sculpture. In his first lecture, dealing with the origins, he sketched the various phases of Greek pre-historic art, as it is known to us from the finds at Troy and Mycenae onward to the Geometric and Orientalising pottery of the 9th and 8th centuries, B.C. Numerous idols, the earliest representatives of the plastic art, were shown by means of lantern-slides, as well as many fine specimens of gold work and ceramic ware. The only monument, however, which the lecturer emphasised as worthy of the name of sculpture was the Lion Relief from the citadel gate of Mycenae; the other objects being chiefly important as exhibiting to us the seething influences at work on Greek soil before the rise of free sculpture in historical times. These influences, and the different racial movements that affected art in this period, were briefly described.

An extraordinary piece of house-moving was successfully carried out in New York a fortnight ago. In consequence of the widening of a street, it was necessary to remove a block of four five-story brick houses. The street was to be increased in width 40ft. on each side, and the most available new lot to set the houses on was at some little distance, so that it was necessary to transport them 115ft.; but the only alternative was to pull them down entirely, and, as they cost \$4,000 each, to build, the owner decided to take the risk of trying to move them. A plan was devised for transferring them on greased ways, instead of the usual rollers, and the scheme was carried out with complete success. The first step was to insert 375 jack-screws successively in openings made for the purpose in the foundation walls. By means of the jack-screws the whole block was raised, and it was then removed to the new site without difficulty on the greased tracks.

A LECTURE on "Some of the Arts and Crafts" was given on Friday night, at the Manchester School of Art, by Mr. C. R. Ashbee, of London. Mr. C. Rowley presided. Mr. Ashbee was the founder of the Guild and School of Handicraft at Essex House, and his lecture was on its work and methods. He said the work at Essex House was an experiment in the application of old-world methods in handicrafts to modern artistic and utilitarian requirements. There were two departments: the productive workshop and the department which concerned itself with education in handicraft. Their aim was to turn out work that was not ear-marked with commercialism, and they were inspired very largely by the teaching of Ruskin. For the most part they produced things which might be described as subordinate to architecture—objects of decorative art in the largest acceptance of the term, such as work in gold and silver and yellow metal, smith's work, the setting of precious stones, leather work, furniture and other internal fittings, and, in general, such things as could be done without the assistance of the machine. He did not decry machinery; but when it was introduced into a workshop it was apt to get out of control and destroy the possibilities of individual work. Machinery should be the slave and maid-of-all-work; but as matter of fact it had made itself the master. The guild had been carried on on the principle of an

industrial partnership; but last year it had been made into a limited liability company, without, however, materially altering the old conditions. The three things they aimed at were—first, artistic quality in their work, then the quality of joy in production, which was dependent on the first condition; and, third, the human quality, which followed as a necessary consequence on number two.

WITHIN the last nine years 136 miles of streets in New York have had their pavements of granite blocks replaced with asphalt. The process is still going on, and, although about 250 miles of street pavement still consist of granite blocks, these will be gradually abandoned, and asphalt substituted, except in the lower parts of the city, and on the water-front, where stone-paving will probably always be necessary, to endure the heavy traffic. Only a few yards of wood-block pavement exist in the city, this being in Twentieth Street, between Broadway and Fifth Avenue, and the ancient macadam has almost nearly disappeared, only 18 miles being left in the entire island of Manhattan.

A PECULIAR case, in which the Field Columbian Museum, in Chicago, is defendant, is, says the *American Architect*, before the Illinois courts. Four years ago, Messrs. Maw and Company, of Benthill Works, Jackford, Shropshire, and London, the well-known manufacturers of tile and ceramic productions, sent to the museum for exhibition, as a donation, a quantity of mosaics and other articles, valued at fifteen thousand dollars, or say £3,000. The authorities of the museum placed on exhibition some of the articles, but put the greater portion in storage, and notified Messrs. Maw and Company that they were not wanted, and would be returned if requested. Notice was given that they were not insured. Some time later fire broke out in the warehouse where they were stored, and the goods were slightly damaged. It does not appear that Messrs. Maw and Company ever reclaimed the articles, and some time ago they were sold at auction by the director of the museum, together with some other museum property, the whole bringing five hundred dollars. Now Messrs. Maw and Company claim fifteen thousand dollars' damages, maintaining that their goods were given to the museum only for exhibition for educational purposes, and that the museum had no right to sell them.

### CHIPS.

The directors of the Royal Lunatic Asylum at Dundee are about to proceed with the erection of a new private asylum at an estimated cost of £15,000.

According to present intentions, the extension to London of the Great Central Railway will be opened for traffic of all descriptions on March 1.

The largest stone ever delivered in Exeter arrived there on Friday, via the Midland and South-Western Railway. It consisted of a huge block of yellow magnesian limestone, raised in Messrs. Lindley and Sons' quarries at Mansfield, in Nottingham, weighing 9 tons 18 cwt., and containing no less than 165 cubic feet. This immense stone is destined to form the colossal figure of the Crucified Christ which Messrs. Harry Hems and Sons, of Exeter, have been commissioned by Lord Aldenham of Aldenham to execute for the high altar screen at St. Alban's Cathedral.

On Saturday, Mr. G. W. Willcocks held an inquiry at Winsford with reference to the application from the urban district council to the Local Government Board for sanction to borrow £400 for the works of water supply, and £100 for improvements at the baths, as well as for a further sum for the extension of the water mains to Woodford Hall Gate. Mr. Hulse, the surveyor to the council, explained the plans.

The Great Western Railway Company will commence their important scheme of docks and harbour extension at Weymouth without delay. An entirely new harbour is to be constructed on the Portland side of the Nothe, and docks and quays will also be constructed with the necessary railway connections, the estimated cost of the works being nearly a quarter of a million.

Mr. P. C. Cowan, County Surveyor of Down, has been appointed Chief Engineering Inspector to the Local Government (Ireland) Board.

A memorial window of stained glass has been placed in the gable of the western transept of West St. Giles, the Meadows, Edinburgh. The window is one of three lights, with tracery openings, and the subject is "Christ Blessing Little Children." The work has been executed by Messrs. Barnett and Son, of Leith.



## MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).**—London and Provincial Builders' Foremen's Association. "Some of the Laws relating to Metropolitan Sanitation," by Isaac Young. Memorial Hall, Farringdon-street, E.C. 8.30 p.m.

**MONDAY.**—Society of Arts. "Bacterial Purification of Sewage," Cantor Lecture No. 3, by Dr. Samuel Rideal. 8 p.m.  
Carpenters' Hall, London Wall, E.C. "The Bringing of Water to Birmingham from the Welsh Mountains," by Jas. Mansergh, M.Inst.C.E. 8 p.m.

**TUESDAY.**—Society of Arts. "The Centenary Exhibition of Lithographs," by E. F. Strange. 4.30 p.m.  
Institution of Civil Engineers. Discussion on "The Wear and Microphotography of Steel Rails." 8 p.m.

**WEDNESDAY.**—Society of Arts. "The Cost of Municipal Enterprise," by Dixon H. Davies. 8 p.m.

**FRIDAY.**—Glasgow Architectural Craftsmen's Society. "Building Deficiencies," by Isaac Low. 8 p.m.  
Architectural Association. "Stained Glass," by Christopher Whall. 7.30 p.m.

## THE ARCHITECTURAL ASSOCIATION.

**FEBRUARY 3rd.**—ORDINARY MEETING at No. 3, Conduit-street, 7.30 p.m. Lecture and Practical Demonstration on "STAINED GLASS," by Mr. C. WHALL.

**FEBRUARY 4th.**—SPRING VISIT to the Carlton Hotel, Haymarket, 3 p.m. Mr. H. L. Florence will conduct the party over the building.

E. HOWLEY SIM  
G. B. CARVILL } Hon. Secs.

## The Society of Architects.

Founded 1884. Incorporated 1893.

THE SOCIETY OF ARCHITECTS, St. James's Hall, Piccadilly, W., will hold an EXAMINATION in Architecture and Construction on APRIL 12th, 13th, and 14th, 1899, in the following subjects:

Section I.—ARCHITECTURE. Subject (a), Planning and Design. Subject (b), Architectural History.

Section II.—BUILDING CONSTRUCTION AND MATERIALS. Subject (a), Construction. Subject (b), Materials.

Section III.—PRACTICE. Subject (a), Specifications. Subject (b), Measurements and Valuation. Subject (c), Contracts.

Section IV.—SANITARY SCIENCE.

The latest date for entering for the Examination is March 23rd, 1899. Satisfactory copies of the last Examination Papers, one shilling.

To that Candidate who shall pass the Highest Examination, the GOLD MEDAL of the Society will be presented, a SILVER MEDAL to the second in merit, and BRONZE MEDALS for special excellence.

ELLIS MARSLAND, Hon. Sec.  
C. MCARTHUR BUTLER, Sec.

Plans of the proposed new line from Manchester to Middleton, for which Parliamentary powers will be sought next session, are now to be seen. The line will be four miles seven furlongs 7-4 chains in length. The stations will be placed at the junction of Henhurst-street and Queen's-road, Manchester; Parkfield-street in Barnes Green; Market-street, Blackley; and Boothroyden-road for Higher Blackley and Rhodes.

Consequent on the retirement of Mr. R. H. Boyce, C.B., at the end of next month, Mr. H. N. Hawks, the senior assistant surveyor in Her Majesty's Office of Works, Edinburgh, has been promoted to the post of surveyor at the head office, Whitehall, London, to take charge of Customs and Inland Revenue Buildings, County Courts, and Probate Registries throughout England and Wales.

Mr. Henry Thomas Gordon, F.R.I.B.A., of Blomfield-street, E.C., has been elected chairman of the Coal, Corn, and Finance Committee of the City Corporation; and Mr. A. E. Pridmore, M.S.A., 2, Broad-street, has been elected chairman of the Music Committee of the same body, in succession to Mr. Gordon. Mr. Alexander Ritchie, J.P., of the firm of Archibald Stevens, McDowell, and Co., has been elected chairman of the General Purposes Committee.

The new bridge erected over the River Cart at Millbrae, between Glasgow and the district of Newlands, at a cost of £4,353, by the corporation of Glasgow and the county council of Renfrewshire jointly, was opened for traffic on Friday. The bridge is of one span, of Lochanbriggs sandstone, with the facing of the arch and the parapets in grey granite, and a width between the parapets of 50ft. Messrs. Morrison and Mason, Ltd., of Glasgow, were the contractors.

A judgment summons from the High Court, entitling G. F. Giles, builder, St. Austell, to £36 from Rev. F. S. Ross, vicar of Treverbyn, came before Judge Granger at St. Austell last week. The sum represented the balance of an account for work done at the vicarage. A solicitor said terms had been arranged, defendant agreeing to judgment for £13 and costs, to be paid at once, and £22 in two instalments at three and six months. Defendant having assented, judgment was entered accordingly.

Mr. J. M. Richards, contractor and builder, died at his residence, St. Michael's-terrace, Helston, at ten o'clock on Monday week, after a long illness. Mr. Richards, who was in his 60th year, leaves a widow and three daughters.

## Trade News.

## WAGES MOVEMENTS.

**LONDON PLASTERERS' DISPUTE.**—A private meeting of the members of the National Association of Operative Plasterers was held on Monday night at the Memorial Hall, Farringdon-street. There was a crowded attendance, notices having been sent out to all the London members, close upon 4,000 men. The question of the dispute which has arisen between the Union and the Master Builders' Association, in consequence of nearly 140 men having struck work a fortnight ago at three London firms, for the reason that those firms had refused to allow their foremen to join the Union, was discussed at length. No decision was arrived at; but another meeting will be called next week to further consider the matter. A meeting of master builders and other employers of plasterers in London was held in St. Martin's Town Hall on Tuesday afternoon. The meeting discussed the advisability and the necessity of taking immediate action, and, while the desirability of avoiding a general strike or lock-out was admitted, there was a strong feeling that the action of the members of the Plasterers' Union had now made it imperative that the employers should take some steps for the protection of their interests and the safety of the trade. It was urged that the Central Association of Master Builders should support the three firms concerned in the action they had taken. Mr. Costigan, the secretary, stated that a resolution was passed to the effect that the meeting should "adopt and carry into effect, at the earliest possible moment, the policy proposed by the National Association of Master Builders, with which Association the Central Association in London is affiliated." This decision is equivalent to an intimation that a general lock-out of plasterers may be instituted at any moment.

**KIRKCALDY.**—The secretary of the Master Joiners' Association, Kirkcaldy, on Saturday received notification from the secretary of the Operative Joiners' Union demanding an increase of wages to the extent of 1d. per hour.

## CHIPS.

Mr. W. Goscombe John has been selected as the sculptor of the Daniel Owen monument to be erected at Mold.

Park Terrace Chapel and Mission Hall, in Earl's Court-road, London, was destroyed by fire late on Thursday night.

Mr. Henry H. Bender, of Albany, has been appointed superintendent of buildings of the State of New York.

The demolition of what has come to be styled the old town-hall at Colchester—a dull, pseudo-Classic building completed in 1852—is now in full swing. The estimated cost of the new town-hall, which is being erected by Messrs. Kerridge and Shaw, of Cambridge, from plans by Mr. John Belcher, of London, is £36,000.

Mr. G. W. Willcocks, M.Inst.C.E., held an inquiry at Lancaster on the 19th inst. into the application of the town council to borrow £20,250 for street works and the extension of the electricity works. The town clerk stated that £7,000 was wanted for the Rumparts and Derby-road, £2,000 for Horse-shoe Corner, £1,250 for Church-street improvement, and the remainder for electricity works.

The Lord Mayor of Liverpool unveiled, on Friday, a memorial tablet, which has been placed on the front of the house 118, Duke-street, in that city, in which Felicia Dorothea Hemans, the distinguished poetess, was born. The tablet is a result of the action of the members of the Lancashire and Cheshire Historic Society, whose badge occupies a prominent position on the memorial. An effective dark-blue background throws out the inscription in bold relief, and the record is inclosed in a teak frame. Mr. W. F. Price, of Liverpool, prepared the design of the tablet, which has been carried out by the Della Robbia Co., of Birkenhead.

A painting by Mr. Wyndham Hughes, of "The Feeding of the Five Thousand," has been placed on the north wall of the chancel of St. James's Church, Birmingham. The painting, which is 18ft. in length, and completes the chancel decoration, depicts Our Lord in the act of blessing the five loaves and two fishes. He is attended by His apostles, those immediately behind him being St. Peter, St. James, and St. John. The hills in the distance represent those rising above the Sea of Galilee.

The town council of Cambridge have decided to call in Mr. Dibdin to advise them upon a method of sewage treatment at a fee of fifty guineas and travelling expenses. The council have received the sanction of the Local Government Board for the borrowing of £17,260 for laying wood-pavement in the main thoroughfare from the railway station to Christ's College.

## LATEST PRICES.

## IRON, &amp;c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0 to	£6 10 0
Rolled-Steel Joists, English.....	6 10 0 "	7 0 0
Wrought-Iron Girder Plates.....	5 15 0 "	6 10 0
Bar Iron, good Staffs.....	7 5 0 "	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0 "	17 5 0
Do., Welsh.....	5 15 0 "	5 17 6
Boiler Plates, Iron—		
South Staffs.....	7 17 6 "	8 5 0
Best Snedshill.....	10 0 0 "	10 10 0
Builders' Hoop Iron, for bonding, &c., £8 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		
No. 13 to 20.....	Per ton.	No. 22 to 24.
8ft. to 8ft. long, inclusive gauge.....	£10 15 0 to	£11 0 0
Best ditto.....	11 5 0 "	11 10 0
Per ton.....		
Cast-Iron Columns.....	£8 5 0 to	£8 15 0
Cast-Iron Stanchions.....	6 5 0 "	8 15 0
Rolled-Iron Fencing Wire.....	7 5 0 "	8 5 0
Rolled-Steel Fencing Wire.....	7 5 0 "	7 15 0
Galvanised.....	10 10 0 "	11 10 0
Cast-Iron Sash Weights.....	4 2 6 "	4 5 0
Cut Clasp Nails, 3in. to 6in.....	9 0 0 "	10 0 0
Cut Floor Brads.....	8 15 0 "	9 15 0
Wire Nails (Pointe de Paris).....		
0 to 7.....	9 10 11 12 13 14 15	B.W.G.
8/0 9/6 10/10 10/9 11/6 12/6 13/6 15/3 17/3		per cwt.

Cast-Iron Socket Pipes—

3in. diameter.....	£5 10 0 to	£5 15 0
4in. to 6in.....	5 5 0 "	5 10 0
7in. to 24in. (all sizes).....	4 15 0 "	5 0 0

[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]

**Fig Iron—**

Cold Blast, Lilleshall.....	105s. to 110s.
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.

**Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.—**

Gas-Tubes.....	75p.c.
Water-Tubes.....	70
Steam-Tubes.....	62½
Galvanised Gas-Tubes.....	80
Galvanised Water-Tubes.....	55
Galvanised Steam-Tubes.....	45

10cwt. casks. 5cwt. casks.

	Per ton.	Per ton.
Zinc, English.....	£28 0 0 to	£28 10 0
Do., Vieille Montagne.....	29 10 0 "	29 15 0
Sheet Lead, 3lb. per sq. ft. super.....	15 0 0 "	16 0 0
Pig Lead, in 1cwt. pigs.....	14 7 6 "	15 7 6
Lead Shot, in 25lb. bags.....	18 0 0 "	19 0 0
Copper Sheets, sheathing and rods.....	69 0 0 "	70 0 0
Copper, British Cake and Ingots.....	55 10 0 "	56 0 0
Tin, Straits.....	91 15 0 "	92 15 0
Do., English Ingots.....	95 0 0 "	96 0 0
Spelter, Silesian.....	23 0 0 "	23 10 0

## TIMBER.

	per load	£13 0 0 to	£15 10 0
Teak, Burmah.....	10 10 0 "	14 10 0	
Bangkok.....	4 7 6 "	6 5 0	
Quebec Pine, yellow.....	4 0 0 "	6 0 0	
Oak.....	3 0 0 "	5 0 0	
Birch.....	4 12 6 "	5 15 0	
Elm.....	3 17 6 "	5 5 0	
Dantisc and Memel Oak.....	3 5 0 "	3 15 0	
Fir.....	2 0 0 "	4 0 0	
Wainacot, Riga p. log.....	3 15 0 "	5 15 0	
Lath, Dantisc, p.f.....	4 10 0 "	5 10 0	
St. Petersburg.....	4 0 0 "	6 10 0	
Greenheart.....	8 0 0 "	8 5 0	
Box.....	4 0 0 "	15 0 0	
Sequoia, U.S.A. ....per cube foot	0 1 9 "	0 2 0	
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 6½ "	0 0 7	
" Honduras.....	0 0 4 "	0 0 6	
" Mexican.....	0 0 3½ "	0 0 4	
Cedar, Cuba.....	0 0 4 "	0 0 4½	
Honduras.....	0 0 3½ "	0 0 4½	
Satinwood.....	0 0 9 "	0 1 9	
Walnut, Italian.....	0 0 3 "	0 0 7	
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in. ....			
Quebec, Pine, 1st.....	£18 15 0 to	£25 5 0	
" 2nd.....	13 15 0 "	17 0 0	
" 3rd.....	6 0 0 "	10 0 0	
Canada Spruce, 1st.....	8 10 0 "	10 10 0	
" 2nd and 3rd.....	7 5 0 "	8 10 0	
New Brunswick.....	7 5 0 "	8 0 0	
Riga.....	8 5 0 "	9 5 0	
St. Petersburg.....	11 15 0 "	14 5 0	
Swedish.....	9 15 0 "	16 15 0	
Finland.....	9 15 0 "	10 5 0	
White Sea.....	10 15 0 "	18 0 0	
Battens, all sorts.....	5 0 0 "	16 0 0	
Flooring Boards, per square of 1in. ....			
1st prepared.....	£0 9 6 "	£0 16 3	
2nd ditto.....	0 8 0 "	0 13 8	
Other qualities.....	0 6 3 "	0 7 0	
Staves, per standard M:—			
Quebec pipe.....			
U.S. ditto.....	£35 0 0 to	£42 10 0	
Memel, cr. pipe.....	210 0 0 "	220 0 0	
Memel, brack.....	190 0 0 "	193 0 0	

## OILS.

	per ton.	£16 10 0 to	£17 0 0
Linseed.....	22 0 0 "	22 5 0	
Rapeseed, English pale.....	20 15 0 "	21 0 0	
Do., brown.....	14 10 0 "	15 5 0	
Cottonseed, refined.....	28 10 0 "	29 0 0	
Olive, Spanish.....	21 5 0 "	21 10 0	
Seal, pale.....	30 0 0 "	30 10 0	
Cocconut, Cochin.....	25 15 0 "	26 0 0	
Do., Ceylon.....	22 0 0 "	22 5 0	
Palm, Lagos.....	18 15 0 "	19 15 0	
Oleins.....	0 6 3 "	0 7 8	
Lubricating U.S.....per gal.	0 0 6 "	0 0 6½	
Petroleum, refined.....	1 0 0 "	1 5 0	
Tar, Stockholm.....per barrel	0 15 0 "	0 18 0	
Do., Archangel.....	23 15 0 "	29 0 0	
Turpentine, American.....per ton			



## LIST OF COMPETITIONS OPEN.

Bradford—Central Fire Brigade Station .....	£100, £50, £30	The City Surveyor's Office, Bradford .....	Feb. 1
Tottenham—Refuse Destructor .....	£25, £15, £10	P. E. Murphy, Engineer U.D.C., 712, High-road, Tottenham .....	" 7
Dartford—York-road Board Schools (1,650 places) .....	30gs., 10gs.	Arthur S. Dixon, Clerk to School Board, Dartford .....	" 10
Northwich—Dwelling House (£25 rent) for Erection on Land Liable to Subsidence .....	£20, £10, £5	F. A. Cowley, Clerk to Salt Compensation Board, Northwich .....	" 24
Knutsford—Cemetery Buildings .....	£20 and £10	W. J. Downes, Surveyor U.D.C., Knutsford .....	" 28
Beverley—Grammar School Buildings (limit £3,000; Assessor) .....	£25 and £10	F. G. Hobson, Clerk to the Governors, Newbegin, Beverley .....	Mar. 4
Shoreditch—Additions to Town Hall (limit £12,000) .....	£50 and £25	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C. .....	" 22
Forfar—Isolation Hospital (Assessor) .....	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee .....	" 31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor) .....	£150, £100, £50	The City Surveyor's Office, Bradford .....	April 1
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds .....	June 1
Nelson—New Church of St. Philip's .....		H. Duerdon, Hon. Secretary, 180, Barkerhouse-road, Nelson .....	—
Charlbury—Drinking Fountain (£120 limit) .....		The Vicar, Charlbury, Oxon .....	—
Gosport—Technical Institute and Public Library (about £4,000; limited to Architects within 100 miles of Gosport; Assessor) .....	£100, £25, £10	P. Tostevin, Sec., District Council Offices, Gosport .....	—
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair) .....		F. Moggridge, 18, King's-place, Portman-square, W. ....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Leeds—Shop Premises and Bakery, North-street .....	Webster and Co. ....	Thomas Winn, Architect, 92, Albion-street, Leeds .....	Jan. 28
Bakewell—Workhouse Infirmary, &c. ....	Guardians .....	E. M. Longdon, Architect, Town Hall, Bakewell .....	" 28
Carlisle—Additions to Tynholme, Howard-place .....	F. Robinson .....	Charles J. Ferguson, F.S.A., 50, English-street, Carlisle .....	" 28
Leeds—Settling Tanks at Tannery, Sheepscar-street .....	Wilson, Walker, and Co. ....	Thomas Winn, Architect, 92, Albion-street, Leeds .....	" 28
Armagh—Renovation of Licensed Premises, Thomas-street .....	Corporation .....	Patrick M'Kenna, Lower English-street, Armagh .....	" 28
Bradford—Bandstand, Horton Park .....	Stretford Urban District Council .....	George McGuire, Town Clerk, Bradford .....	" 28
Old Trafford—Technical Institute and Public Library .....	School Board .....	John Bowden, 14, Kidgefield, Manchester .....	" 28
Cardiff—Extension of Higher Grade Board School .....		E. Seward, Architect, Queen's Chambers, Queen-street, Cardiff .....	" 28
Leeds—Converting Bank Premises into Shops and Offices, Commercial-street .....	Brown and Co. ....	Thomas Winn, Architect, 92, Albion-street, Leeds .....	" 28
Kendal—Primitive Methodist Mission Hall .....	Pennington Memorial Committee .....	J. Thompson, A.R.I.B.A., Kendal .....	" 28
Castlethorpe—Additions to the Board Schools .....		Henry Hugh Dyer, Architect, 1, Sheep-street, Northampton .....	" 28
Wooldesford—Store and Four Cottages .....	Leeds Industrial Co-operative Socy. ....	John W. Fawcett, Secretary, 10, Albion-street, Leeds .....	" 28
Great Yarmouth—Extension of Garibaldi Hotel .....	Thos. Sheeror .....	C. G. Baker, Architect, Town Hall Chambers, Yarmouth .....	" 28
Ilkley—Four Houses in Richmond-place .....	Urban District Council .....	E. Barton Johnson, Architect and Surveyor, Ilkley .....	" 28
Aston Manor—Additional Washing Baths at Public Baths .....	School Board .....	H. Richardson, A.M.I.C.E., Engineer, Council House, Aston .....	" 28
Stone, Kent—Additions to the Brent Board School .....		Frank M. Kirby, Architect, Gally Hill, Greenhithe .....	" 28
Leeds—Alteration of Shop Premises and Jubilee Hotel, Victoria-square .....	Charles Wright .....	Thomas Winn, Architect, 92, Albion-street, Leeds .....	" 28
Accrington—Cottages, Richmond-street .....	Co-operative Society .....	J. Liptrot, 87, Abbey-street, Accrington .....	" 28
Trindon—Shop .....	Goodball and Suddick .....	The Secretary, Station Town Co-operative Society, Wingate .....	" 28
Leeds—Printing Warehouse, Cookridge-road .....		Thomas Winn, Architect, 92, Albion-street, Leeds .....	" 28
Halifax—Pair of Villas, Manor Heath-road .....	Guardians, Highworth & Swindon U. ....	Arthur G. Dalzell, Architect, 15, Commercial-street, Halifax .....	" 28
Stratton St. Margaret—Alterations at the Workhouse .....	Guardians .....	O. Kimber, Architect, 64, Exmouth-street, New Swindon .....	" 31
Birmingham—Nurses' Mess-room, &c., Workhouse Infirmary .....	H.M. Commissioners of Works .....	R. H. Ward, Architect, Paradise-street, Birmingham .....	" 30
Granton—New Gasworks .....	Gas Commissioners .....	W. R. Herring, Chief Engineer, Gasworks, Edinburgh .....	" 30
Manchester—New Government Offices .....	H.M. Commissioners of Works .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate .....	" 31
Stenhousemuir—Stables .....	Stenhousemuir Co-op. Soc. Ltd. ....	James Strang, Architect, 102, High-street, Falkirk .....	" 30
Trinant—Additions to Board School .....	Mynyddialwyn School Board .....	Rosser and Roberts, Architects, Abercarne .....	" 30
Glasgow—Generating Station at Pollokshaw-road .....	Electricity Committee of Corporation .....	Andrew Myles, Architect, 143, West Regent-street, Glasgow .....	" 30
Chorley—Buildings, &c. ....	Rural District Council .....	Alban Jolly, Surveyor to the Council, 9, High-street, Chorley .....	" 30
Banbury—Improvement of Public Swimming-Bath, Recreation Ground .....	Town Council .....	N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury .....	" 31
Northallerton—Workhouse Bathroom .....	Board of Guardians .....	Fairbank and Son, C.E., 13, Lendal, York .....	" 31
Ripponden—Fireproof Mill .....	Ripponden Commercial Co., Ltd. ....	Horsfall and Son, Architects, 22A, Commercial-street, Halifax .....	" 31
Exmouth—Engineering and Smiths' Shops at the Dock .....	Devon Dock, Pier, & Steamship Co. ....	The Secretary, Dock Office, Exmouth .....	" 31
Berwick-on-Tweed—Lock-Up and Police Station .....	Town Council .....	R. Burns Dick, 55, Northumberland-street, Newcastle-on-Tyne .....	" 31
Newcastle, Co. Down—Vicariate .....	St. John's Trustees .....	J. Russell, Architect, 16, Waring-street, Belfast .....	" 31
Leamington—Refreshment Buffet, Jephson Gardens .....	Corporation .....	F. Foster, M.S.A., 4, Euston-place, Leamington .....	" 31
Rochdale—Alteration of Dressing-Boxes in Baths .....	Baths Committee .....	S. S. Platt, Borough Surveyor, Town Hall, Rochdale .....	" 31
Cardiff—Extensions to Electric Lighting Station, Eldon-road .....	Corporation .....	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff .....	" 31
Prudhoe—Rebuilding Dr. Syntax Hotel .....	School Board .....	R. Burns Dick, Architect, 55, Northumberland-street, Newcastle .....	" 31
Felling—Classroom, &c., Windy Nook .....	Urban District Council .....	H. Miller Miller, Architect, Felling .....	" 31
Stowmarket—t-Additions to House in Cemetery-lane .....	Geo. Hatton .....	Henry Geo. Bishop, M.S.A., Cheapside, Stowmarket .....	" 31
Leeds—Villa, Roundhay Park .....	Corporation .....	T. and C. B. Howdill, Architects, 24, Albion-street, Leeds .....	" 31
Bootle—Technical School, Balliol-road .....	School Board .....	E. Reid, C. Surv., 7, Westminster Chambers, Crosshall-st., Liverpool .....	Feb. 1
Rhosybol—School .....	British Electric Traction Co., Ltd. ....	James Hughes, Clerk, Tryslynn Isaf, Amwlch .....	" 1
Swansea—Power House, &c. ....		J. P. Jones and Rowlands, Architects, 58, Wind-street, Swansea .....	" 1
London, W.—Shop and Flats, Goodge-street .....	Board of Guardians .....	Page and White, Architects, 4 & 5, Warwick-court, Grays Inn, W.C. ....	" 1
Mossley—Clubhouse .....	Equitable Industrial Co-op. Society .....	Tom Cook, M.S.A., 39, Victoria Buildings, Manchester .....	" 1
Larne—Additions to Workhouse .....	Lock and Co. ....	W. Hay, Clerk, Board Room, Larne .....	" 1
Burnley—Extension of Central Stores, Hammerton-street .....	Corporation .....	Thos. Bell, Architect, 14, Grimshaw-street, Burnley .....	" 1
Pennygaig—Warehouse .....	Urban District Council .....	James & Morgan, M.M.S.A., Architect, Charles-st., Chambers, Cardiff .....	" 1
Manchester—Joists and Concrete Flooring, Leaf-street Baths .....	Corporation .....	The City Surveyor, Town Hall, Manchester .....	" 1
Ilfracombe—Market Hall .....	T. Benson .....	O. M. Prowse, Engineer, Town Hall, Ilfracombe .....	" 1
Chatham—Stables, &c., East End .....	Town Council .....	Charles Day, Borough Surveyor, Military-road, Chatham .....	" 2
Maryport—Additions to Premises .....	Guardians .....	C. Englefield, Architect, Maryport .....	" 2
Richmond—Working-Class Dwellings .....	F. Barker .....	The Borough Surveyor, Town Hall, Richmond .....	" 2
York—Fire-Escape Staircases at Workhouse .....	Darton School Board .....	Penty and Penty, Architects, Lendal Chambers, York .....	" 2
Porton—Railway Hotel .....	Mrs. G. Kenshole .....	J. Harding & Son, Architects & Surveyors, 58, High-st., Salisbury .....	" 2
Ayestide—Additions to Low House Farm .....	Visitors .....	W. Butler and Sons, Dalton-in-Furness .....	" 2
Wrexham—Hotel, Regent-street .....	Thos. Sheeror .....	Walter Slater, Architect, 8A, High-street, Wrexham .....	" 3
Staincross—School for Infants .....	Aske's Haberdashers' Sch. Managers .....	Senior and Clegg, Architects, 15, Regent-street, Barnsley .....	" 3
Annfield Plain—Five-roomed House, Bridge-terrace .....	Guardians .....	James Norman, 24, Bridge-terrace, Annfield Plain .....	" 3
Mountain Ash—Rebuilding the Allen's Arms .....	Lofthouse-w-Carlton School Board .....	Geo. Kenshole, Duffryn House, Ystrad Mynach .....	" 3
Thornhill—Two Houses in Lees-road .....	F. Wolfenden .....	Holtom and Fox, Architects, Westgate, Dewsbury .....	" 3
Lancaster—Ward Alterations, County Asylum .....	Education Committee .....	The Clerk of Works, Lunatic Asylum, Lancaster .....	" 3
Great Yarmouth—Additions to Premises, Priory-place .....		C. G. Baker, Architect, Town Hall Chambers, Yarmouth .....	" 3
Luddenden Foot—Stabling and Additions to Grove Brewery .....		Joseph F. Walsh, Architect, Bank Chambers, Halifax .....	" 3
West Hampstead—School .....		Widnell and Trollope, 20, Tottil-street, Westminster, S.W. ....	" 4
Kingston-on-Thames—Dining-Hall, &c., at Workhouse .....		W. H. Hope, Archt., Union Offices, Portsmouth-rd, Kingston-on-T. ....	" 4
Carlton—Classroom .....		W. E. Richardson, Architect, 28, Bond-street, Leeds .....	" 4
Lancaster—Alterations to Premises .....		C. F. Thompson, Architect, The Arcade, Lancaster .....	" 4
Chippenham—Technical and Secondary Schools .....		Robert E. Brinkworth, F.S.I., Architect, Chippenham, Wilts. ....	" 4
West Hartlepool—Grill and Restaurant, Club-Room, Shops, and Offices, Church-street .....		J. Blackwell, Architect, West Hartlepool .....	" 6
Newcastle-upon-Tyne—Additions to Spital Tongue's School .....		W. Lister Newcombe, F.R.I.B.A., 89, Pilgrim-st., Newcastle-on-T. ....	" 6
Leeds—Alteration of Public Baths in Cookridge-street .....		Walter Hanstock and Son, Architects, Branch-road, Batley .....	" 6
Nelson—Additions to Zion Baptist Chapel .....		H. Whitaker, Architect, 21, Market-square, Nelson, Lancs. ....	" 6
Wilton—Alterations to Wards at Workhouse .....		John Harding and Son, 53, High-street, Salisbury .....	" 6
Benlloch—Extensions to Welsh C.M. Chapel .....		J. Owen, Architect, Menai Bridge, Anglesey .....	" 6
Norrmanton-by-Derby—Additions to Schools .....		Naylor and Sale, Architects, Iron Gate, Derby .....	" 6
Salford—Public Hall, &c., King-street, Irlams-o'-th'-Height .....		B. C. P. Heywood, M.A., Architect, Salford .....	" 7
Ballyclough—Labourers' Dwellings (Two) .....		J. Morris, Clerk of Works, 24, Cabra-parade, Dublin .....	" 8
Sligo—Additions to Surgery at Infirmary .....		J. Morris, Clerk of Works, 24, Cabra-parade, Dublin .....	" 8
Tayvallich—New Free Church .....		W. T. Vernon, Registrar, Board Room, Sligo .....	" 9
Cardiff—Extension of Workhouse Mortuary .....		Neil Gillies, Architect, Lochgilphead .....	" 9
Swindon—Rebuilding Foresters' Arms Inn .....		E. Seward, Architect, Queen's Chambers, Queen-street, Cardiff .....	" 11
Wimbledon—Isolation Hospital .....		W. Drew, M.S.A., 22, Victoria-street, Swindon .....	" 11
Leeds—Additions to St. George's Church .....		C. H. Cooper, Surveyor, Council Offices, Broadway, Wimbledon .....	" 13
Kilburn—Public Offices, Dyne-road .....		Henry Walker, Architect, 8, Upper Fontaine-street, Leeds .....	" 14
Letterkenny—Plasterers' Work at New Cathedral .....		O. Claude Robson, M.I.C.E., Public Offices, Dyne-road, Kilburn .....	" 14
Rugby—Public Offices, High-street .....		W. Hague, Architect, 50, Dawson-street, Dublin .....	" 15
		D. G. Macdonald, A.M.I.C.E., Surveyor, Rugby .....	" 15













"PHOTO-TINT, BY JAMES AKERMAN." Queen's Square, London, W.C.













— ELEVATION — FACING — NORTH —



— FRONT ELEVATION —  
— STEWARDS — RESIDENCE —

— ELEVATION — FACING — EAST —



— ELEVATION — FACING — EAST —



— ELEVATION — FACING — SOUTH —





— BACK-ELEVATION-OF-LAUNDRY —



— FRONT-ELEVATION-OF-NURSES-BLOCK —

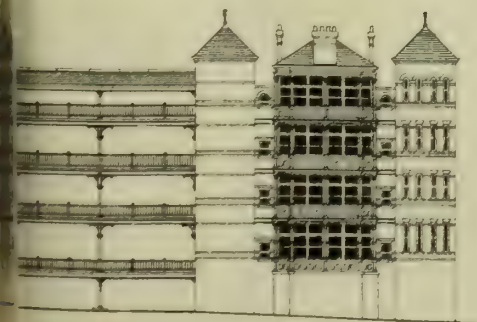
INFIRMARY • PARISH OF ST MARY ISLINGTON •



— ELEVATION-FACING-WEST —



— SIDE-ELEVATION —  
— STEWARDS-RESIDENCE —



— FRONT-ELEVATION-OF-LAUNDRY —

— WILLIAM-SMITH-ARIBA-  
ARCHITECT —



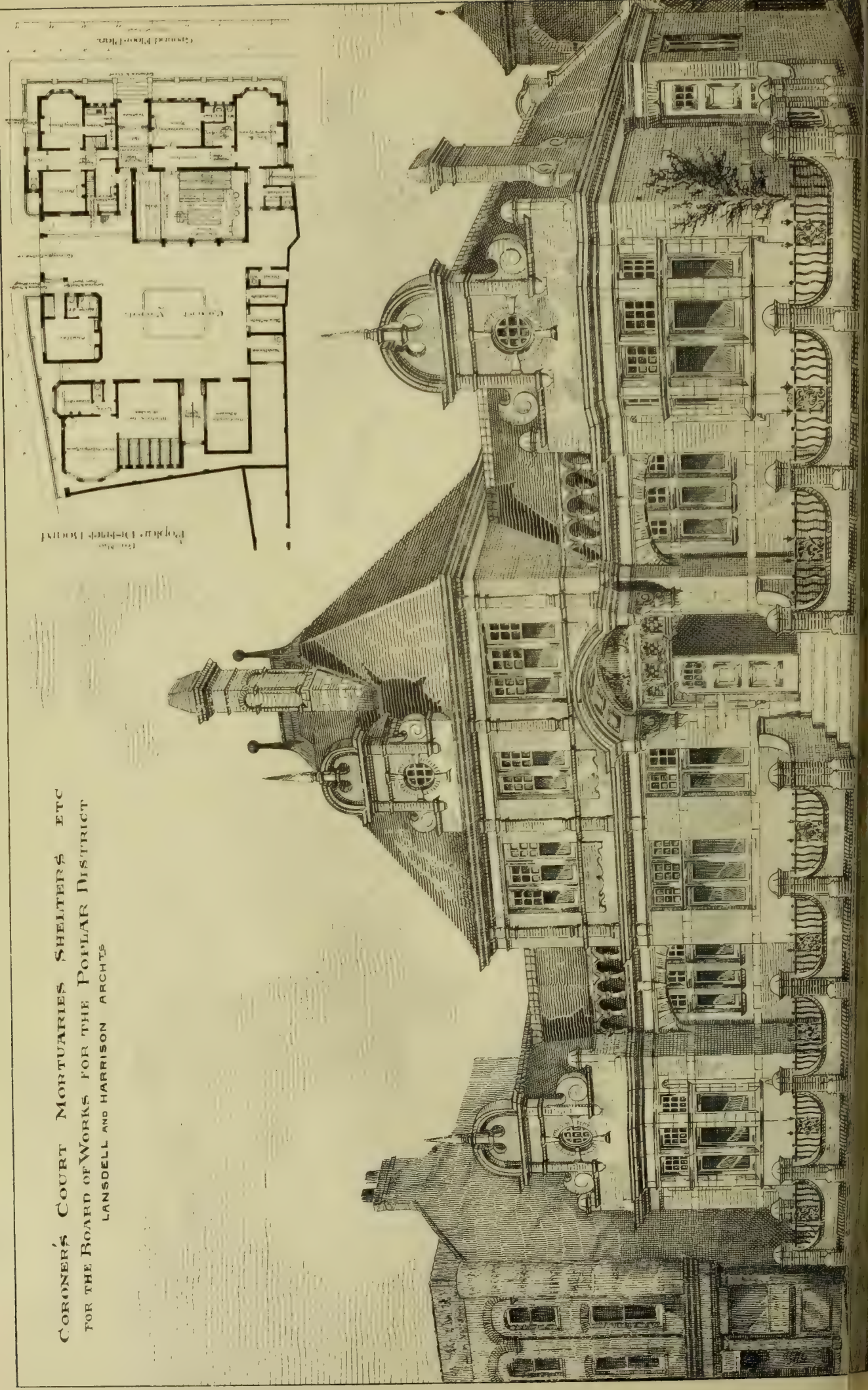




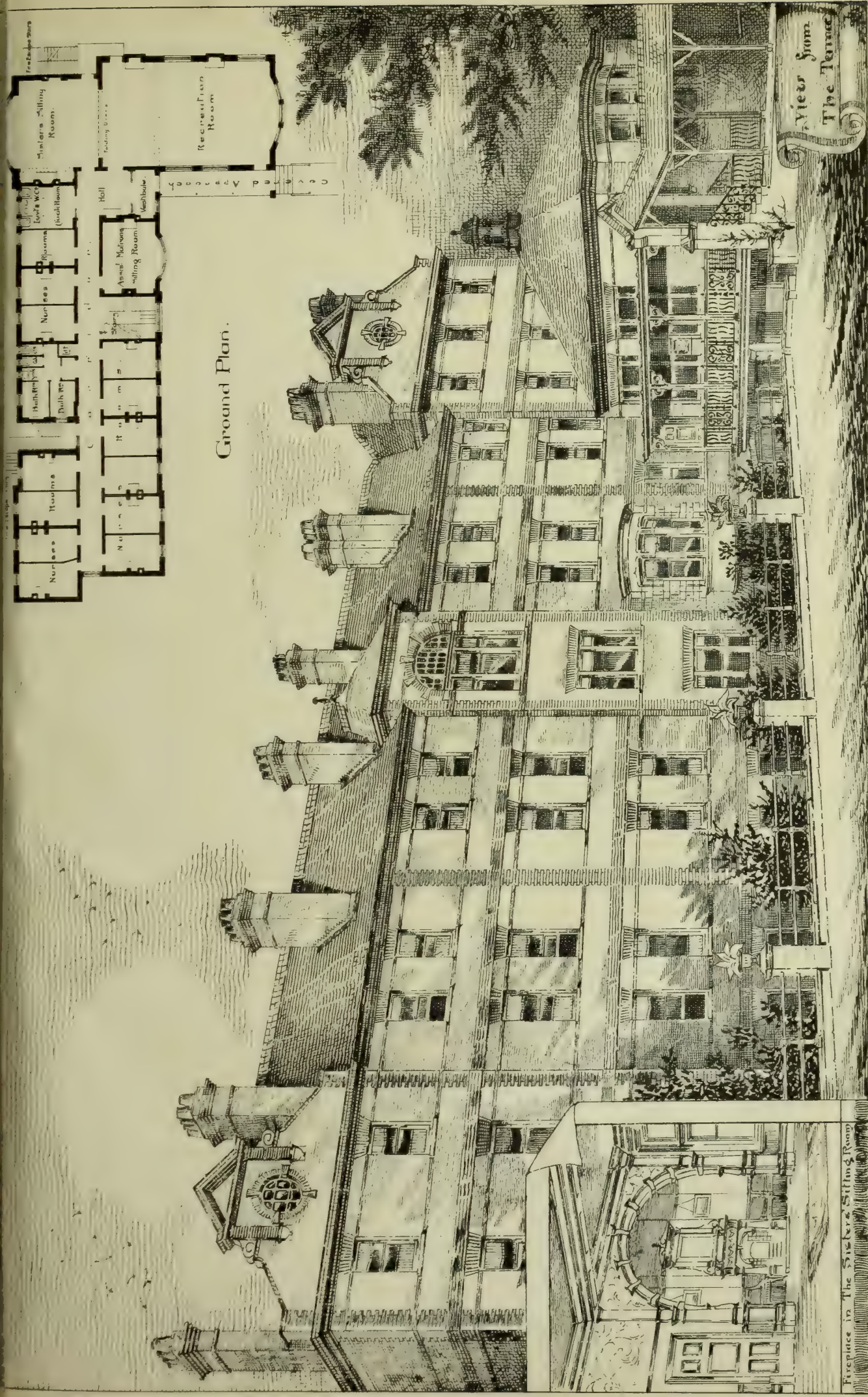




CORONER'S COURT MORTUARIES SHELTERS ETC  
FOR THE BOARD OF WORKS FOR THE POPULAR DISTRICT  
LANSDELL AND HARRISON ARCHTS







Ground Plan.

View from  
The Terrace

Fireplace in The Sisters' Sitting Room

NURSES' HOME      WANDSWORTH AND CLAPHAM UNION INFIRMARY  
LANSDELL AND HARRISON ARCHTS

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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### COMPLIANCE WITH CONDITIONS.

**F**AILURE in competitions for buildings as often occur from a too loyal obedience to the terms of the instructions as from non-compliance or recklessness. The author of a design, not compassing clearly what is intended, falls back on a literal rendering of the conditions. For this reason the chief qualification of a competent assessor or judge seems to be a keen discernment of how much of a plan ought to agree with the instructions and how much may be left to the author's discretion and judgment; in other words, a judge of designs ought to be able, adopting a common phrase, to "read between the lines." If he is not able to do this his judgment often goes astray: he sees compliance in one plan and not in another, just as his own knowledge of the particular class of building he is adjudicating upon is full, or not. An incompetent assessor is likely to betray his ignorance of essentials by deciding on some non-essential of the plan, or falling back on the letter of the instructions. We can, for instance, imagine such an umpire adopting the perfunctory way of making a selection used by surveyors called in to check the cubed estimates of designs, by measuring the cubical capacity of each, and pricing out at a certain price per foot. On this system, taking the designs as a whole, he would examine each as to the several items of the instructions, say, for instance, the size and area of public hall, clerk's and surveyor's, accountant's, medical officer's, and other departments, as given in the conditions, discarding those plans which fell short in area, or made them larger, and by such a process select a few out of the whole number which complied with the instructions. Indeed, he could simplify his labours by setting his clerk on to an examination of this kind, asking him to make a tabular return of all the designs under certain heads; his task would then be simply to compare the return made, and finally adopt the plan which complied nearest to the instructions. Such a statement of facts would embrace the area covered by building, that of each official department or room, lines of frontage, compliance with ancient lights, and other details. The plan which fulfilled the most accurately these points would be the successful one. It would be rather the solution of an arithmetical puzzle than of any real merit. What else could we expect? This is certainly not the way to comply with a set of ill-drawn instructions, and few committees or their architectural advisers would like to be tied by their own tentative suggestions. On this principle of adjudication very few successful competitions have been awarded, and there would have been no architecture worthy of the name if our Barrays, Streets, and Scotts had been so tied down to literal interpretation. Whether a public hall or a suite of offices is so many feet more or less in length and width than a prescribed limit does not matter, if a sufficient accommodation is provided for and the means of entrance and access are good. Nor can the position of a suite of rooms or offices on one floor make all the difference between a good or a bad plan. On the other hand, an able plan is at once recognised by a general alignment of main walls, a principle or motive in the arrangement, good entrances and access to the offices, efficient lighting, and other details. The qualified judge is able to draw a definite line between a mere

literal compliance with instructions and an intelligent grasp of main principles. As omission does not always mean prohibition, neither do distinct instructions preclude better modes of dealing with the subject. Of course, there are some instructions that are imperative. There are those, for example, which refer to matters like frontage lines, areas for air and light, rules and regulations of by-laws—like those of the London County Council which relate to sanitary matters—sufficient entrances and exits, width of staircases, construction of same, width of doorway, &c. A competitor who violates any of these does so at his own peril, and disqualifies himself even where his plans are otherwise excellent. These technical points are, no doubt, troublesome and irritating to men who are impatient of technicalities, and we know a few strongly artistic men who resent these details, and so entirely ignore them as to disqualify their designs in competition.

In this connection we may refer to the Soane Medallion Award at the Institute, on which we printed last week the text of a memorial presented by students and others to the Council, asking them to reconsider their decision as to the recent award in the Concert Hall Competition. The memorialists add in parallel columns the points of the design which violate the regulations of the London Building Act. These refer to several things. Dressing-rooms are required to be arranged in separate blocks, or divided by party-walls from the place of public resort. The author of selected design omitted to show thicker walls than  $4\frac{1}{2}$  in. This is perhaps one of the trivial objections. In drawing competition-plans thin walls may sometimes be inadvertently put in for thick party-walls. The want of sufficient and separate closets and conveniences properly ventilated is a more fatal objection. The inadequacy of exits communicating directly with the street, the use of winders in staircases, insufficiency of width of staircase landings as prescribed, the want of inclosure and support by brick walls to flights of steps, no gangways at side or rear of seating, non-compliance with rules as to internal doors not to obstruct when open, are serious objections to the acceptance of a design for a concert-hall. They are, in fact, the exact points which a referee would look to in making his decision as to the merits of a public hall or concert-room, because these details are extremely important in buildings of this class. A concert-hall is comparatively a simple subject of design. After its shape and proportions are decided, the questions of entrance and exit, means of communication with the street, and the levels of the different "circles" or galleries are urgent. These points would have lesser importance in buildings like public offices, blocks of residences or offices, schools, &c. In such buildings the arrangement of the departments, offices, or tenements would be the first consideration.

So, in short, the competent adjudicator on plans ought to be able to mentally decide on the leading points of each kind of building, and to make these the basis of his selection. For residential and office blocks, the location of rooms, their aspect and access from main entrances, light areas, and conveniences are of more importance than they are in buildings comprising one large unit like a concert hall or a public bath; in like manner the main points in the planning of a public school are the arrangement of its central hall and classrooms, lavatories, and cloak-rooms; a public library ought to be planned with special reference to a convenient location of the reading-room, lending library, and reference room, the entrance lobby and borrowers' space, means of supervision, &c., and so on with other buildings having a special use. In such a design as a concert-hall, so much depends on properties of easy hearing and resonance,

that it may be opportune to inquire whether acoustical planning should not be allowed to outweigh technical faults such as those we have enumerated? No doubt, in the eyes of a competent judge, it would go a long way towards atoning for defects of construction, and it may be difficult not to weigh a well-studied acoustical hall against technical points of entrance and exit if these would admit of amendment. He might also reasonably take into account any inventiveness of plan, so long as it could be embodied in the facts of the building. Such a thought leads us to the question of "style" or external treatment. Though, in the case of many buildings of a utilitarian character, subordinate, it cannot be abjured altogether. The "modelling" of masses must have a decided influence on a design—we mean the abstract massing of parts of the plan. A competent judge will allow this to weigh in his mind over other minor points. He will tacitly award merit for good proportion, outline, and details. These things, immaterial as they seem to the ordinary examiner of design, will exercise a certain weight in his decisions. With the men of hard-and-fast rule, the mere stickler for technical observance, these considerations have no place. On the other hand, he will look only at the merest commonplaces; the minor instructions will have more weight with him than those affecting design, and upon some little detail—as the position of a room or its dimensions—he will decide.

We are naturally led to these remarks by the results of recent decisions. The designs for the Soane Medallion represent much that is vague as well as thoughtful. We see several very ordinary and traditional examples of architecture as taught in the schools—one or two based on the principles of what is called the "new school," crude but clever, giving evidence of power, though in a direction by no means popular just yet. But how few are able to appreciate these newer elements of thought in competition, even when accompanied with fairly good plans. Their authors must wait for recognition.

### MODEL SPECIFICATIONS.—L.

GLAZIER.

**I**N specifying this trade, describe the quality of glass, the thickness of plate-glass, usually  $\frac{1}{4}$  in., or about, thick. The cheaper kinds of glass are usually taken first. Describe crown or sheet glass, weight per foot as 21oz. sheet, &c.; then describe rolled plate and thickness; rough plate for back doors, gratings, skylights, British polished plate, and describe the clear glass, the parts embossed or obscured. Lead-lights should be particularly specified, the borders, size, distance of saddle bars; but it is better to give drawing of any special kind, showing arrangement of borders, the shape and size of the panes, bars, &c.

*Notes.*—Sheet-glass is described according to its weight in ounces per foot, and these weights give the thicknesses. Thus, sheet-glass of 21oz. per superficial foot is one-tenth of an inch in thickness, 15oz. glass is one-fifteenth of an inch, 26oz. glass is one-ninth of an inch, and 32oz. glass one-seventh of an inch thick, and so on.

For first-class houses, the quality known as "best" is used, the next quality is "seconds," the ordinary glazing is done with "thirds." Fluted sheet-glass is corrugated, and is largely used for panels of back doors, closet windows, skylights, &c., the sizes in squares cut to order not exceeding 15sq.ft., the weights are 15oz., 21oz., 26oz., and 32oz. According to trade lists, the extreme lengths and widths made are given in the following table:—

	Extreme Length.	Extreme Width.	Area.
15oz. ....	60in. ....	40in. ....	15ft.
21oz. ....	90in. ....	50in. ....	26ft.
26oz. ....	90in. ....	50in. ....	25ft.
32in. ....	85in. ....	50in. ....	21ft.



The extreme limits of length and width cannot be combined in the same sheet, but the extreme area taken in connection with the length or width required in any case will indicate approximately the corresponding limit of width or length. (See tables given in price-books.)

Plate-glass, described generally of the following kinds, as—(1) Best British polished plate, distinguished by the spherical shape of the minute air-bubbles, made in three qualities, "ordinary glazing," "best glazing" and "silvering quality." (2) "Patent" plate with oval or irregular bubbles. It is thinner than British, and is adapted for air-tight show-cases, &c. The "second" quality, "C," is suitable for good glazing, and "C C" for ordinary glazing. It is obtained up to 50in. long, or 39in. wide and 13ft. in area. (3) Patent rough plate is of various thicknesses, the  $\frac{1}{4}$ in. patent rough plate is generally used where the width does not exceed 13in. and the length 60in. to 70in. It is useful for greenhouse roofs. The 3-16in. thickness is found to be sufficient for ordinary purposes. (4) Fluted rough-rolled plate, with corrugations or ribs, is a superior glass for skylights, doors, and windows. (5) Plain rolled plate, cut without reference to the flutes. (6) Rough-cast plate used for railway sheds and factories, the commonest quality of glass cast in sheets; the sides are wavy. It is the cheapest plate-glass, and made in  $\frac{1}{4}$ in.,  $\frac{3}{8}$ in.,  $\frac{1}{2}$ in.,  $\frac{3}{4}$ in., and 1in. thicknesses.

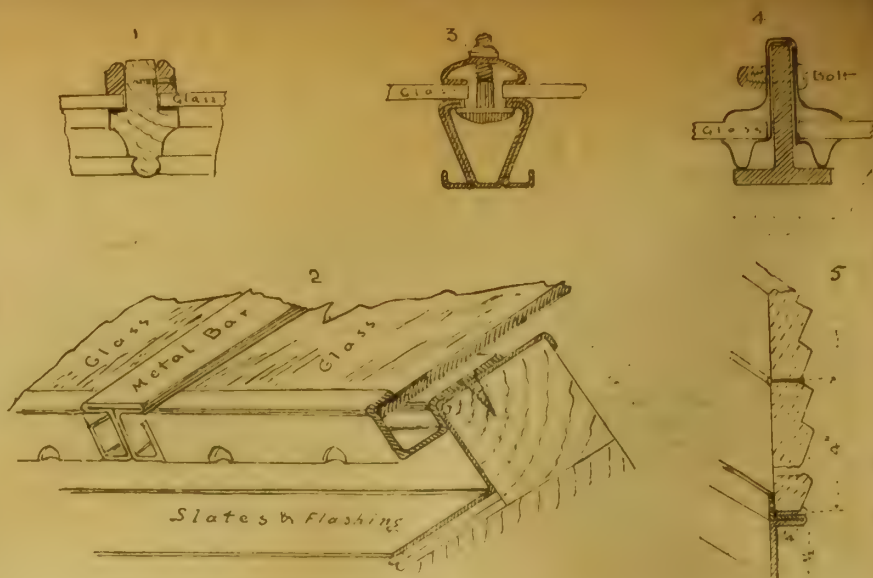
Rolled plate-glass,  $\frac{1}{4}$ in. to  $\frac{3}{4}$ in. thick, with fine lines on the surface, or fluted with larger ribs, can be had up to 10ft. square, or rough-cast plate,  $\frac{1}{4}$ in. and 1in. thick, cut to sizes and glazing in iron frames, with red-lead cement, may be specified. There are also rolled rough figured and pattern plate-glass, as Hartley's ribbed, very strong; the fluted are made in thicknesses of  $\frac{1}{4}$ in., 3-16in.,  $\frac{1}{2}$ in., and  $\frac{3}{4}$ in., and from 120in. to 42in. The "Luxfer" prism lens for electro-glazing into window plates, made in a large variety, is ribbed on one side (see sketch 5), and is a most valuable means of introducing light to darkened interiors.

Other kinds of glass are "ground," made in 16oz., 21oz., 26oz.; enamelled glass with parts obscured and with patterns; embossed glass made in patterns,—the sandblast is the cheapest, the acid process is the best—used for door panels, as in restaurants, &c., on plate and sheet glass; coloured glass, in sheet, muffled, or antique,  $\frac{1}{4}$ in. thick. The former has a wavy surface. In selecting coloured glass, care must be taken to describe particular kind. Some is only coloured on the face (flash glass), not throughout the thickness of glass, as in "cathedral" glass or "pot" metal. The "cathedral" glass is in several hues of no positive colour.

Leaded lights are now largely introduced for public buildings, commercial and domestic work, and are made of various patterns, or to design. Specify the size and distance apart of saddle-bars, the size of the lead "comes," usually about  $\frac{1}{4}$ in. wide, with grooves for the glass from 3-32in. to  $\frac{1}{4}$ in., and whether flat or rounded comes; also that the comes are to be secured by lead bands or copper wire to the saddle-bars. Comes are usually I-shaped in section, and  $\frac{1}{4}$ in. to  $\frac{3}{4}$ in. wide.

Pavement lights are made by Messrs. Hayward Brothers and Eckstein in various patterns (see prospectus), and should be selected from pattern book and specified.

In the best class of work, as to hall and vestibule doors, the glass is secured with wood mouldings screwed to bar or stiles (see sketch 1). The fillets or mouldings are placed inside. In specifying plate-glass in doors or shop-fronts it is necessary to state that the glass is to be bedded in wash-leather or vulcanised indiarubber; in large panes copper brads or sprigs are used to secure the glass before it is front puttied.



In glazing skylights the panes overlap, and when the glass is heavy, the tail of each should be hung to the head of that below by zinc or copper clips. To prevent leakage, the tails of the glass panes are generally rounded to throw off the water better.

**Glazing without Putty.**—Several ingenious methods of glazing for horticultural and other purposes are on the market. We illustrate Rendle's "Invincible" system, for squares up to 8ft. in length. The copper or zinc capping is screwed on to the water channel below, with side condensation gutters (section 3), the best method, also Rendle's "Acme" system (sketch 2) for squares up to 4ft. in length, showing the metal bar and metallic horizontal bar and mode of fixing. Sketch 3 shows another section of bar.

1. **Generally.**—All the glass to be of the best description, of their several kinds, clear, free from bubbles, scratches, and other defects, and to be well puttied and back-puttied and sprigged where required with stout copper sprigs; the glazing of door panels to be bedded in wash-leather and fixed with mouldings, and provide at the bottom of each square of glass in skylights two copper clips screwed with brass screws for fixing; the edges of plate glass to be blacked; the best oil putty to be used, and the glazing to be left clean and perfect.

2. **Sheet Glass.**—The glass, unless otherwise described, to be 21oz. "best" (or "seconds") sheet glass; or the sashes and casements on ground floors to be glazed with the best 21oz. sheet glass, and 16oz. sheet to the other windows.

3. **Rough Plate.**—Glaze the basement doors and windows with Hartley's rough plate glass  $\frac{1}{4}$ in. thick; glaze with 32oz. sheet glass the upper panels of hall or swing doors; glaze with Hartley's  $\frac{1}{4}$ in. small pattern fluted rolled plate the basement windows, &c. Or—  
The basement windows to be glazed with 21oz. clear-fluted sheet, three flutes to the inch, vertical, with oil putty.

4. **Office Windows.**—The windows of offices to be glazed with second glazing quality 21oz. sheet-glass in oil putty.

5. **Rolled Plate.**—The bathroom, lavatory windows to be glazed with figured rolled glass in putty.

6. **Principal Windows.**—The windows of ground and first floors to be glazed with  $\frac{1}{4}$ in. British polished plate glass of "best" quality, fixed with mouldings.

Glaze the principal room windows with  $\frac{1}{4}$ in. full, British polished plate of the "best" quality, bedded in putty and wash-leather, or with beads screwed to frames.

(In specifying British polished plate, state quality—"ordinary," "best," or "silvering," and if  $\frac{1}{4}$ in., whether "full" or "bare." It is the most transparent glass.)

7. **Bevelled Plate.**—The vestibule doors to be glazed with  $\frac{1}{4}$ in. best British plate, bevelled and polished, bedded in putty and wash-leather.

8. **Iron Casements.**—Glaze the iron casements with 16oz. muffled sheet or other glass (if tinted, state the number of tints), well bedded in putty, and secured by screws.

Glaze the lantern over hall or staircase with the best 16oz. muffled sheet glass, curved to section, well bedded in putty.

9. **Leaded Lights in Casements.**—The casements to be glazed with leaded lights according to design, and to architect's satisfaction, with all necessary saddle-bars, clips, &c. Or—

The casement windows to be lead glazed to design, with stout lead lights, and muffled glass, in tints selected, with border of clear glass, fixed with stout copper wire bands to wrought-iron saddle-bars,  $\frac{1}{4}$ in. diameter, not exceeding 12in. (or 16in.) apart, bedded in white lead.

Provide the sum of — for leaded lights to design to casement windows and doors, including all necessary saddle-bars and fixing, to be supplied by Nicholls and Clarke, or Williams Bros. and Co., Wych-street.

10. **Leaded Lights to Shop Fronts, &c.**—The upper panels of shop front (or fanlight of door) to be glazed with 16oz. muffled sheet (or other glass) of approved tints, according to design, in  $\frac{1}{4}$ in. (or  $\frac{1}{2}$ in.) lead comes, sprigged, bedded in putty (or wash-leather), and fixed to woodwork by  $\frac{1}{4}$ in. saddle-bars, 18in. apart, with copper bands, to the satisfaction of architect. Or—

The small squares above shop-front (or in vestibule door panels) to be glazed according to design (or pattern of manufacturer), with 16oz. muffled tinted glass, in  $\frac{1}{4}$ in. (or  $\frac{1}{2}$ in.) lead comes, bedded in putty, sprigged, and secured by saddle-bars, 15in. apart, or the leaded lights to be supplied by Henry Hope, Birmingham.

(If fixed to stone mullion jambs, the leaded glazing ought to be run in with mastic cement.)

11. **Rough Plate Glass.**—The cellar or area grating to be glazed with rough cast plate-glass,  $\frac{1}{4}$ in. or  $\frac{1}{2}$ in. thick, in plates not above 9ft. super., properly bedded.

12. **Pavement Lights.**—Allow p.c. sum of — for pavement lights to cellar, to be supplied by Messrs. Hayward Bros. and Eckstein. Or—

The area of basement to be fitted with Messrs. Hayward Bros. and Eckstein's patent semi-prism and convex-lens pavement lights (No. 1), fixed in iron frame in cement. Or—

13. **"Luxfer" Prism Lights.**—Provide and fix on pavement level Hayward Bros. and Eckstein's "Luxfer" pavement prisms, fixed in iron frames, 6in. by 3in. centres; and to stall-board vertical prisms in plates 4in. square, in iron frame. The frames above transom of shop front to be glazed with "Luxfer" prisms, 4in. square, made with the proper angle of ribs to light the interior.

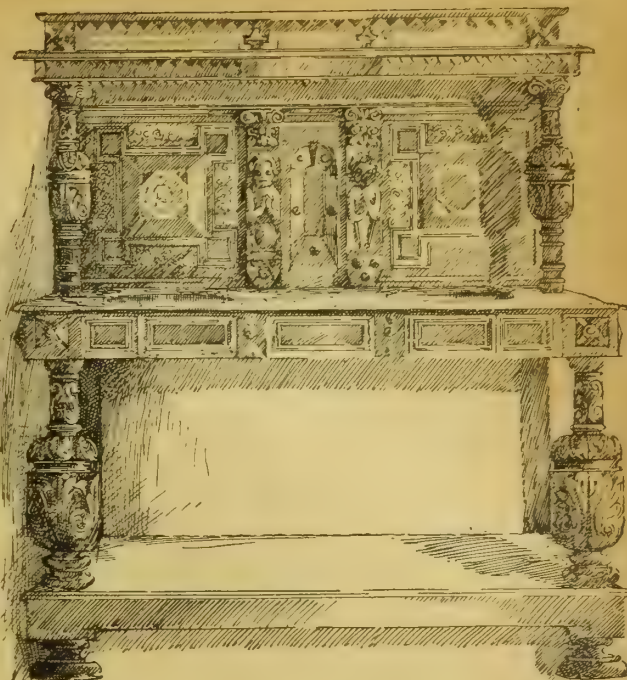
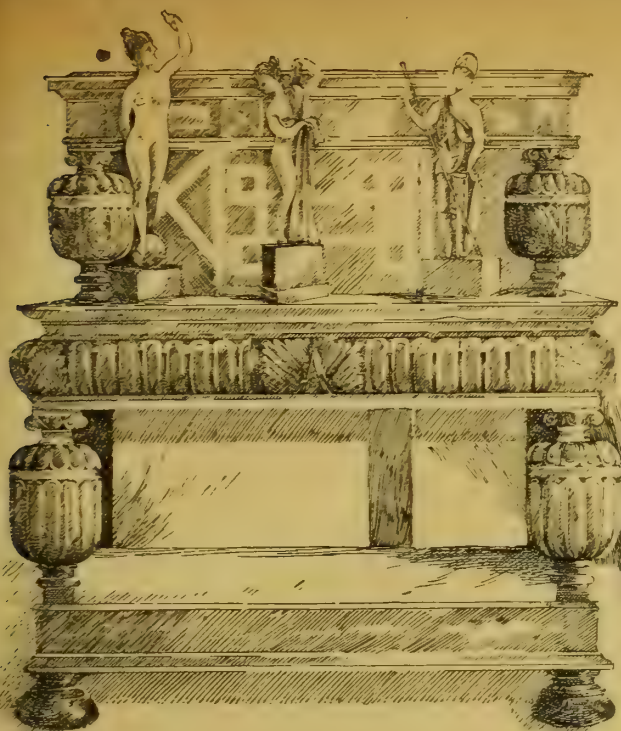
Glaze with electro-glazed "Luxfer" prism plates, of suitable angle, the front windows, according to directions of the manufacturers. Or, provide p.c. sum for same.

14. **Skylights.**—Glaze the skylights with  $\frac{1}{4}$ in. fluted rolled plate, small pattern; or the glazing to be fixed in patent lead glazing slips, securely fixed to bars with copper nails, and bedded on slips with thick white paint. Or—

15. **Lantern.**—Glaze the lantern lights (or skylights) with  $\frac{1}{4}$ in. or  $\frac{3}{8}$ in. rolled close ribbed plate, back puttied and sprigged with copper sprigs, the tails of sheets to have segmental cut laps  $\frac{1}{4}$ in., secured by copper clips.

16. **Conservatory Roof.**—Glaze the roof of conservatory with rough-cast plate  $\frac{1}{4}$ in. (or  $\frac{1}{2}$ in.) thick, or rough rolled fluted plate (or Hartley's rolled plate), with four or eleven flutes to the inch.





FURNITURE FROM HEAVITREE HOUSE, EXETER.

securely bedded, back puttied, and sprigged with copper sprigs. The sheets to be cut to point or curved at tail, and to lap in, and secured by tin, copper or zinc clips. The vertical sides of conservatory to be glazed with the same or 21oz. Hartley sheet-glass, bedded in putty and sprigged with copper sprigs. Or—

**17. Patent Glazing to Roofs.**—The roof of conservatory to be glazed on an approved system, with metal or wood bars, zinc caps, water channels, and condensation grooves formed in the bars to the satisfaction of architect (or specify Braby's patent system of glazed roofing, with moulded wooden bars covered with zinc or copper, and the glass secured by weather-tight packing.) Or—

The roof of conservatory to be covered with Rendle's (Westminster) patent system, the "Invincible" glass roofing, with metal channel-bars of copper (or zinc) mounted on moulded wood core, with copper (or zinc) astragals, secured by screw-bolts, and condensation channels; or provide a p.c. sum for same.

#### FURNITURE FROM HEAVITREE HOUSE, EXETER.

**THESE** two interesting pieces of furniture come from the fine collection of the late Sir Clare Ford, G.C.B., for many years Ambassador at Rome. The Hall Table is 3ft. 9in. long, of oak. It is handsome and boldly enriched, and inlaid at back; has one shelf, which is supported by two carved pillars. The Washstand is also of oak, having carved massive pillar supports and grotesque figures and pearl inlays at back. Both are in some ways uncommon pieces of furniture, and truly fine specimens of old English oak. They were recently disposed of by Mr. A. Bromley Sanders, of The Close, Exeter.

#### REPARATION OF NORWICH CATHEDRAL.

**THE** nave of Norwich Cathedral has now, says the *Norfolk News*, been closed for several months, during which time, thanks to the generosity of Mr. Samuel Hoare, M.P., and of Mrs. Hoare, a staff of skilful workmen has been busily engaged in unflaking the walls. Roughly speaking, about two-thirds of the operation have been completed, and some conception can be now formed of the great transformation that will be made when the whole of the work has been carried out. Several discoveries, which will be stated in detail, have been made, and they throw great light upon the ancient history of the building. Many of the colossal columns now stand cleared of the accumulated dirt and whitewash of

centuries, and the Norman setting of the early part of the 12th century is revealed for the first time for ages. In the south transept aisle, near the prior's door, some fragments of ancient colouring have been found. There are also traces of geometrical drawings on the arch near to the prior's door. On the columns opposite there are cuttings into the stone which correspond with similar cuttings in the same column at the lower bay. These are to be left as they are, for they point to the pre-existence of a series of small chapels long before the highly-decorated work in the glass screens was erected. There are a number of dowelled holes just here, and in the arcading on the south side of the same aisle the pillars are cut, evidently to make shelves in the recesses. Dowelled holes abound, some of them being filled with wood. These are to remain. There is in the second bay from the prior's door on the south side a remarkable recess. It is semi-circular, and in front of it there are two columns. It is hollow behind, and there is a larger recess in the vestry, and it would be extremely difficult to say what practical purpose either cavity served. The columns have suffered lower down from the erection of what was evidently a screen. Stones have been taken away, and their places supplied with bricks.

In the third bay westward from the prior's door the figure of a skeleton has been revealed. The hands are clasped upon the bare chest bones, and there are the following lines in ancient lettering:—

All you that do this place pass by,  
Remember death, for you must die.  
As you are now e'en so was I,  
And as I am so shall you be.

Where the feet of the skeleton would be are these two other lines:—

Thomas Gooding here do stave,  
Waiting for God's Iydgment daye.

Several of the columns on the right of this were burst by fire long ago. These have all been repaired, for the principle upon which the Dean and Chapter have acted is that wherever destruction represented dilapidation that destruction should be made good; but wherever cavities in stones represent ancient history there the cavities will be allowed to remain. Over the arch between the third and fourth bays there are remains of circular paintings. The first appears to be that of a building, but it is not clear what the other two are. To the right of it there are two female figures, but the significance of the whole is not apparent. The colouring is still brilliant. In the next bay are the memorials of the Wodehouse family. The great fluted column presents some

extraordinary cavities. These are to be filled up within a couple of inches of their surface, so as to indicate to the observer that they once served some purpose. In this fluted column there is a perpendicular cutting about 4ft. in height. This also is to remain. Opposite to it, on the south side of the bay, there is great dilapidation, which has to be repaired. In the next column of the next bay dowelled holes abound, there being no less than thirteen, and these will also be left. In the arcading opposite these dowelled holes there are remains of geometrical colouring.

Perhaps the most interesting feature in connection with this great work is represented by Bishop Nix's chantry. At the side of the roof of the bay there are the well-known remains of the sacring bell. The chantry roof shows the arms of the see surmounted by a figure, probably of Bishop Nix himself. The centre of the roof contains a figure of the same bishop, with his pastoral staff, and there are highly coloured shields of the see, Bishop Nix's arms, and other ornaments of an heraldic character. Some of the cusps have suffered very much from the general maltreatment which is deplored by Bishop Hall in his "Hard Measure." The site of the altar in Bishop Nix's chapel has rendered the theory of the existence of a reredos over the altar almost indisputable, the side shafts of stone having evidently been cut away to admit of its insertion. The columns, when unflaked, revealed wedges of mortar driven into the holes once filled up by the supports of either wood or iron representing the ends of the grille. These will either be left as they are, or a different sort of stone will be inserted to mark the history. The second bay, occupied by Chancellor Spencer's tomb, contains some fine and delicate carving, which is all to be preserved.

Crossing the nave to the north aisle, there is nothing which calls for remark in the first two bays west of the south transept; but in the third bay and in the western column of the ante-choir on the north there are evidences that in days gone by there was a fluted column similar to the two that are known to everyone in the nave. This third fluted column seems to have suffered great destruction, and to have been covered round by a veneer of stone, under which lies what remains of the original fluting. It is proposed to cover this all round with glass, so as to preserve the discovery, rather than to destroy the history of the column by replacing the veneer of stone which has hitherto covered it. The rest of the bays in the north side seem not to have suffered anything like the dilapidation or the violence to which other parts of the cathedral



were exposed. But the Hobart monument, with its arms, &c., is very highly coloured, and the utmost care has been taken so that in cleaning it the colour should not be lessened, and still less removed.

The famous Green Yard door through which, in pre-Reformation times, the preaching monk went out to address the civic celebrities of this ancient borough has perplexed the Dean and Chapter not a little. Here, again, first principles were fallen back upon—not a vestige of the old work has been allowed to be touched; but all that could be done has been done so to clean it that no single instrument should be allowed to pass over it. In the second bay below the Green Yard door a fragment of mural painting beside the window in the same bay was discovered as recently as Monday, January 23rd. The discovery was at once reported to the foreman, and by him to the Dean, who ascended the scaffold, and ordered that the greatest care be taken to preserve all that remains of it.

Coming to the Lyhart screen, the panels of Dean Fellow's erection are to be pierced so as to give the organist a view of the choir in the nave when the large organ has been erected. This is the only point at which this erection will be interfered with, and not the slightest interference will be tolerated with respect to the Lyhart screen. The great point of interest in the nave centres around the two fluted columns. In the abacus of the fluted column on the north side there are indisputable evidences of the existence centuries since of a screen. There are openings in the abacus to receive its joints, and these correspond with great holes in the fluted column on the south side. There is hardly a doubt that long before the Lyhart period an earlier screen of this great Norman fabric stood between these two columns. Indications of fire in the reddened colour of the stones which were exposed to it abound. These, of course, remain, and nothing more can be done than to point the holes that have been made by dilapidations and the aridness of the mortar. In these deep holes, which are a foot square, one sees the solidity of Eborard's nave. It justifies the criticism of the late Mr. Ewan Christian, who when comparing Peterborough with Norwich Cathedral to the great disadvantage of the former, observed: "Nothing less than artillery will move Norwich." The core of these great columns is composed of flint grouted in cement, and is as hard as iron. Over the pulpit which the late Dean Goulburn presented to the nave, and which is carefully covered up during the work of reparation, there are several dowelled holes. These suggest the position of a standing figure, or it may be of a painting in the panel behind the preacher, and for which the columns abutting upon it have been shortened. The panelled work in front of Bishop Nix's chantry, as well as in front of the bay in which Chancellor Spencer lies, is amongst the most beautiful revelations which Mr. Hoare's work has brought to light. The original painting is preserved, and each panel has its own distinct device.

It is an open secret that the Dean is considerably exercised as to the mode by which the great building should be lit. Up to the time that the reparation of the nave was taken in hand the fabric was covered by a whitewash coating, which in time, from age and smoke, became darkened and even filthy; but this coating served as a frock over the stone. This covering gone, the injury which the gas inflicted upon the covering will henceforth be inflicted on the stone, since there will be nothing to save it from the heat and smoke to which it will be exposed. A way out of the difficulty has not yet been found.

The Dean is full of confidence that the £1,000 required to complete the organ will be forthcoming.

The organ-blowing chamber will be on the north side of the cathedral. It is being built by Mr. T. Gill of Rupert-street, Norwich. Excavations have already been made to a depth of about 12ft.—the excavations are to go down to a total depth of 14ft., and there will be a 2ft. bedding of concrete—and the contractor has come upon a bed of very useful gravel, which is now being carted away for use in the Close. In two months the chamber will be ready for the reception of the Tangye's gas engine and cylindrical pumps which are to work the bellows of the new organ. The room and the engine will cost over £600. The organ case will be even more costly. The old case will be worked into the enlarged new one. The dimensions of the case are those of the organ,

and these may be gauged by the fact that the organ will occupy the whole of the gallery from the Lyhart screen on the west to the carved pinnacles over the stalls of the dean and vice-dean on the east. The cost of the case will certainly be over £700. It would be a graceful recognition of all the work the cathedral is now doing if some citizen presented the case. This would solve many difficulties. The name of the contractor for the organ case has not transpired, but rumour associates it with Messrs. Cornish and Gayner. They erected the Bishop Pelham Memorial Throne and the new stalls, and the Dean and Chapter have hitherto given all their work to local firms.

In all that has been done the Dean and Chapter have sought and received most valuable aid from Mr. W. H. St. John Hope and Dr. Bensly.

#### THE SUPERVISION AND REGULATION OF BUILDING OPERATIONS IN EDINBURGH.\*

**B**EFORE dealing with the jurisdiction and functions of the Dean of Guild Court of Edinburgh, as they exist at the present time, some short account of the origin and nature of the court may be of interest to you, as no similar tribunal exists in England. The Dean of Guild Court derives its name from the title of its President, the Dean, or Lord Dean, of Guild. The Dean is the head of the Guildry of the city, a corporation, or municipal body of great antiquity. The history of guilds is a very interesting study. From the earliest times merchants and skilled craftsmen have banded themselves together in these associations or unions for the preservation and promotion of manufacturing and trading interests. In Edinburgh the Guildry consisted of the merchants of the burgh, and as this corporation contained within it all the men of substance and standing in the burgh, they appear to have assumed or been vested with the power of regulating the public affairs of the community. For convenience their business was conducted and disputes were settled by the dean and a small council or committee, and in this way was originated the Court of the Dean of Guild. There existed at the same time other magistrates in the Lord Provost and bailies or bailiffs, corresponding to the Lord Mayor and aldermen of the English borough, who were appointed by the King to collect all rents and customs payable to the Crown, and who also exercised jurisdiction in criminal matters, and were responsible for the defence of the city—our friend, the enemy, in those days being usually the English; but the Court of the Dean of Guild had always an extensive jurisdiction in mercantile and maritime cases, and an exclusive jurisdiction in what are called cases of neighbourhood. Lord Erskine, one of the earliest and most famous of the Scots institutional writers, refers to an Act of the Scots Parliament of 1593, as

THE FIRST STATUTORY AUTHORITY FOR THE COURT; but in 1584 the Dean of Guild Court of Edinburgh had already framed certain constitutions of by-laws for its guidance, section 3 of which enacts that the Dean of Guild and his council shall "bear the hail burden of deciding all questions of neighbourhood." These constitutions were ratified by an Act passed by the Scots Parliament in 1593, and from that date onwards the Dean of Guild of Edinburgh and his council or court seem to have exercised such jurisdiction. I have in my custody the minute book of the court, in a practically unbroken series from 1529 to the present day, in spite of the proclivities of the English, who had a most provoking habit of ransacking our archives and destroying our records in the course of their incursions. Dean of Guild Miller, who retired from office in November last, has in his book on the Edinburgh Dean of Guild Court, made a most interesting collection of decisions by the court in those early times, showing the varied nature of its judicial functions. With the advance of the times, which brought with it the institution of popularly elected town councils, and the establishment of properly constituted legal tribunals for the disposal of all civil cases, the Dean of Guild was gradually stripped of his powers, and his jurisdiction was narrowed down to "regulating building within burgh,

whether in repairing, or taking down and rebuilding old buildings, or erecting new ones," and these practically are the functions of the court to-day. The Guildry still survives, and the members annually elect the Dean of Guild; but here, I think, its public duties cease. The qualification for a guild brother, as a member of the Guildry is called, is that he has been in business in the city for one year, or has been a householder and paid rates and taxes for three years, and his election costs him one guinea. The Dean of Guild is *ex officio* a member of the town council. This short account of the origin of the court will show that when the powers and duties of the court came to be defined by statute, which occurred in 1879, the court had already by usage and precedent acquired a jurisdiction at common law which was reaffirmed in such charter granted by the court to the Borough of Edinburgh, and was explicitly recognised by the judges in the Supreme Courts. This brings us now to 1879, when the court was constituted in its present form.

#### THE EDINBURGH MUNICIPAL AND POLICE ACT

of that year enacts thus: From and after the first Friday following the election of councillors in the month of November, 1879, the Dean of Guild Court, as at present constituted, shall cease and determine, and shall on and after that date consist of the Dean of Guild, appointed by the Guildry of the city, as use is, and of ten members then and at the corresponding date in each succeeding year to be appointed by the magistrates and council, five of the said members being councillors and the other five registered electors of the city not being councillors, and of whom three shall be persons carrying on, or who have carried on, business as architects, civil engineers, ordained surveyors, or master builders, and three members of the court, with or without the Dean of Guild, who, when present shall preside, shall form a quorum; and the said court shall have power from time to time to appoint one of their number to preside and act in the court in (as interim Dean of Guild) the absence of the Dean of Guild and such Court, as so constituted shall possess and exercise within the burgh, all the rights, powers, privileges, functions and jurisdictions which are possessed and exercised by the existing Dean of Guild Court, by law or usage, within the limits of its present jurisdiction, which are not inconsistent with and which are by this Act conferred," so that you see when the court was reconstituted care was taken to preserve to it all its inherited and common-law powers. You will also observe that the Act prescribes that three at least of the members of the court must be architects, civil engineers, ordained surveyors, or master builders; but, as a matter of fact, the importance of securing that this court shall be one composed of practical men is so well recognised in the town council that the proportion of these is always much higher than the law requires. For instance, the present Dean of Guild is an ordained surveyor, and of the ten members of his court there is one architect, one civil engineer, four master builders, one plumber and sanitary engineer, two house and property agents, and a marble merchant. Some of these gentlemen are retired, but the majority are in business, and all are men of standing in their various professions and callings, and of repute as citizens. So much has the practical nature of the court impressed itself on the judges in our Supreme Courts, that in a recent appeal against a judgment of the Dean of Guild Court dealing with a practical point, the judges, in dismissing the appeal, put it upon record that "they will be slow to interfere in a matter of this sort with the decision of the Dean of Guild and his council, who are practical men, skilled and experienced in the building trade and other trades connected therewith." Of course, if, as sometimes happens, a member of the court is in any way interested in a petition before the court, he must withdraw during the consideration of the case. While the court, however, is more particularly fitted to deal with the practical aspect of the cases which come before it, it may competently, and does constantly, decide the legal questions which may arise in these cases. Obviously, in cases of neighbourhood, intricate questions arise, involving the construction of titles and the application of the law of servitudes; but in dealing with the legal aspect of a case, the court is advised by its legal assessor, who is always a member of the Bar—an advocate, as he is called in Scotland, the equivalent of your

\* Abstract of a paper read before the Society of Architects on Thursday, Jan. 26, 1899, by DAVID LYON, Clerk to the Edinburgh Dean of Guild Court.



barrister. Only on one point has the court no jurisdiction, and that is when a conflict of title arises—when two parties produce titles apparently applying to the same property. In such an event the Dean of Guild Court must delay the disposal of the petition until the right of property has been decided in a competent court. Although the members of the Dean of Guild Court, with the exception of the dean himself, are now elected by the town council, and five of the ten are members of the council, the court is wholly independent of the council, while the council is made a party in all proceedings before the courts. Its position is the same as that of any other party, neither more nor less.

#### THE OFFICIALS OF THE COURT

consist of the master of works, the procurator fiscal, and the clerk. The functions of the master of works are to report to the court upon all plans lodged with petitions, and to see that the orders made by the court are duly executed, and from time to time to inspect the works in progress in execution of plans for which warrant has been given by the court; also to report to the procurator fiscal any deviation therefrom. He is prohibited from engaging, directly or indirectly, in any service or employment connected with the professions of architect, civil engineer, or surveyor, or from being connected directly or indirectly with or interested in any contract or works belonging to any branch of the building trades. He, of course, has a staff of inspectors to assist him in his work. I may state that the master of works in Edinburgh is also the burgh engineer, and the combination of the two offices has been found of immense advantage in the supervision and inspection of work authorised by the court, and in the detection of unauthorised building operations. This combination has the further recommendation of preventing the friction and overlapping occasioned by two officials with distinct staffs of assistants engaged in work very similar in character. Both systems have been tried in Edinburgh, for in 1879 an independent master of works was appointed; but in a few years the friction and overlapping to which I have referred became so apparent that the offices were conjoined with the most satisfactory results. The next official is the procurator fiscal or public prosecutor. His duty is to take proceedings against any person contravening the law by building without a warrant, or deviating from the plans in conformity with which any warranty of court has been granted, also against the proprietors of a ruinous or dangerous building or structure to have the same taken down or secured, and generally it is at his instance that all offenders against the Dean of Guild Court Law are brought before the court. He is called the procurator fiscal for the public interest, and he represents, as his designation suggests, the interests of the public in the enforcement of the law. This, I may tell you, is the practice in all Scots courts, and you will permit me to say that it is one which might with advantage be adopted in England. In Scotland all prosecutions proceed at the instance of a public prosecutor. Lastly, there is the Clerk of Court, who is expected to guide the court in matters of procedure. He has always to keep a record and minutes of all proceedings before the court, including an index open to the public of all warrants granted by the court. He is charged with the safe custody of all plans passed by the court, which remain permanently in the possession of the court for reference. While this is, of course, necessary for the purposes of the court, it is, at the same time, of great public convenience. I need hardly say that petitioners do not lodge their principal plans, but only tracings. Having explained the constitution of the court and enumerated the officials, I purpose now to deal with

#### THE CLASS OF CASES SUBMITTED TO THE COURT

with the method of their disposal. The section of the Act prescribing the operations in respect of which a warrant of court is necessary, is as follows:—"Every person who proposes to erect any house or building, or to alter the structure of any existing house or building, or to use for human habitation any existing house or building which had not been previously used for that purpose, or to alter the mode of occupancy of any existing house in such a manner as to increase the number of separate houses or occupiers, shall lodge with the clerk or Dean of Guild Court a petition for warrant so to do, and such petition shall set forth a description of the intended house, or building,

or alteration, and shall be accompanied by a plan of the site showing the immediately contiguous properties, and also the position and width and name of any street, court, foot pavement, or footpath from which the property has access, or upon which it abuts; and also plans, sections, elevations, and such detailed drawings as are necessary to show the height and mode of structure and arrangement of the intended house, or building, or alteration, and the lines of the intended drainage thereof, and the levels thereof relatively to the street, court, foot pavement, or footpath, and to the sewer or drain, and where the soil-pipes and drains of the property to be built or altered are intended to be connected; and in regard to any building intended as a place of public resort, such plans shall show the arrangements for ventilation and heating, and the provision intended to be made for ingress and egress; and all plans to be lodged as aforesaid shall be drawn to a scale of not less than one and one-quarter inch to every 10 ft., except plans of the site, which may be to a scale of not less than one-fourth of that of the other plans; and such petition, plans, and sections, with such alterations thereon as may be made as after provided, shall be registered and indexed by the clerk of the Dean of Guild Court; and the said petition, plans, and sections and register and index shall be open to inspection by any owner or ratepayer upon payment of a fee of 1s. Provided always that the Dean of Guild Court, on a written application may, in the case of any alterations of any house or building which do not affect the property or the rights of other owners, and which, in the opinion of the Dean of Guild Court, are of minor importance and extent, remit such application forthwith with such instructions as they think fit, to the master of works, who may thereupon grant warrant for the execution of such alterations, and which warrant shall have the effect in all respects of a warrant of the Dean of Guild Court, and be subject to the provisions of this Act in the same way as if such warrant had been granted by the Dean of Guild Court, and all such alterations shall be executed to the satisfaction of the master of works, who shall make a report to the Dean of Guild Court." To this section an addition was made requiring that all plans shall set forth thereon the material proposed to be used in the construction of the elevations of any house or building, and prohibiting any person from building, altering, or rebuilding any house or building until the approval of such material has been given by the court. A warrant of court is also now necessary for excavations intended to be made for and in connection with houses or buildings intended to be erected. I wish more particularly to direct your attention to the clause dealing with the material to be used in the elevations of buildings, because it makes an advance on the primary function of the court, which is to secure sufficiency of structure.

#### THE POWER TO CONTROL THE MATERIAL USED

in the elevations may be said to go beyond mere considerations of stability and security, and to confer on the court a discretion which will, to a certain extent, entitle it to be reckoned with as a court of taste, because, as far as stability is concerned, a building may be equally well constructed of stone, brick, and cement, iron, or wood, or of a combination of any of those materials. In Edinburgh we are proud of our picturesque city, and there is a strong bias in favour of the use of stone—at least, in the elevations of our buildings—along with a desire to secure some measure of architectural feature in their appearance, so that when some more than usually plain or ugly building is erected, the desire is often publicly expressed that the Dean of Guild Court should have the power to consider the architectural character of the plans submitted to it. Now, while we are generally agreed that this would be desirable, and while the court does as far as possible use its influence in the direction of persuading the speculative builder and utilitarian to spend a little money on architectural feature and decoration, we have to recognise that a prosaic legislature will not give to any court or local authority the power to dictate to the individual in such matters. I suppose this is inevitable, because it does seem inequitable to compel any private individual to erect beautiful but probably unremunerative structures for the public delectation, and also because we must admit the force of the maxim that there is no disputing a matter of taste, and on a question so exclusive and so personal we can never hope to have unanimity

of opinion. We may be assured, then, that the Dean of Guild Court will never be a court of taste in this sense, and this power, even of controlling the material of elevations, is one which, I am satisfied, it will not be permitted to exercise arbitrarily; but, so far as reasonable men may endeavour to preserve amenity and congruity without entailing undue expense on the owners of property, to that length, I believe, the action of the court will be sustained. There is also a proviso in the section of the Act just read which deals with warrants for

#### ALTERATIONS OF MINOR IMPORTANCE

and extent, and which was inserted for the following reason: It was urged that in a large number of cases the alterations proposed, although they were structural, were of such a trivial character that it seemed a hardship to insist on the proprietor of the property being put to the trouble and expense of presenting a petition in the ordinary way to the court. Accordingly this proviso was inserted, allowing a person in such a case to lodge a simple sketch, accompanied by an explanatory letter, and so obtain the sanction of the court without incurring much expense or loss of time. This advantage has been readily taken advantage of, with the result that a class of case which occasioned much trouble to the court and its officials through the difficulty of deciding whether or not it came within the scope of the Act of Parliament, has been provided for in such a simple way that people have freely availed themselves of the facilities thus afforded them for obtaining the sanction of the court, and very few even of the most unimportant alterations are carried out without this sanction.

(To be continued.)

#### THE SOCIETY OF ARCHITECTS.

THE third ordinary meeting of the Society of Architects was held at St. James's Hall, Piccadilly, W., on Thursday in last week, the President, Mr. Walter Emden, J.P., L.C.C., in the chair. Two nominations for membership were read and approved.

#### THE SUPERVISION AND REGULATION OF BUILDING OPERATIONS IN EDINBURGH.

A paper on this subject was read by Mr. DAVID LYON, the clerk of the Dean of Guild Court in Edinburgh, and is reported on preceding page.

In proposing a vote of thanks to Mr. LYON, Mr. J. R. MANNING remarked that in Edinburgh the officials seemed to have the confidence of the citizens; whereas in London they were looked upon by the public as their natural enemies. In Edinburgh the service of notices on adjoining owners was done by the officials rather than by the architect, and he thought that would be a decided improvement if the same could be done in London, as it would relieve both architects and builders of much trouble.

Mr. HENRY LOVEGROVE observed that Edinburgh was, of course, a very small place, not much larger than the district of Shoreditch, which he managed all by himself, and he considered that the arrangements of the Dean of Guild Court of that city were extraordinarily elaborate. The Guild Court seemed in some respects to resemble the Building Act Committee of the London County Council. He wished to second the vote of thanks.

Mr. WILLIAMS, solicitor, remarked that the supervision of building operations in Edinburgh was much better than in London—it was cheaper because expert evidence was avoided, and quicker because the Guildry Court ascertained for themselves the facts of each case. In London a great amount of money was unnecessarily expended in setting cases of dispute. The Dean of Guild Court also enforced its own decisions—another point in which Edinburgh was in advance of London. The system which prevailed in Edinburgh might well be copied in the Metropolis, where we had the germ of something of the kind in the new Tribunal of Appeal.

Mr. ELLIS MARSLAND, hon. secretary, said the paper had been brought forward at an opportune moment when the question of the supervision of buildings was before the minds of the public and of the London County Council. Personally, he was far from agreeing with the whole of the proceedings of the Dean of Guild Court, the great charm of which was that it was composed of practical men. If they had in London a court similar to the Guildry, it could deal with questions



of light and air, which, if brought before practical men, could be settled cheaply and quickly.

Mr. PERCY HUNTER, District Surveyor of Lower Norwood, pointed out that the difference between the methods of supervision employed in England and Scotland hinged on the system of land tenure, for in Scotland there was no such thing as leasehold property as the term was understood here. If it were possible in England to confine building to freehold land, they could soon do away with the necessity for district surveyors.

The PRESIDENT had been much struck with the simplicity of the Scottish system of supervising building operations, one which spoke volumes for the practical sense of our Scottish neighbours. He believed we might with advantage incorporate some of the Scotch building laws, especially those dealing with light and air, into our existing code. The Society of Architects had recently presented a petition to the Lord Chancellor on the subject, and a motion he had brought before the London County Council had only been lost by an equality of votes.

Mr. LYON, in responding to the vote of thanks, which was carried by acclamation, thought it was quite hopeless that they could think of altering the institutions of England, the laws of the two countries were so different. The Dean of Guild regulations applied all over Scotland. Edinburgh was better off than Glasgow, because in the latter place the Dean of Guild court was not so closely in contact with the town council. They had in Scotland no real building laws, but only building rules, which did not deal with plans, but only with materials and the manner of building. The President of the Dean of Guild Court was elected annually, and received no salary. The question of appeal was the great weakness in the London system. In Edinburgh the cases were settled direct by the court in the first instance, and very few cases ever went beyond the court.

## INSTITUTION OF SURVEYORS.

### STUDENTS' PRELIMINARY EXAMINATION.

OF the candidates who presented themselves at the Preliminary Examination of the Institution, held concurrently in London, Manchester, and Dublin on the 18th and 19th inst., the following satisfied the examiners:—

Lawrence Haynes Adams, 1, Southdown Villas, Burgess Hill, Sussex; Paul Adams, Woodville, Beckenham-grove, Shortlands, Kent; Leslie Herbert Allen, 4, Hawkwood Mount, Springfield, Upper Clapton, N.E.; Henry Anderson, Uplands, St. Julian's-road, Streatham, S.W.; Arnold Edwin Bare, 64, Lebanon-gardens, West Hill, Wandsworth, S.W.; Charles Russell Barker, 4, Park-crescent, Portland-place, W.; Herbert Graham Barker, 2, St. Paul's-square, Bedford; Norman Boniface Batterbury, Berkhamstead, Herts; Albert Henry Bell, Woburn Lodge, Addlestone, Surrey; John Ingham Benson, The College of Agriculture, Downton, Wilts; Alfred Norman Blake, Maisonnelle, Willis-road, Gosport, Hants; Harold King Blyth, Reinville, 30, Cotham Vale, Cotham, Bristol; Bertram Alfred Boyton, The Retreat, Church-row, Fulham, S.W.; Reginald Woodhouse Brealey, Rose Bank, Leek, Staffordshire; Sydney Browning, 12, Beaufort-road, Clifton, Bristol; William John Carter, Glaslyn, Chatsworth-road, Brighton; Cuthbert Harvey Clark, 18, Palace Garden Mansions, W.; Cyril John Clements, Stratford House, Mildenhall, Suffolk; Harry Reginald Ellis Coker, 2, Hillsboro'-road, East Dulwich-grove, Dulwich, S.E.; Frederick Stanley Daniell, 13, Lexden-road, Colchester, Essex; William Robert Davidge, "Hopetown," Teddington Park-road, Teddington; James George Morris Davies, Troy House, Rugby, Warwickshire; Richard Harold Demuth, Leek Wootton, Warwick; John Boon Denham, Olden Lodge, Purley, Surrey; Conrad Hugh Dinwiddie, 12, Croom's-hill, Greenwich, S.E.; Harold James Dodd, The Glebe, Goring-on-Thames; John Robert Farrant Driver, 74, Burleigh-street, Cambridge; Douglas Howard Eldridge, "The Rhespas," Mount View-road, Crouch Hill, N.; Stewart Frank Haywood Farmer, 98, New-street, Birmingham; Charles Fishwick, Waterloo House, Wellington-road, Hastings; Harold Vernon Fletcher, Penshurst Park, Tonbridge, Kent; Ronald Garham Francis, Stour-street, Sudbury, Suffolk; Thomas Goodgames, The Limes, Eaton Socon, St. Neot's, Hunts; Harold Hanson, Holmwood, Edgerton, Huddersfield; Harold Croft Hardy, 8, Morella-road, Wandsworth Common, S.W.; Ronald Hartley, The College of Agriculture, Aspatria, Carlisle; Herbert George Heal, "Arnewood," 9, Nelson-road, Southsea, Hants; Richard Hewett, Whitelane Farm, Seale, near Farnham, Surrey; Fred Hill, Bridge Inn, Free Town, Bury, Lancashire; William Harold Hillyer, "Knockholt," Ravensbourne Park, Catford, S.E.; Richard Valentine Hitchings, Downham, Rectory-place, Guildford; Robert Cecil Holbeche, 21, Bennett's Hill, Birmingham; Philip Lewis Hopkin, James-street, Pontardawe, near Swansea, South Wales; Richard Brown Hopkinson, Laurence Dene, Edgerton, Huddersfield; Frank Vivian How, West Cottage, Asylum-road, Lincoln; Arthur Burnaby Howes, 193, High-road, Balham, S.W.; Lloyd Unsworth Hubble, The Elms, Hutton, Maidstone, Kent; George Piton Insley, Old Studley House, Wimbome-road, Bournemouth; Richard Stephens Jackson, 117, High-street, Sittingbourne, Kent; Reginald Charles James, "Trefeife," Ringwood-road, Poole, Dorset; William Howard Riden Jarvis, West Tarring, Worthing,

Sussex; Francis Wilson Jeffery, 77, St. Helen's-road, Hastings, Sussex; Arthur William Johnson, Woodland House, Manor-road, Barnet; Ronald Henry Raines, Milton, Gillingham, Dorset; Leonard Needham Knox, 19, Bryanston Mansions, York-street, W.; Ralph Julian Lake, Heage House, Crouch Hill, N.; Harold Minton Leach, 32, Upper Richmond-road, East Putney, S.W.; Randle Burslem Lees, 99, Antrobus-street, Congleton, Cheshire; Edward Llewellyn Lewis, 21, Ranselagh-road, Westbourne-square, W.; Sydney Evan Lowley, 3, Rectory-terrace, New Hampton-road, Wolverhampton; Trice Martin, 109, West-street, Farnham, Surrey; \*Arthur Whistler Neale, Speenhamland, Newbury, Berks; Leslie Richard Notley, Larkfield, Englefield Green, Staines; William Henry Overton, 6, Compton-avenue, Brighton; Sydney Arthur Parwell, 68 Colveston-crescent, Dalston, N.; Maurice Harry Donne Parsons, Rosemount, Exeter, Devon; John Patten, jun., Park Farm, Alwicks, Northumberland; Dan Ward Perkin, Gulworthy, Tavistock, Devon; Charles Fearnall Perkins, Englehome, Sea-road, Boscombe, Hants; Philip Septimus Pitt, 53, Bateman-street, Cambridge; Albert Edward Priest, Hornedale, Old Hill, Staffordshire; Harold de Lisle Reaney, 11, Upham Park-road, Chiswick, W.; Charles Cecil Reed, Beecroft-grange, Beecroft, near Hull, Yorks; Edward Reed, Downlands, Rottingdean, Sussex; Ernest Charles Richardson, Stamford, Lincolnshire; Arthur Henry Rippengall, 19, Cameron-road, Croydon; Josslyn Alleyne Robinson, Market-square, Kirkby Lonsdale, Westmoreland; George Armstrong Rowlandson, 1, Richardson-street, Carlisle; Humphrey Gladstone Russell, Boyle Cottage, Thames Ditton, Surrey; Sidney Rupert Backett, Wingfield House, Orsett, Essex; Ernest Arthur Scollick, 3, Church-road Villas, Burgess Hill, Sussex; Herbert Douglas Short, Saham Toney Rectory, Walton, Norfolk; James Harcourt Slade, West Lodge, Uppminster, Essex; Henry Richard George Strong Smallman, Stanstead, Sutton, Surrey; Douglas Henry Smith, 7, Marine-avenue, Westcliff, Southend-on-Sea; Stanley Addison Smith, "Sunnyside," Monkseaton, Newcastle-on-Tyne; Warwick Hughdon Smith, 150, Eastgate, Rochester, Kent; Thomas William Smyth, 82, High-street, Barnstable, Devon; Arthur Perry Stockings, Rowan House, Cheshunt, Herts; Frederic Stone, The Horwells, St. Stephens, Launceston, Cornwall; Samuel Davis Taylor, Packington House, Ashby-de-la-Zouch; Edgar Guy Temple, Fraser House, Margery Park-road, Forest Gate, E.; William Thompson, 8, Cavendish-place, Carlisle, Cumberland; Francis Ferrier Tomlin, 49, Lordship-lane, Wood Green, N.; Frank Ward, 47, Cowley-road, Leytonstone, E.; Alexander Lindsay Watt, The Agricultural College, Aspatria, Carlisle; Arthur Daniel Moutray Webber, University College, Bangor, N. Wales; William John Walter Westlake, 83, Cobourg-street, Plymouth, Devon; Percy Hamilton Wharton, 85, Kent House-road, Beckenham, Kent; John William Edden White, 4, Calverley-terrace, Tunbridge Wells, Kent; Ernest Mortimer Whitehead, 29A, Old Bond-street, W.; John Layard Whytehead, The Vicarage, Warminster, Wilts; Clement Wilks, 15, St. Mary's-road, Highbury, N.; Harry Russell Willmott, Spital House, Chesterfield, Derbyshire; Hugh Miller Wilson, One Ash, Kettering, Northamptonshire; John Guy Wood, Elmwood, Upper Warrington, Surrey; Rowland Harry Wood, 4, Worthing-road, Hove, Sussex; Francis Wright, Danbury, Chelmsford, Essex; Charles Alexander Young, 167, Briston-road, S.W.; Passed at head of list.

IRISH CANDIDATES.—Reginald Hume Townsend Gahan, 6, Kenilworth-square, Rathgar, Co. Dublin; Robert Beresford Gahan, Beverston, Dundrum, Co. Dublin; John Talbot Goff, Clonara, Killiney, Co. Dublin.

## TIMBER SEASONING BY ELECTRICITY.

FROM the earliest times, one of the chief problems for users of wood has been to obtain an adequate supply of thoroughly seasoned timber, the process of natural seasoning taking from three to five years. This difficulty is now claimed to have been solved by the application of the Nodon-Bretonneau process, a company whose operations have been carried on in France for some months with much success, and who are just introducing the system into England, having, at present, a model plant in full working order at the works of Messrs. Johnson and Phillips, at Charlton. The process involves the total expulsion of the sap, and its replacement by a solid resinous matter, which is accomplished by placing the wood flat in a vat containing a solution of borax 10 per cent., rosin 5 per cent., and carbonate of soda  $\frac{1}{2}$  per cent., which is kept by a heated coil to a temperature of about 80°. The lower part alone sinks into the solution. An electric current, under the necessary difference of potential, crosses the thickness of the wood, enters a lower positive pole and a higher negative pole placed in a porous vase full of water. By the action of the current, the solution is sucked from the bottom to the top and permeates the whole mass of wood by *electro-capillary attraction*. The displaced sap rises to the surface of the bath, and such treatment lasts from six to eight hours. The wood is then dried in the ordinary way, in summer a fortnight in the open being sufficient, in winter by the aid of a stove heated by steam coal, about five days being only necessary.

It is claimed that by this process many woods hitherto unworkable can now be used, and specimens of many varieties are shown, including mahogany, teak, pine, *grisard* (a French wood almost unusable in the ordinary way), and a piece of maritime pine, cut and seasoned in eighteen days, including transport.

The process causes the seasoning to be thoroughly accomplished—whether the wood be hard or soft—renders it impervious to moisture, and preserves it from decay. It further enables the staining of timber (to any desired colour) to be carried right through its thickness, and experiments are being instituted whereby it is hoped to also render it non-igniferous.

## THE BOOK OF FIREPLACES.

THIS is a well-illustrated catalogue of fireplaces issued by Messrs. Alex. Boyd and Sons, of the Boyd Works and Showrooms, 105, New Bond-street, W. The designs shown vary in price, ranging from 10s. to £500, and illustrate the decorative section of this firm. Some useful information will be found in the introductory pages. Messrs. Boyd and Son adopt the best English and American systems of warming. For warming private houses a list of points are given to be answered which will enable the firm to advise as to the kind of fireplace or other means of warming required. The designs represent various styles. The first is a Gothic fireplace, "Cardiff Castle," with the lining of bas-relief iron and with polished iron and brass dogs, the basket being available for coal or wood. The width is 4ft. 6in., size of fire 1ft. 11in., and price £24. Another, a Renaissance fireplace, is with upper part of rich carved wood, and figures of statuary marble. The fireplace has brass dogs copied from a Florentine example. "A Tudor Fireplace," "Hatfield House," is also of bas-relief iron lining of ornamental panel-work, with fuel basket. The design is simply treated, and the chimney-piece is of carved wood, with marble. Other examples represent grates in polished iron and brass enrichments in the Louis XV., Louis XVI., Italian, and other designs; these are chiefly register grates with tiled jambs and friezes, fire-lump bodies, some with canopies, and of moderate price. A hob-grate in black iron, designed after an 18th-century type, and with brass mouldings and firebrick back, and other Old English and Louis XV. patterns, dog-grates, and basket-grates, independent of the opening, are illustrated. We recommend these designs to all who desire to introduce artistic grates and fireplaces.

## A HILLSIDE HOUSE.

THIS drawing shows the garden front of a house to be erected on a site situate on the slope of a hill. The materials are stone and stucco, with timber-framed gables and tiled roofs. The ground plan includes entrance-hall, dining-room, drawing-room, morning-room, servants' hall, pantry, servery, &c. The kitchen and offices are in the basement. On the first floor are studio, four bedrooms, dressing-room, bath-room, w.c., &c. Mr. Percy Robinson, of Leeds, is the architect.

## BUILDERS' TENDERS.

UNDER the auspices of the Huddersfield Master Builders' Association, a lecture was delivered at the Builders' Exchange, Huddersfield, on Tuesday week, by Mr. James Townsley, of Hull, general secretary of the National Association of Slate Merchants and Slaters, on "The lowest or any tenders not necessarily accepted." Mr. Alderman B. Stocks presided, and was supported by Mr. John Dawson.

Mr. Townsley said he thought he could fairly claim to have selected a familiar text from which to speak, for what contractor throughout the country, be he large or small, had not read over and over again the mystical words, "The lowest or any tender not necessarily accepted?" Probably the older or more experienced of the fraternity had long since placed upon them their true worth, and it would not be a matter of great surprise if they had entirely overlooked them. The experienced contractor notices only the essentials of the contract, namely:—The work to be done, the date on which tenders are to be sent in, and the architect's name, and certainly to those who were well versed in the rudiments of contracting, nothing further need be noticed. But to the young and inexperienced builder, actuated by a righteous ambition, the words have a charm, they become an allurements to which he sooner or later yields, and, in yielding, he often becomes a thorn in the side of the more matured contractor,

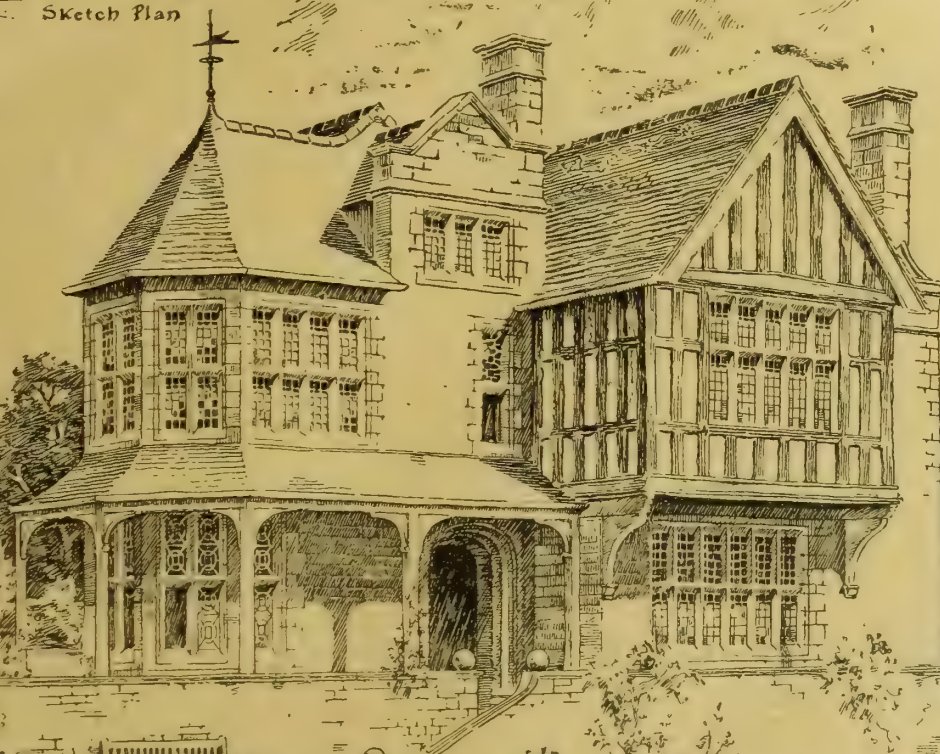


## A HILLSIDE HOUSE.

PERCY ROBINSON ARCHT



Sketch Plan



Percy V. Robinson DEL.

Percy V. Robinson

who, having won his spurs by years of struggling and costly experiment, feels a sense of injustice in making up a tender against those whom he feels are not fully qualified to do so. The architect often defended the position by stating that the clause itself very largely tended to retard small men from tendering, inasmuch as it was an intimation that such as had little experience, or lacked the necessary essentials, had a very remote chance of success; but it did not require a wiseacre to tell them how often other than the lowest estimate was accepted. It was this knowledge that induced the young builder to attempt contracting; he was influenced very largely by this clause, which is invariably found in advertisements. The lecturer himself had often been approached by young bricklayers and joiners about contracting and their probable chance of

success, and they had almost invariably drawn his attention to the clause with which they were dealing. The results unfortunately too often revealed the folly of such early efforts, for it required years of probation before one could hope to become a successful contractor. To secure work either by reckless tendering or from ignorance engendered by a lack of experience, not only injured the unfortunate contractor, but prevented another man from securing work at a fair profit. He failed to see the necessity for the clause at all. It was misleading, very often ludicrous, and served no useful purpose. It had no legal value, as Hudson on the law of building, states that "whilst it is usual to announce that the building owner does not bind himself to accept the lowest or any tender, such reservation is only an excess of caution, for advertising for

or inviting tenders is a mere attempt to ascertain whether an offer can be obtained within such a margin as the building owner is willing to adopt, a mere offer to negotiate with the persons who reply to the advertisement." Undoubtedly an architect's first duty was to his client, and in considering estimates he must also consider the class of work required to be done, and whether the contractors are able, in his opinion, to fully carry out the work. He was therefore of opinion that in regard to publicly advertised work the lowest estimate sent in ought not necessarily to be accepted, but on turning to estimates which were privately invited, a much different aspect presented itself. The architect then selected men in whom he had fullest confidence, and thus every competitor was on an equality, and gross injustice was done if the lowest tender was not



then accepted, unless such tender was obviously the result of some error. A misuse had been made of these contracts in some cases, but since the inauguration of master builders' associations, builders' federations, exchanges, and the like, there had been less opportunity of transgressing the laws of honour in this way. Corporate and public bodies had not been guiltless in the matter; but they had often sheltered themselves by saying they were not spending their own but the public money. Contractors must not, however, set themselves up as an immaculate body, and they must remember that by honest criticism reforms would be brought about. Commenting upon the fact of borough engineers or architects estimating the cost of a proposed building or improvement, he thought it was too often the case that the figures set forth by that official were held to be the extent to which the contractor must go. It should be borne in mind that that was only an approximate and not an actual estimate; these gentlemen were not contractors, and were not able to follow the fluctuations of the market or grasp the difficulties of the labour element as those who were in constant touch with them. He asked why should contractors be called upon to give an estimate at all? Could not they, as contractors, be trusted to execute an order and charge honestly for time and material? Why could not the work be done as cheaply by the day as by contract? He went on to speak of the importance of builders' associations and federations, and said that organisations were springing up like mushrooms, and amongst the members a more brotherly spirit was being engendered—a spirit of protection and justice for all who were associated with their work. In conclusion, he urged them to strive to turn out, if possible, better work, and to gain the fullest confidence of everybody interested in their trade, so as to render obsolete the term, "The lowest or any tender not necessarily accepted."

In the course of a discussion which followed, Mr. Lewis Radcliffe characterised the suggestion of the lecturer of submitting monthly or weekly statements of work done whilst a job was being proceeded with as an admirable one. There was often much difficulty in an 18 months' or two years' bill to get the architect to remember the several points in the bill. Mr. F. Milan agreed that when contractors were selected it should be the invariable rule that the lowest tender should be accepted, for to put contractors to the trouble of getting out estimates when a selection had already been made was altogether unfair to them. Mr. Graham, alluding to the question of day-work, said that many contractors preferred that system instead of having the work by contract, and it was better in some cases to have the work done in that way. Mr. John Dawson remarked that contracting was legitimate in itself, but it was sometimes overdone, for people, when they had only a 5s. job to be done, wanted to know what the cost would be. He emphasised the fact that a more kindly feeling towards each other existed among contractors than there used to be, and that would not tend to any unfair treatment of the public or anyone, for he was sure they did not want to take advantage of either architects or the persons concerned in the outlay for any building operations. What builders in general felt was that they wanted to do a fair day's work for a fair day's pay. He added that some contractors undertook to do work at a price which in the end proved insufficient for even the cost of material, and he wished all builders to bear in mind that, especially where public bodies were concerned, they were expected to do good work whether their contract terms were low or not. Mr. A. Crowther said there was a great change in conditions now a days compared with, say, 27 years ago, when he entered upon a business career. At that time it was not so much a question, as it was now, on the part of persons intending building of "how much?" but of "how soon could the work be done?" He argued that the cause of this manifest distrust of contractors was the increased price of labour, it being now something like 10s. per week more per man, on an average, than at one time. Mr. Studdard deplored the feeling which, at the present time, existed between architects and contractors. If there was more of honesty and morality among them than was to be seen sometimes, there would be less jealousy of each other. Mr. Varley, of Slaithwaite, suggested that architects should send out to contractors in whom they had confidence that they would do the work well. The Chairman remarked that he could not see any

reason why the clause in the shape of the title of the lecture should not be inserted in advertisements. Often in reply to advertisements were received tenders from men not really able to do the work concerned, and he saw no injustice whatever to honest tradesmen by the insertion of the clause. The great secret of successful contracting was having good workmen who could be relied upon to do the work satisfactorily and thoroughly. The proceedings concluded with a cordial vote of thanks to the lecturer and chairman, on the proposition of Mr. J. Dawson, seconded by Mr. Barraclough, of Holmfirth.

#### OBITUARY.

By the death at the comparatively early age of nine-and-forty of Mr. HARRY BATES, A.R.A., English art has unexpectedly lost one of the foremost sculptors in the prime of his powers. Born at Stevenage in 1850, Harry Bates passed through a long apprenticeship in architectural decoration before beginning regular studies in plastic art. In 1879 he entered the Lambeth School of Art, though without relinquishing the actual practice of his craft, and there studied for a time under Jules Dalon, then the teacher of modelling. Bates won a silver medal in the national competition at Kensington, and upon Dalon's departure he was received into the schools of the Royal Academy. There he won in 1883 the gold medal and the travelling studentship of £200 with his relief of "Socrates Teaching." He went to Paris, where he studied under Rodin. He executed in that atelier a head of Mr. Russell, an American painter, and three small bronze panels representing scenes from the "Odyssey." These, when exhibited at the Royal Academy, attracted much attention;—their purchase by the trustees of the Chantry bequest was actually voted, but had to be cancelled because they were not modelled in England. In 1885 Mr. Bates's "Æneas" was exhibited at the Academy, and in the following year his "Homer." In 1887 he showed three panels from the story of Psyche, and the "Rhodope," and in 1892 the group called "Hounds in Leash." This group obtained for Mr. Bates his election as A.R.A. At the same time he showed the figure called "Pandora," which was purchased out of the Chantry Fund, and is now in the Tate Gallery. Among subsequent commissions was an equestrian statue of Lord Roberts, which was found too large for admission into the Royal Academy, and was set up in the courtyard of Burlington House. This statue was cast in bronze and removed to Calcutta. Mr. Bates was instructed to make a companion equestrian statue of Lord Lansdowne to celebrate his Viceroyalty; this, of which the full-size model is finished, will be placed opposite to that of Lord Roberts. Other important works of Mr. Bates's are a colossal statue of the Queen for Dundee, and another, of heroic size, of one of the Indian Maharajahs.

#### CHIPS.

Mr. Thomas Drew, of Dublin, President of the Royal Institute of Architects of Ireland, desires to announce that central rooms have been established for that institute at 20, Lincoln-place, Dublin.

Owing to the Government requiring their old premises at No. 5, Whitehall, for the site of the new War Office, Messrs. Dennett and Ingle have removed to No. 24, Queen Anne's-gate, London, S.W., where all communications should be addressed.

Mr. A. J. Hepper, D.S.O., R.E., an inspector of the Local Government Board, held an inquiry at the town-hall, Weston-super-Mare, on Tuesday, relative to an application by the urban district council for sanction to borrow £1,055 for works of water supply.

The 16th annual dinner of the Clerks of Works' Association will be held at the King's Hall, Holborn Restaurant, on Monday week, February 13. Mr. E. W. Mountford, F.R.I.B.A., will occupy the chair.

The demolition of All Saints' Almshouses, Bristol, which have been purchased by the Bristol United Breweries, Ltd., for the extension of their business premises, has been commenced concurrently with the laying of the foundations of the new almshouses to be erected in St. James's Barton by Mr. A. J. Beaven, from designs by Mr. T. Scammell, both of Bristol. Pending the completion of the new buildings the inmates are being accommodated in temporary premises in King-square.

#### COMPETITIONS.

EDINBURGH.—MIDLOTHIAN COUNTY COUNCIL BUILDINGS.—A special meeting of the Midlothian County Council was held on Friday in the County Buildings, Edinburgh (Sir James Gibson Craig, convener, in the chair) for the purpose of receiving the report of a sub-committee on the question of the reconstruction or re-erection of the county buildings. The sub-committee reported that, after having fully considered the question of the reconstruction of the county buildings, they were of opinion that the work should be proceeded with as soon as possible, and by a majority of five votes to four they recommended that there should be an open competition in the matter of the designs to be submitted for the proposed new buildings. The committee also recommended that powers should be given to them to advertise inviting architects to send in plans and also to draw up conditions for the guidance of competitors. Mr. Welsh, in moving the approval of this report, stated that they had had a standing committee on this matter for nine years. Dr. Rowand Anderson advised the former committee, and prepared a set of plans for rearranging the interior of the buildings and for putting an elevation towards George IV. Bridge. To his (Mr. Welsh's) mind, that elevation was not in keeping with the requirements of the site. They had one of the best sites for the county buildings that could be found in Edinburgh, with a frontage of about 160ft. to George IV. Bridge, and a frontage of about 80ft. to High-street. Dr. Anderson had submitted his plan, and had been paid for it. They should, however, have all the light and service they could get, and to his mind that could be best and most fairly obtained by throwing the whole matter open to public competition. Mr. Wilkie, of Ormiston, moved an amendment to the effect that they should invite a few selected architects to prepare plans. A long discussion followed, but in the end the sub-committee's report was adopted by 16 votes to 11.

PETERBOROUGH.—The city council on Friday received the report of the sub-committee upon the plans submitted for the proposed additions to the Guildhall. Acting on the report of the assessor (Mr. J. C. Traylen, of Stamford), it was decided that No. 6 was entitled to the first prize, No. 1 to the second, and No. 2 to the third. Ald. Nichols dissented, claiming that No. 8, although possibly weaker in interior design, was best from an exterior point of view. After much discussion the report was passed, and will come up for confirmation at the next meeting of the council, when the names of the successful competitors will be divulged. The architect whose plans were selected has made the new building harmonise with the present Guildhall, and there is practically no alteration in the ancient and picturesque structure except in the joining of the roofs. The front elevation in Church-street corresponds with the Guildhall. The plans show a basement. On the ground floor are the town clerk's public office (18ft. by 15ft. 3in.), with his private office (16ft. by 15ft. 3in.) adjoining. The existing staircase to the Guildhall, with slight adaptations, continues to serve as the public entrance, and thus any alteration in the seating of the council will be avoided. On the first floor are the mayor's parlour (18ft. by 15ft. 3in.) and a committee room (16ft. by 15ft. 3in.), cloak-room and lavatory accommodation, and a smaller cloak-room, &c., approachable from the public staircase. The second floor is entirely utilised for storerooms. The cost is estimated to come just within the £2,000 limit prescribed by the corporation.

At a meeting of the Middlesex County Council, the joint committee of Surrey and Middlesex recommended that the new Kew Bridge should be widened to the extent of 10ft. beyond the 45ft. originally designed, if this could be done at an additional cost approximating to £24,000. The report was adopted.

On Saturday the Bishop of Bristol dedicated a new pulpit which has been erected at the expense of an anonymous donor in St. Andrew's Church, Avonmouth, as a memorial to the Rev. David Wright, the first vicar of Stoke Bishop. The pulpit, which is of Bath stone with a carved border, and having in three of the panels the figures of St. Andrew, St. Paul, and Christ after the Resurrection, the latter occupying the central position. In the fourth panel is an inscription. The pulpit is from the design of Mr. Wood Bethell, of London, and it has been executed by Messrs. H. Hems and Sons, of Exeter.



## PROFESSIONAL AND TRADE SOCIETIES.

**GLASGOW INSTITUTE OF ARCHITECTS.**—A general meeting of this institute was held yesterday in the rooms, Pitt-street, Glasgow—the President, Mr. David Barclay, J.A., in the chair. Mr. Gavin Paterson, Cadzow-street, Hamilton, was unanimously elected a member. The president referred to the lamented death of Mr. James B. Stewart, architect, Greenock, who had held a high position in his profession, and was long a member of the institute. The secretary, Mr. C. J. McLean, reported a correspondence he had had with the corporation regarding the Glasgow Buildings Regulations Amendment Bill, and stated that a conference had been arranged between the corporation's committee and the representatives of the institute, but that before the conference was held an intimation had been received that the corporation did not intend to proceed with the Bill in the ensuing session of Parliament. A letter was read from Mr. George A. Paterson, the present holder of the Alexander Thomson Memorial Studentship, giving descriptive notes of his tour, and submitting for the inspection of the institute the drawings and sketches made by him during his stay abroad. The meeting directed that the second instalment of the studentship of £60 should be paid to Mr. Paterson. It was resolved that the subject of the next competition for the Alexander Thomson Memorial Travelling Studentship should be "A Gentleman's Country House." It was recommended that the library committee should suggest works on architectural subjects suitable for purchase to the value of £20.

**NATIONAL ASSOCIATION OF MASTER BUILDERS.**—The 21st annual conference of the National Association of Master Builders was held at the assembly-rooms at the town-hall at Bradford yesterday. The retiring president, Mr. J. S. Jones, of Liverpool, moved the adoption of the report, which stated that the scarcity of labour in several branches of the trade was causing great inconvenience, and the attention of members was drawn to the advisability of strenuously resisting the demand made by the operatives, which appeared to be a general one, to limit all apprentices by a legal form of indenture. The retiring president, in moving the adoption of the report, said the aggressive attitude adopted by some of the trade unions, particularly in reference to freedom of management on the part of employers, had become no longer bearable. No doubt the council would be called upon to enjoin the federations to adopt some policy which would effectually check these aggressive measures. The motion was seconded by Mr. Green, of Liverpool, and was carried. Alderman W. Holdsworth, of Bradford, was then unanimously elected president for the ensuing year. After the election of the council, it was resolved, on the motion of Mr. Church, of Bristol, seconded by Mr. Shepherd, of Bermondsey, "That all cases of emergency arising between full meetings of the council shall be dealt with by the standing committee." Mr. W. Cunliffe moved, "That the executive should do all they can to secure the formation of a foremen's union, and insist upon the foremen joining it and being liberated from the operatives' union." After discussion, the resolution was carried. An official statement was afterwards made that a resolution confirmatory of the points of a circular sent out by the London builders some days ago had been carried unanimously. The resolution was as follows:—"That the second council inform the National Association of Operative Plasterers that, in consequence of the hindrance of business and continued friction caused to employers by the conduct of their members, the National Association of Master Builders have determined to call on them for an assurance that they in future abstain from the objectionable practices set out in the printed circular of January 11, and to request a reply by February 14." The next annual meeting will be held at Plymouth.

**NEWCASTLE AND GATESHEAD TRADES EXCHANGE.**—The annual dinner was held in the Exchange premises, 62, Grainger-street, Newcastle-on-Tyne, on Thursday in last week. Mr. John George Walker presiding.—Mr. G. G. Laidler proposed "The Architectural Profession and the Building Trade." He said he thought there were good grounds to believe that they were entering upon a time of great prosperity. An important improvement, which he should like to see carried out, was the extension from Grainger-street to New Bridge-street, and he hoped that

the architects who might have anything to do with the elevations would carry out that street on similar lines to Market-street at the present time.—Lieut.-Col. F. R. N. Haswell, in responding, said architects' designs were absolutely worthless unless they were given adequate expression to by those who had to carry them out. How often did they find that designs, good in themselves, were infinitely marred, to the great disgust of the masters, by incompetent workmen? He only wished they could in some way or another re-establish their old guilds.—Mr. W. H. Allen also responded, as did Mr. R. H. Millican.—Mr. J. S. Robson proposed "The Exchange," to which the Chairman and Mr. W. Sutton, secretary, responded. The latter said the membership was now some 170, and they wanted 200 before the thing would pay.

**ROYAL CAMBRIAN ACADEMY OF ART.**—The annual meeting was held at Plas Mawr, Conway, on Saturday. Mr. Clarence Whaite, R.W.S. (president), in the chair, and Mr. Grundy (vice-president) in the vice-chair. The officers were all re-elected, with votes of thanks for their services. The following were elected the council for the ensuing year:—Messrs. Ayling, Cockram, Pain Davies, B. Fowler, B. Fisher, Anderson Hague, G. Harrison, Clinton Jones, J. Knight, P. Knight, F. Longshawe, A. F. Perrin, C. Potter, J. C. Salmon, and G. Sibler. The following were elected Associates:—Mr. Lester Sutcliffe, Leeds; Mr. J. W. Booth, Middleton, Manchester; and Mr. Alyn Williams, London. It was resolved to have an open exhibition again this year, to be opened on May 27.

**SCOTTISH BUILDING TRADES' FEDERATION.**—A quarterly meeting of the executive was held on Jan. 27 in the Station Hotel, Stirling. Mr. James Leslie, builder, Aberdeen, president, occupied the chair. Members were present from Inverness, Aberdeen, Arbroath, Dundee, Perth, Edinburgh, Glasgow, Hamilton, Coatbridge, and Ayr. The secretary, Mr. James L. Selkirk, C.A., Glasgow, submitted a report dealing with the formation of new branches, as to which encouraging progress was being made; the operation of the Workmen's Compensation Act, 1897, the rate of premium to insure against which was generally regarded as much too high, a committee being appointed to consider the whole question; the proposed "General Conditions of Contract," which were still under the consideration of the various parties concerned; and the formation of a special fund for the purpose of meeting exceptional requirements. The half-yearly meeting of the federation was appointed to be held in Dundee in April next.

**SCOTTISH MASTER PAINTERS' ASSOCIATION.**—In connection with the annual meeting of the Scottish Master Painters' Association, the members of the body visited the Dundee Technical Institute on Saturday for the purpose of witnessing the competitive work forwarded by the apprentices in the various districts, and ascertaining the awards of the adjudicators. In the first class the prize-winners were:—Plain Painting (for a set of two panels, one finished flat and the other varnished)—1, W. Nimmo, Ayr; 2, Joseph S. Robertson, Dundee. Marbling (for a set of three marbled panels)—1, Joseph S. Robertson; 2, A. K. McLeod, Coatbridge. Graining (for a set of three panels)—1, A. K. McLeod; 2, Joseph S. Robertson. Sign Writing (for an example of lettering the following—"The Association of Master Painters in Scotland. Annual meeting at Dundee, 1899")—1, W. Morrison, Glasgow; 2, W. Nimmo; extra prize, W. W. Findlay, Dundee. Stencils—1, A. Gardner, Glasgow; 2, G. Martin, Glasgow. Design (for a coloured design for the decoration of a dining-room, including door)—1, A. J. Orr, Glasgow; 2, J. Ramsay, Ayr. In class two the winners were:—Plain Painting—1, P. Parker, Ayr; 2, G. Grant, Dundee. Marbling—1, J. S. Law, Dundee; 2, W. McLaren, jun., Forfar; extra prize, J. Ross, Glasgow. Graining—1, M. Quin, Dundee; 2, A. McKay, Glasgow. Sign Writing—1, R. Douglas, Glasgow; 2, C. Arkison, Dundee; extra prize, W. Cumming, Aberdeen. Colour Decoration—1, J. Shaw; 2, A. G. Lindsay, Galashiels. President's Gold Medal for General Excellence—Joseph S. Robertson, Dundee. Mr. Sutherland's Prize for Graining—A. K. McLeod, Coatbridge.

**THE ARCHITECTURE OF GALLOWAY.**—A meeting of the Architectural Section of the Philosophical Society of Glasgow was held on Monday night in the rooms, 207, Bath-street, Glasgow.

Mr. P. Macgregor Chalmers presided. Mr. Edwin Forbes, Edinburgh, read a paper on "Architecture in Galloway," which he said was a record of his own work as a student of the Edinburgh School of Applied Art. In the course of the lecture he dealt with Sweetheart, Dundrennan, and Glenluce Abbeys, and Caerlaverock Castle, in addition to a number of minor domestic keeps and castles. One could not, he said, get finer and simpler specimens of Gothic architecture anywhere than in the South of Scotland, where a great revival took place in the beginning or early in the 12th century.

**WAKEFIELD AND DISTRICT MASTER BUILDERS' ASSOCIATION.**—The first annual meeting was held at the Brunswick Hotel, Borough Market, on Thursday evening in last week. Mr. John Bagnall in the chair. The election of officers resulted in the unanimous re-election of Mr. Bagnall as president, Councillor Judge and Mr. F. W. Denhole as vice-presidents, and a committee consisting of Messrs. R. L. Leake, C. S. Denison, Tom Lee, Henry Fallas, J. Hesling, Geo. Crooke, Geo. Blakey, F. E. Mosley, Charles Driver, M. R. Rycroft, and John Goodall.

## Engineering Notes.

**KNOTT END RAILWAY.**—Sir M. W. Ridley, Bart., M.P., Home Secretary, cut, on Friday, the first sod of the Knot End Railway. A line has long existed between Garstang and Pilling, a distance of five miles, and this will now be extended to Knott End, another six miles. By the construction of the line the distance from Lancaster and the north to Fleetwood will be shortened by eighteen miles. Sir Douglas Fox is the consulting engineer, Messrs. Garlish and Sykes are the local engineers, and Mr. R. Worthington, of Dublin, is the contractor for the railway.

## CHIPS.

Steps are being taken with the object of adding a tower to the otherwise now-completed church of St. Paul, Truro.

Shortly after Bismarck's death the students' unions in the twenty-seven universities of Germany held meetings, and agreed that columns, as memorials of the great Chancellor, should be erected over the face of the country. The students have collected a considerable fund for the purpose, and a committee has been formed to carry out the details. In addition to the twenty-seven universities, each of which is pledged to erect its own column, forty-seven towns have already declared their intention to join the movement. The columns are to be of granite, with an urn or brazier on top, from which fire will flame on every 1st of April till the end of time. The students have offered a wreath of iron laurel leaves as a prize for the best design for a column.

The negotiations on the part of the London County Council to acquire the site of Lady Holles's School, in Redcross-street, for the purpose of a new fire-station, have practically been concluded, and in the course of a short while a report on the subject will be presented to the council by the Fire Brigades Committee. The price to be paid to the trustees of the charity will range between £30,000 and £34,000.

The vast number of typewriters in use in the business world is sufficient testimony to the advantages of the modern writing-machine. By the leisured classes, however, this instrument, so far-reaching in its virtues, has been received with scant favour, though signs are not wanting that this prejudice is being gradually demolished. Some years ago the Emperor of Germany purchased a Yost machine, with which from time to time he has expressed considerable satisfaction. As the outcome of his close personal acquaintance with this instrument, his Imperial Majesty has recently consented to receive official reports written on the typewriter, a noteworthy departure from the traditions of Court etiquette, and an example worthy of emulation in other quarters. This may be looked upon as a great victory for the Yost machine.

The annual dinner of the Shrewsbury and District Master Builders' Association was held at the Lion Hotel, Shrewsbury, on Wednesday week. The president, Mr. W. T. Williams, was in the chair, and the vice-president, Mr. H. Price, in the vice-chair.

New schools are now being erected at Normanton, from the designs of Mr. A. Hartley, architect, Castleford, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.



## Building Intelligence.

**FELIXSTOWE.**—On Thursday in last week the corner-stone of the chancel that is being added to the modern church of St. John the Baptist on the cliff at Felixstowe was laid with Freemasons' rites. The new work will consist of a chancel 40ft. by 25ft.; a morning chapel for daily services on the north side, 30ft. by 20ft.; clergy and choir vestries on the south side, divided by a wooden partition which can be removed so as to form one large room, 35ft. by 30ft., for meetings, &c., and an organ-chamber over the choir vestry. The chancel will be divided from the nave by a low brick and stone screen, 4ft. high, and the vestries and morning chapel will also be divided by screens. 250 additional seats will be provided, and the cost will be £2,715. The architects are Sir Arthur Blomfield and Sons, and the contract is in the hands of Mr. Fred C. Thurman, of the Walton Building Works.

**HANDFORTH, CHESTER.**—The new parish church of St. Chad has now been completed, and the Bishop of Chester has arranged to conduct the opening ceremony early in March. The church has been erected on land near the old structure. The building is Perpendicular in style, with half-timber gables and other details characteristic of the buildings of Cheshire. The walls are of brick, with Alderley stone dressings to the windows, doorways, and buttresses, and the roof is covered with Broseley tiles. Mr. John Brooke, F.R.I.B.A., of Exchange-street, Manchester, is the architect, and Mr. Thomas Browne, of Chester, is the contractor. It is proposed to add a tower, transepts, and vestries later on, and when the entire scheme has been carried out there will be about 300 sittings. The scheme will involve an outlay of about £3,000. The old church is now to be taken down, and the land is to be added to the burial-grounds.

**LONDON COUNTY COUNCIL.**—At Tuesday's meeting of this authority it was agreed, on the recommendation of the general purposes committee, that applications for the appointment of superintending architect should be again invited by public advertisement, and that the salary to be attached to the appointment should be increased from £1,500 to £2,000 a year. The asylums committee recommended the Council to approve an estimate of £3,000 for the preliminary expenditure in connection with the provision of a working colony for male epileptics. It is proposed to establish the colony on a portion of the Council's estate at Horton Manor, Epsom, where a large general asylum is now in course of erection. It is to embrace eight detached structures. Provision is to be made for 300 patients, to be specially selected by transfer from the London asylums. The committee reported in favour of the temporary style of building, which they estimated to cost £43,189, or £144 per bed. They also mentioned that if a permanent building was provided it would cost £66,012, or £220 per bed. After a brief discussion the Council agreed to provide the colony, but desired that plans for a permanent instead of a temporary structure should be submitted.

**TRURO CATHEDRAL.**—Lord Mount Edgcumbe presided on Friday at a meeting of the Cathedral Building Committee, held at Phillpotts' Library, Truro. The report of the executive committee showed that Mr. Frank L. Pearson's estimate of the expense of the alternative plans of building the nave as a memorial to the late Archbishop Benson was (a) with the towers up to the level of the aisle roof, £36,000; (b) with towers up to the level of the nave roof, £41,000. Towards this sum about £30,000 may be reckoned upon as available. The committee were of opinion that they would be justified in proceeding with the work provided the contractor's tender does not materially exceed that of Mr. Pearson's estimate. The amounts mentioned included not only the architect's estimates for the building, but also architect's commission, clerk of works' salary, and heating and lighting. The adoption of the executive committee's proposal was unanimously carried. Some discussion arose over the method of tendering. The architect suggested that the following six firms should be invited to tender:—Messrs. Shillito, Bury St. Edmunds and London; Messrs. Thompson, Peterborough; Messrs. Cornish and Gaymer, North Walsham and London; Messrs. Cowlin, Bristol; Messrs. Willcocks, Wolverhampton; and Messrs. Luscombe, Exeter. The committee, however, were divided, and an amend-

ment was proposed to the effect that tenders should be thrown open generally. This was lost; but a subsequent proposition that the executive committee, in consultation with the architect, be empowered to add other names, not exceeding six in number, was carried. It was also decided that the architect be asked to attend the meeting of the committee at which they were opened. It was decided to give six weeks' notice to quit to the tenants of the house adjoining the rectory, which will be required at once for demolition to make space for the workshops.

### LEGAL INTELLIGENCE.

**THE LAYING OF ELECTRIC MAINS.**—**BATTERSEA VESTRY V. COUNTY OF LONDON AND BRUSH ELECTRIC LIGHTING CO.**—In the Court of Appeal, on Monday, before the Master of the Rolls and Lords Justices Rigby and Vaughan Williams, an appeal was heard of the London and Brush Electric Lighting Company against a judgment of Sir F. Jeune, sitting in the Chancery Division, granting a mandatory injunction against the appellants on the application of the vestry of St. Mary, Battersea. The appellants, having been unable to come to terms with the vestry in reference to the laying of a cable in Trinity-road, Battersea, broke up the footpath and laid the cable without their sanction. This was admittedly illegal; but the question as to the granting of a mandatory injunction depended on whether the vestry had any property in the subsoil of the street. Sir F. Jeune had held that the vestry were entitled to a mandatory injunction; but their Lordships, while stigmatising the conduct of the appellant company as high-handed and lawless, found that the plaintiffs had not established that any right of theirs would be interfered with by the continuance of the appellants' pipes and wires where they were, and therefore allowed the appeal and dissolved the mandatory injunction, but without costs.

**COMPENSATION UNDER M. A. TAYLOR'S ACT.**—**HOPE V. THE FULHAM VESTRY.**—This case for compensation was tried before Mr. Loveland Loveland, deputy chairman of the Middlesex Sessions, at the Sessions House, Clerkenwell, on Saturday. The case was one under the Michael Angelo Taylor's Act, whereby they are enabled to acquire a portion only of a person's premises without taking the whole, and in this case it was for taking a slip of land 5ft. in width from the entire frontage of the claimant's premises in Bayley-lane, adjoining the Queen Elizabeth Tavern, which is a newly-erected public-house, and is owned by Mr. Adams, himself a vestryman of the Fulham Vestry. After the jury had viewed the premises, the hearing of the case was resumed, when Mr. J. M. Klenck, of the firm of Messrs. J. M. Klenck and Co., Bishopsgate-street, City, auctioneers and surveyors, gave evidence for the claimant, and made the valuation for the present injury to the premises £217. This was confirmed by Mr. J. H. Wheeler, of the firm of Messrs. Wheeler and Sons, of Fulham-road. After this evidence, the vestry gave an undertaking to exonerate Mrs. Hope from the cost of paving Bayley-lane in front of her premises, and agreed to reinstate the dwarf wall and fencing and the front wall of the stables, estimated at £80. The vestry called to support their contention Mr. Charles Botterill, their surveyor, Mr. Boyden, of Fulham, and Mr. T. W. Biggs, of Clifford's Inn, who said there was no inquiry to the property, but that it would be a positive benefit to the same; but in cross-examination one of the witnesses admitted it could not exceed £30. After a very careful summing-up of Mr. Loveland-Loveland, the jury retired and came into court and gave a verdict of £120, in addition to the vestry's undertaking in reference to the paving and reinstatement of the walls and fencing, which would make the verdict equal to £200. The sealed offer of the vestry was for £20 only.

**THE WIDENING OF FLEET-STREET.**—At the quarter sessions held at the City Guildhall on Tuesday, the case of the "Governors of St. Bartholomew's Hospital v. City of London Corporation" was mentioned before the recorder (Sir Charles Hall, M.P.) and a special jury. This was a claim for about £20,000 compensation in respect of the acquisition of an area of freshhold land, containing 1,078ft. super., at present forming the site of Nos. 1 and 2, Bride's-passages, required for street-widening purposes. It was announced that a settlement had been arrived at, the parties agreeing to accept a verdict for £16,000, the costs to be taxed.

**LIGHT AND AIR CASE AT EXETER.**—In the Chancery Division, last week, Mr. Justice Byrne heard, on several days, the case of the trustees of the Providence Chapel, Exeter v. Devon and Exeter Turkish Bath Company (Limited). In giving judgment, his Lordship said opposite the chapel there formerly stood almshouses, which were pulled down. Defendants having acquired the

greater portion of this site near the chapel, proceeded to erect thereon baths, and over them bedrooms, intended as an adjunct to the hotel. Looking at the evidence, he could not resist the evidence that there had been a material diminution of the light. One argument had been founded on the suggestion that a portion of the site of the old almshouses, not yet built upon, afforded a certain amount of diffused light, which was sufficient compensation for any light of which they might have been deprived, and that, therefore, he was not to say there was obstruction. But he came to the conclusion that, as the building stood, the light coming to these classrooms had been materially interfered with. It was clear there should be an order to pull down some portion of the defendants' building. He could not do better than adopt the angle of 45° obstruction rule, and in doing so, and having regard to the narrowness of the thoroughfare, and to the other circumstances in the case, he was disposed to think he was giving defendants the benefit of the rule rather than imposing something stronger than he might impose. Accordingly, his lordship held that the plaintiffs were entitled to a mandatory injunction directing the defendants to pull down in accordance with a line which should allow obstruction to the angle of 45°. Defendants having failed in the action, they must pay the costs of it. His Lordship said the operation of the injunction would be suspended for six weeks, so as to allow the parties to come to some agreement.

**BUILDING NOTICES FOR SUBWAYS.**—At Southwark, on Tuesday, William Coat, surveyor of roads to the Newington Vestry, was summoned by Mr. Bernard Dicksee, district surveyor, for failing to give a building notice in respect to two structures under the footway in Newington-causeway. The vestry have obtained a provisional order to supply electric light in the neighbourhood. Trenches have been dug along the main thoroughfares, including Newington-causeway, for the electric light cables and the wires of the National Telephone Company. An inspection chamber has been constructed under the footway every 150yds., and Mr. Dicksee contended that under section 105 of the Building Act, he was entitled to the usual notice. The vestry, on the other hand, submitted that if this contention was right the district surveyor would be entitled to a fee in respect of every sewer inspection chamber. Mr. Dicksee pointed out that the chambers in question were much larger than sewer inspection chambers, and, further, that part of the roof was under the footway. Mr. Paul Taylor said he considered these chambers were covered by the words "building, structure, or work," contained in section 145, and he therefore gave a decision in favour of the district surveyor. Defendant would have to pay a nominal penalty of 1s. and 2s. costs on each of the two summonses. The magistrate declined to state a case, on the ground that it was purely a question of fact.

**THE EALING AND SOUTH HARROW RAILWAY.**—On Saturday, at the Surveyors' Institution, Savoy-street, Mr. F. T. Galsworthy heard the claim of Colonel Douglas Williams against the Ealing and South Harrow Railway Company for land proposed to be acquired for the construction of that railway. The land proposed to be acquired was part of the Twyford Abney Estate. When the abbey and a part of the land had been purchased by Mr. Althausen access to the avenue was reserved for all the tenants of land on each side which might be laid out as building land. This land had a frontage of 626 yards to the avenue, and of the same extent to Hanger-hill-lane. The compensation was for the value of the land taken, damage to the estate by severance, and disturbance. On the part of the claimant, Mr. E. H. Tewson, Sir John Whittaker Ellis, and Mr. W. R. Peck (Hampton and Son) estimated the four acres of land taken at £2,056, with 10 per cent. for compulsory sale; the damage to the estate at £12,617, from which they deducted £1,000 for the bridge agreed to be constructed by the railway company; and the frontage to the avenue taken £720. On the part of the railway company, Mr. A. R. Stenning, Mr. Wreathall, and Mr. Howard Martin estimated the damage at £1,709, £1,747, and £2,158 respectively. They estimated the land at £200 and £250 an acre, and the only damage to the estate would be amply compensated by £800 or £1,000. The arbitrator reserved his award.

An inquiry was held at Plymouth on Friday respecting an application by the Light Railway Development Company for an order empowering them to construct a railway from Saltash to Callington, both in Cornwall. Mr. C. S. Meik, the engineer of the line, said that the probable cost of the railway would be about £100,000, and the length 11½ miles. Besides several embankments, two viaducts would have to be constructed. The estimated cost was £9,000 a mile, and the ruling gradient was 1 in 40. The Commissioners intimated that they would issue the order, and recommend it for confirmation to the Board of Trade.



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## ILLUSTRATIONS.

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## Our Illustrations.

MAIN ENTRANCE, CRIPPLEGATE INSTITUTE, GOLDEN LANE, E.C.

THE central doorway of this building leads, on the ground floor, to the lending library and reading-rooms, and to the grand stairs (leading to the hall on first floor). It is carried out in Portland stone, and the figure bearing electric light in bronze, all from special models. The spandrels illustrate Science and Art, and the central keystone bears the arms of the ward. The general facing of the building is Fareham brick, with Portland stone dressings, the total cost being about £30,000. Messrs. Bywaters were the builders, and the building has been opened now some time, and is a great success. It contains reading-rooms, lending library, boys' room, concert-hall, ward offices, committee-room, refreshment rooms, technical instruction and class-rooms, and residence for caretaker. Mr. Sidney R. J. Smith, with whom Mr. F. Hammond, F.R.I.B.A. (the surveyor to the governors) was associated, carried out the whole of the work, including all fittings, and it is still further under consideration as to some decorative additions to the building.

MAIN ENTRANCE, WEST HAM INSTITUTE.

WHEN Mr. J. Passmore Edwards opened these buildings on October 6th last, we published a drawing of the entrance to the library. To-day we publish a detail photograph taken by Mr. Bedford Le Mere of the main entrance to the institute. One of the distinguishing features of these buildings is the capable use of architectural sculpture, excellently rendered by Mr. Birnie Rhind, A.R.S.A. The view now given shows how the symbolical figures are arranged on either hand of the portal, with the coffered hood above. Cranleigh red bricks and Portland stone are used for the façades. Plans and elevations of these buildings, which were designed by Messrs. Gibson and Russell, will be found in the BUILDING NEWS for October 4th and 11th, 1895, when the competition was settled. We gave a general view at the same time.

CANADA HOUSE, BRISTOL.

CANADA HOUSE, of which we give an illustration is being erected at the corner of Baldwin-street, Bristol, by Messrs. Ford and Canning. The upper floors will be used as offices and strong-rooms. In the basement is a bonded cellar. The front, in a Flemish rendering of the Renaissance, is executed in Cattybrook facing bricks, with orange rubber brick and freestone dressings; the roofs to be covered with slate. The architects are Messrs. W. B. Gingell and F. Bligh-Bond, of the same city. No contractor is employed, as the proprietors' own men, under the superintend-

ence of a building manager, are executing the work. Messrs. Elder, Dempster, and Co., will occupy the ground floor as their central offices. The cost of the block will be about £10,000.

THE STOREY HOME, ROYAL ALBERT ASYLUM, LANCASTER.

THE Storey Home for feeble-minded girls, Royal Albert Asylum, built and equipped by the late Sir Thomas Storey, of Lancaster, from designs originally prepared by the late E. Howard Dawson, A.R.I.B.A., has been carried out by that architect's successor, Mr. Chas. J. Ashworth, Market-street, Lancaster. The buildings, which occupy a commanding site opposite the Royal Albert Asylum, are externally grouped together in a somewhat effective way. The walls are built of local stone and faced with broken coursed shoddies, the windows being relieved with plain dressings and hood-moulds. The roofs are covered with Westmoreland green slates and red terracotta ridges and finials, so as to be in keeping with the asylum buildings. The gables are of half-timber work, with panels of tinted cement stucco, and are finished with moulded bargeboards. The principal entrance, which is placed on the right side of the main front, is balanced by a corresponding bay window on the left. Internally, the arrangements have been carefully thought out. The walls and ceilings of the vestibule and hall have been panelled and moulded in plaster, the floors paved with ceramic marble mosaic, and the windows glazed with stained glass and ornamental lead quarries. On one side of the hall is a small day-room, 22ft. by 18ft.; on the opposite side is the matron's sitting-room with windows commanding a view of the drive. From the hall there is a flight of stairs to the first floor, and a passage to the kitchen, 18ft. by 18ft., with window to the north. The scullery adjoins the kitchen, and pantries, larder, and stores are provided. The service-room is placed on the other side, conveniently near to the day and dining-room. This is 35ft. by 21ft. by 12ft. high, and occupies the southern wing of the block. A lavatory, 20ft. by 16ft., furnished with cloak and shoe cupboards, is placed to the rear of the day-room, and a side entrance for the use of the girls is arranged, and another door gives access to their latrines in the yard, which is inclosed. The laundry and washhouses have been fitted up in a complete manner with Bradford's appliances. On the first floor accommodation is provided for 29 beds in two dormitories—one 35ft. 6in. by 20ft., the other 41ft. by 18ft. 6in. These are lofty rooms, each with two fireplace. Next to the dormitories are the matron's and servants' bedrooms, having glazed inspection windows. There is a bathroom for five baths, and small staff bathroom adjacent thereto; also a lavatory, the floor of which is in polished teak, and the dado is tiled. There is also a linen-room and store-cupboards. The w.c.'s and housemaid's sink are separated from the main building by a ventilated lobby. On the second floor, over the centre portion of the building, there is another dormitory, 36ft. by 16ft., for eleven beds, and two additional rooms for servants. An isolation room for two beds, and a night nurse's bedroom, also w.c.'s and sink over that on lower floor. A special emergency staircase is provided, of fire-resisting material. The walls of the passages, staircase, latrines, &c., are lined to a height of 4ft. with salt-glazed bricks. The floors of day-room, dormitories, &c., are of pitch-pine, stained and polished. The heating and ventilating is to be effected by open fires, supplemented by hot water, on the low-pressure system. The sanitary arrangements include self-flushing combination closets in all w.c.'s. The Home is surrounded by its own grounds. The following Lancaster contractors have carried out the work:—The late Mr. Wm. Warbrick, and Messrs. Hatch and Sons, builder's work; Mr. Wm. Huntington, carpenters' and joiners' work; Messrs. Thos. Cross and Sons, slating and plastering; Messrs. Wm. Abbott and Co., plumbing and glazing; Ed. Payne, painting and decorating; A. Kershaw and Co., ventilating.

"HIGH FIELD," BELPER, DERBYSHIRE.

THIS residence, with stables adjoining has been built for Mr. Maurice Hunter, Belper. It is constructed with red pressed bricks and Matlock stone, with half-timbered gables in oak, and red Staffordshire tile roof. The house is pleasantly situated, and commands extensive views to the west and south, and was built by Mr. Hingley, builder, Duffield, from designs and under the

superintendence of the owner, the senior partner of the firm of Messrs. Hunter and Woodhouse, architects, Belper, at a cost of £2,400, including heating apparatus.

NEW COUNTY HOSPITAL, BEDFORD.

PREVIOUS illustrations of this series of hospital buildings will be found in the BUILDING NEWS for Aug. 23, 1897, when a view and general plan appeared, and on Dec. 30 last, on which occasion a double-page detail was given of the elevations of the principal wards. To-day we print, from the architect's working drawings, a similar sheet of details showing the verandahs treated as a sort of alcove over the main corridor, and leading off the ward staircase. It faces the Kempton-road. The builders are Messrs. Ketteridge and Shaw, of Cambridge, and the architect is Mr. H. Percy Adams, F.R.I.B.A. The cost is about £32,000.

## CHIPS.

THE partnership hitherto subsisting between J. W. Howard and F. Bradshaw, of Norwich, architects and surveyors, under the firm of Howard and Bradshaw, has been dissolved.

At the monthly meeting of the Mytholmroyd Urban District Council it was resolved to apply to the Local Government Board for powers to borrow £12,423 for carrying-out the proposed sewerage scheme. This does not include the cost of the out-fall works.

The new bridge (erected on the site of an older structure) which spans the Don at the bottom of Marchgate, and connects Doncaster with the country, was opened last week in the presence of the members of the West Riding County Council. The new bridge is 12ft. wider than the old one, and the watercourse has been increased by one-third.

Colonel W. R. Slack, R.E., attended a meeting of the urban district council of East Dereham last week to inquire into and arbitrate or the dispute between the local authority and the Norfolk County Council with respect to the use of Bardon Hill (Leicester) granite being used by the urban authority instead of Belgian granite recommended by the county surveyor, Mr. T. H. B. Heslop. Bardon Hill granite cost 12s. 6d., whereas Belgian granite can be bought for 11s. 1d. per ton. The amount in dispute was £58.

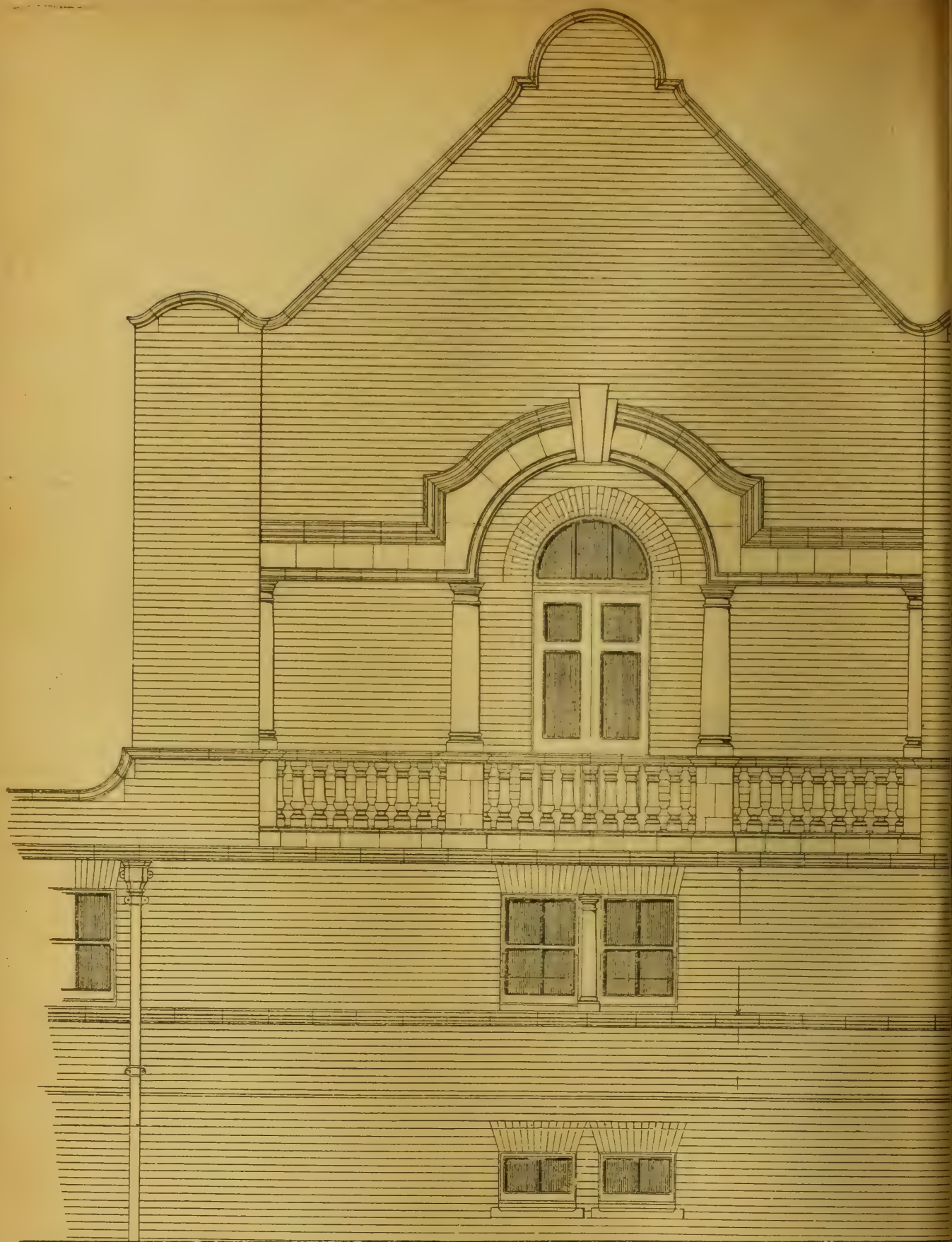
The public hall which Lord Pirbright is erecting at Pirbright will stand in the centre of the village adjoining the Jubilee fountain which he gave. The hall will be of red bricks, and will measure 60ft. by 30ft., and 22ft. in height. It will be panelled and floored in oak. There will be a sliding partition in the centre, making two square rooms when the entire hall is not required. There will also be two smaller rooms measuring 15ft. by 10ft. each. The work of building and decorating has been intrusted to Mr. Ball, builder to Lord Pirbright's estate whilst Mr. Briant, of Pirbright, will supply all the furniture.

Colonel Slack, C.E., a newly-appointed Local Government Board inspector, conducted an arbitration inquiry at Lynn Town Hall, on Wednesday week, into the matter in dispute between the corporation of King's Lynn and the Norfolk County Council as to the cost of the maintenance of main roads. Mr. T. H. B. Heslop (county surveyor of Norfolk), Mr. H. J. Weaver (borough surveyor of Lynn), and Mr. E. J. Silcock (ex-borough surveyor) represented the respective parties. The corporation claim was £1,411 2s. for the year ending March 1898, and from this the county council deducts £94 16s. 1d.

In the York Consistory Court faculties have been decreed to respective incumbents and churchwardens of Wath-upon-Deane to extend the reredos; to the rector and churchwardens of Bridlington to sink the "Robinson Tomb" in the Priory Church level with the ground; of St. Olave's, York, to build a new vestry on the south side of the chancel, to break doorway through the east door of the south aisle, to remove the stained glass from and build up the south window of the chancel, and to form a new window on the south side of the chancel above the level of the new vestry roof, and replace the stained glass therein; and of All Saints, Pavement, York to build a new organ chamber on the south side of the chancel.

The chancel of Addington Church, which has been restored and decorated as a memorial to the late Archbishop Benson, was reopened on Friday. The principal feature of the decorative work is low reredos of perforated white alabaster scroll work, with statues under canopies, between the north and south windows, of Archbishops Theodor, Crammer, Laud, and Benson. On the north side are the armorial bearings of Trinity College Cambridge, Wellington College, Lincoln, and Truro all closely associated with the late Primate's work. Mr. A. J. Reeve was the architect for the restoration.





MAIN CORRIDOR

- ELEVATION TO KEMPSTON ROAD -

NEW COUNTY HOSPITAL



PLAN OF DOOR

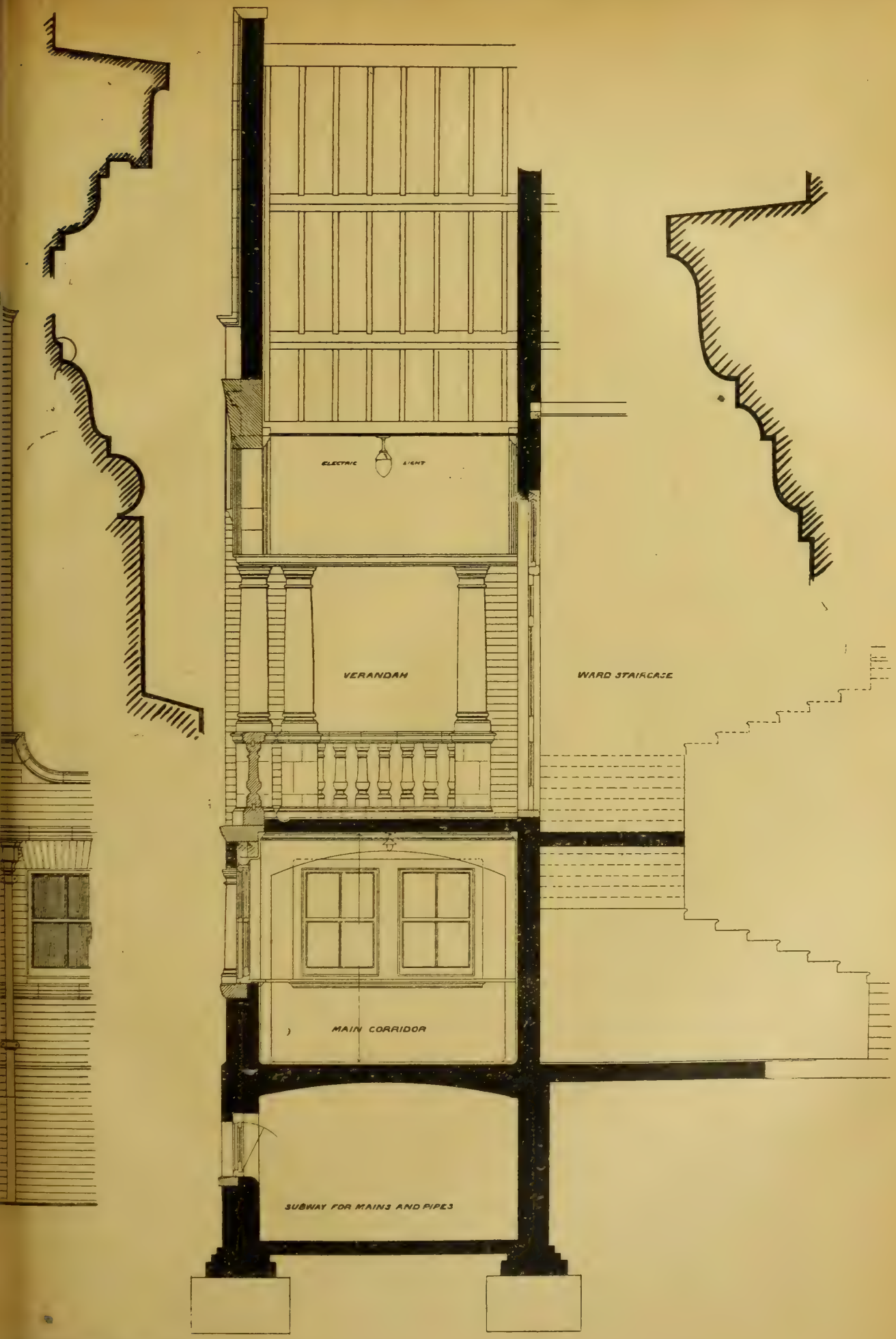


PLAN OF WINDOW

BEDFORD

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## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIV., LVII., LIX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—H. C. L.—W. G. H. (Stafford)—F. B. A. Co. K. S. A. and Son.—S. M.—G. J. P.—N. C. and Co.—W. W. (Bristol).—R. K. A. of M.

## "BUILDING NEWS" DESIGNING CLUB.

## FIFTH LIST OF SUBJECTS.

E.—A School of Arts and Crafts, to be situated in a country town high-street on a right-angled corner site, with a lane on the return frontage. The façade will face south, and there will be a fourcourt 18ft. deep, with villa residences on the adjoining land east of the new school, the next house blank wall abutting on to the site, so that no windows can be obtained on that side boundary. The width of the school building to extend the whole limit of the frontage, which is 60ft. The depth is 200ft.; but, ultimately, a picture gallery is contemplated at the rear, and the entrance must be so contrived to the front buildings as to be available as a corridor-way, 8ft. wide in the clear, to this gallery, which will be 70ft. long by 45ft. wide. A block plan to small scale to show how the completed scheme will be contrived. The land is practically level. The accommodation for the school to provide two large studios 18ft. high, the lower to have a mezzanine gallery along one side, 9ft. wide. Each of the big studios to be 36ft. long by 25ft. wide from back to front, and each having big windows towards the north. There must be two smaller studios with north lights, and one may be contrived as a mezzanine room suitable for a small life class. There is to be a master's room or office on the ground floor. In the basement a modeller's room and a smith's shop with two forges will be needed, 10ft. high, with a wide area back and front for light. The lane frontage may have lights above the pavement level, as the ground floor will be 3ft. above the ground line. Cloak-rooms and lavatory with two basins, and two w.c.s. one for each sex, will be needed. A model's room to be contrived in the upper studio, with w.c. and lavatory basin. A lavatory and w.c. to be provided for the master. A heating-chamber and coal-place below stairs. A kitchen living-room, with scullery, larder, &c., also in the basement, for the caretaker, whose two bedrooms will be in the upper part of the building. An open-timbered roof to be put over the top-floor studios. The staircase to be in concrete, 4ft. wide. Style, a treatment based on the Renaissance, picturesquely handled in red brick, with Portland stone dressings; roof covered with tiles. Scale, 8ft. to the inch for elevations and section. Plans may be smaller. View sketch wanted.

DRAWINGS RECEIVED.—"La Poupée," "Sparrow," "Jonnie," "Blue Funk," "Vignoria," "Hoopoe," "Nothe," "Gargoyle," "Indian Ink," "F."

## Correspondence.

## WALSOKEN CHURCH.

To the Editor of the BUILDING NEWS.

SIR,—Referring to the drawing of the above church appearing in your issue of January 27, it would be very interesting to know whether the font has been actually moved to the position shown in the north aisle, or whether the talented artist has been playing a sort of pictorial game of chess with the fittings. When I visited the church some four or five years ago, the font certainly stood in the centre of the nave at the west end, and formed a marked feature in an unusually fine vista. If it has been moved, it will be a source of lasting regret to all who know this grand church. If it has not been moved, such a misleading view should not pass without protest.

That it is ill-drawn, and shown without the imposing steps on which it used to stand, may be trifles.

It may be of interest to add that this exquisite piece of work is dated 1544, "anno dac mitto quig into" qua dige qrtto," and that possibly a special interest may attach to it now, in view of the disputed interpretation of the "Ornaments Rubric." The western panel represents "The Crucifixion," meeting the eye immediately the worshippers entered the church by the western doors. The eastern panel shows a priest in full Eucharistic vestments, apparently in the act of elevating the Host before the kneeling people. The altar and reredos are clearly shown, and one candle is plainly visible, the other being mutilated.—I am, &c.

A. NEEDHAM WILSON, A.R.I.B.A.

Marlborough, Jan. 31.

## HULL CENTRAL LIBRARY COMPETITION.

SIR,—The present mode of forwarding designs, without motto or distinguishing mark, has some disadvantages, as I have experienced in this instance. With my plans another competitor's report has been returned. They all bear the same number, put on by the same hand. I have complained to the town clerk, but he repudiates all responsibility, and declares the alteration "was certainly not made by anyone in my office."

It is too bad that competitors should be the victims of such carelessness. May I ask, with your kind indulgence, the competitor (who has mine) to exchange reports with me?—I am, &c.,

A. H. GOODALL.

14, Market-street, Nottingham, Jan. 30.

## CHIPS.

In connection with their recent deputation to Glasgow, the tramway committee of the town council of Aberdeen met on Monday to frame a report on the question. A unanimous opinion was expressed in favour of the overhead trolley system. It was also agreed to recommend the adoption of double-decked cars, and the new experiment will be carried out on the Woodside route.

At a general assembly of Royal Academicians and Associates held on Tuesday evening, M. Jules Breton (painter) was elected an Honorary Foreign Academician, and Messrs. Arthur S. Cope (painter), Alfred East (painter), and W. Goscombe John (sculptor) were elected Associates.

The Light Railway Commissioners sat at Penzance on Tuesday to decide between two schemes designed to connect that town with the Land's End district, and eventually approved the one promoted by the Penzance, Newlyn, and West Cornwall Light Railway Company, to cost £150,000.

Mr. H. Cummings, chief architect in the engineers' department of the South Eastern Railway, presided over a representative gathering of the chiefs of the department at the Angel Hotel, Tunbridge, on Friday evening, the dinner being held for the purpose of entertaining and making a presentation of a gold watch and address to Mr. P. C. Barnes, chief engineer's accountant, who is retiring from the company's service.

In a case, Davis v. Day, at Wandsworth County-court, on Monday, in which an architect sued a builder for slander, Judge Lushington said the case was a most sordid one. Perhaps his view of matters might be regarded as a hard one, but he did not think builders should be considered by ordinary standards. He did not think he ever sat at that court without having malpractices of builders brought before him.

## Intercommunication.

## QUESTIONS.

[12166].—**Tenants' Fixtures.**—What are tenants' fixtures in an electric lighting installation, and how much is removable by a tenant as such?—FOREGATE.

[12167].—**Monkey-Puzzle Tree.**—I have a monkey-puzzle tree about 20ft. in length, 18in. diameter at base, and about 10in. at the top. Is this of any value for any purpose? I have been told that it is useful for cabinet purposes. What would be its worth, if any?—M. E.

[12168].—**Vestry Authority.**—Can the vestry order me to produce plans of my building, and have they any authority over new buildings? What are their powers?—ENQUIRER.

[12169].—**Boundary Fences.**—There is a post-and-rail fence between my garden and the ground and a large field at the back. The owners of the field have lately raised the fence, and turned what was an open post and rail into a close-paled fence. Have they any right to do this? The lower rail fence has been in existence many years, and the only reason I can imagine for taking the step they have, is that some of the tenants have been in the habit of trespassing on the field, or their sons have occasionally played in it. I should like to know what authority, even in such a case, the owners or lessees of the field have to raise the fence?—INDIGNANT.

[12170].—**Girders.—Crop Ends.**—Kindly tell me a good book on taking out the weight of cast-iron girders and columns? Also, would one of your readers kindly tell me what are "crop ends," and in what books I am likely to find information on such things?—E. L. B.

[12171].—**Shoring Buildings.**—Are there any books treating of the way to shore and support walls and floors, and, if so, their titles, &c.?—NO SIG.

[12172].—**Wood Block Floor.**—Which can be recommended as the best method of fixing the blocks, and retaining them in their position? Is there any mode of preventing the wood block springing, warping, and twisting out of a true surface? Some of the wood floors I have seen do not present a very even surface.—S. S.

[12173].—**Kitchen Boiler.**—Will an experienced hand inform me whether it is essential to overhaul a kitchen boiler every seven years or so for cleaning or scraping? Also, whether there is any risk of explosion, if hot water can be drawn from either of the taps? Is it necessary to renew such boilers, and how often? I do not think such trouble and expense is generally contemplated by landlord or tenants.—IN DOUBT.

[12174].—**Casement Fixing.**—Which is the best way to fix iron casements to stone windows. I thought of screwing the frame to wood plugs let into the stonework. If there are lugs on the frame, how are these fixed—with molten lead, or how?—QUEASY.

[12175].—**Right of Light to Rebuilt Premises.**—In rebuilding old premises, is it necessary to retain the position of old windows and their heights to enable the right of light to be maintained? An answer will oblige.—Q. E. D.

## REPLIES.

[12152].—**Architect's Charges.**—I presume "Art," alias "M. A.," has quite as much knowledge of me as I have of him, and that is nil; so his remarks about "Class" are gratuitous. I concur with him that it requires "hard and constant work and study," as well as a feeling for your subject, before one can acquire excellence in any department of our profession, and he compels me to add in reply, for the architects whose names he brings forward, that unless these men were imbued with the "genius heaven-born," they could not have erected so many buildings and finished them, even to the minutest detail, unless they were giants in their profession. No common architectural mortal could accomplish so much excellent and varied work.—ED. CALVERT.

[12157].—**Baths.**—Thanks to "Trebla" for his reply to my query. Can he recommend copper for cleanliness over porcelain? Does not the enamel soon scale off the metal?—AMATEUR BUILDER.

[12152].—**Architect's Charges.**—The usual charge in London for inspecting buildings to see if the conditions are fulfilled is from 1 to 2 per cent.; the latter percentage is upon buildings up to £5,000. For approving plans, another 2 per cent. might be charged; but, of course, the charge should depend on the kind of building. An ordinary villa would not entail so much trouble as a commercial building. The time, skill, and trouble involved ought to be the basis of the charge.—G. H.

The leases of several premises in Fleet-street fell in last week, and have been acquired by the City Corporation. The present proposal is to widen the street between Ludgate Circus and Salisbury Court, and some twenty-four buildings will be destroyed on the southern side. The Corporation is already in possession of about a dozen of the buildings required, and the first two small sections of widening have been completed.

Mr. Charles E. Savery, M.S.A., has completed his book on "Memorials," and the work is now in the publisher's hands. Mr. Savery is preparing a special drawing, by desire of H.R.H. Princess Beatrice, of the memorial to the late Prince Henry of Battenberg at Whippingham, Isle of Wight, and which will be reproduced in the book, the Princess having kindly furnished the necessary photographs and information to enable the author to make such. We regret to learn that Mr. Savery is suffering from a return of heart trouble which previously prostrated him, and he has been forbidden by his medical adviser to undertake any active work for a few weeks.







# STOREY HOME ROYAL ALBERT ASYLUM LANCASTER

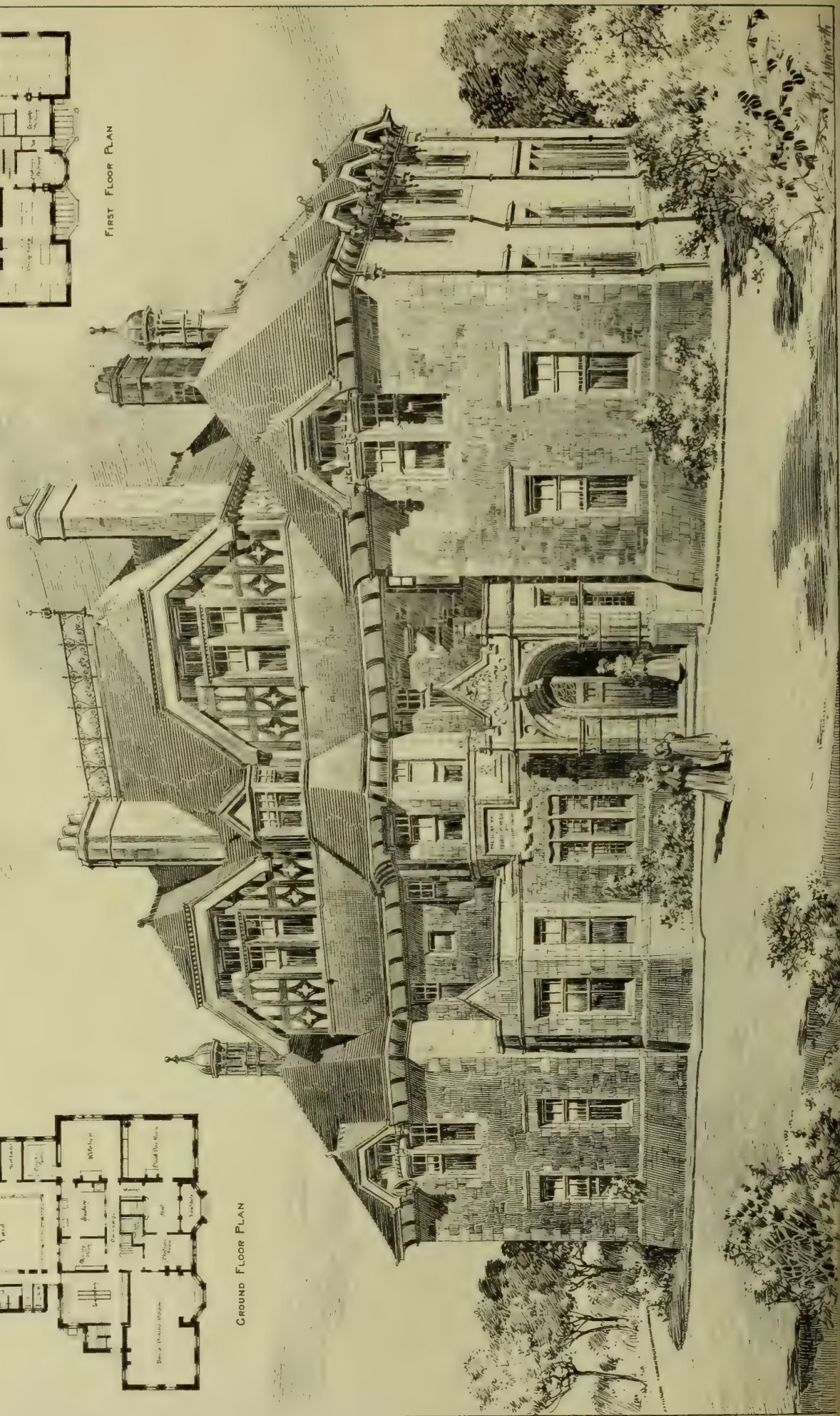
E. HOWARD DAWSON and C. ASHWORTH ARCHTS.



GROUND FLOOR PLAN



FIRST FLOOR PLAN



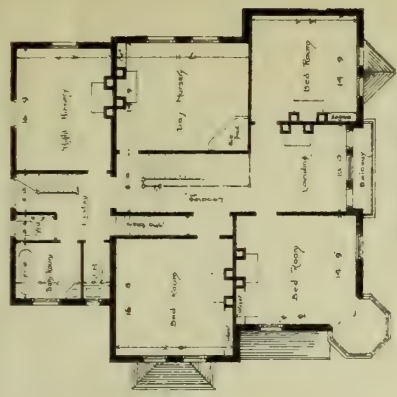


THE DOMESTIC ARCHITECT, 1850.

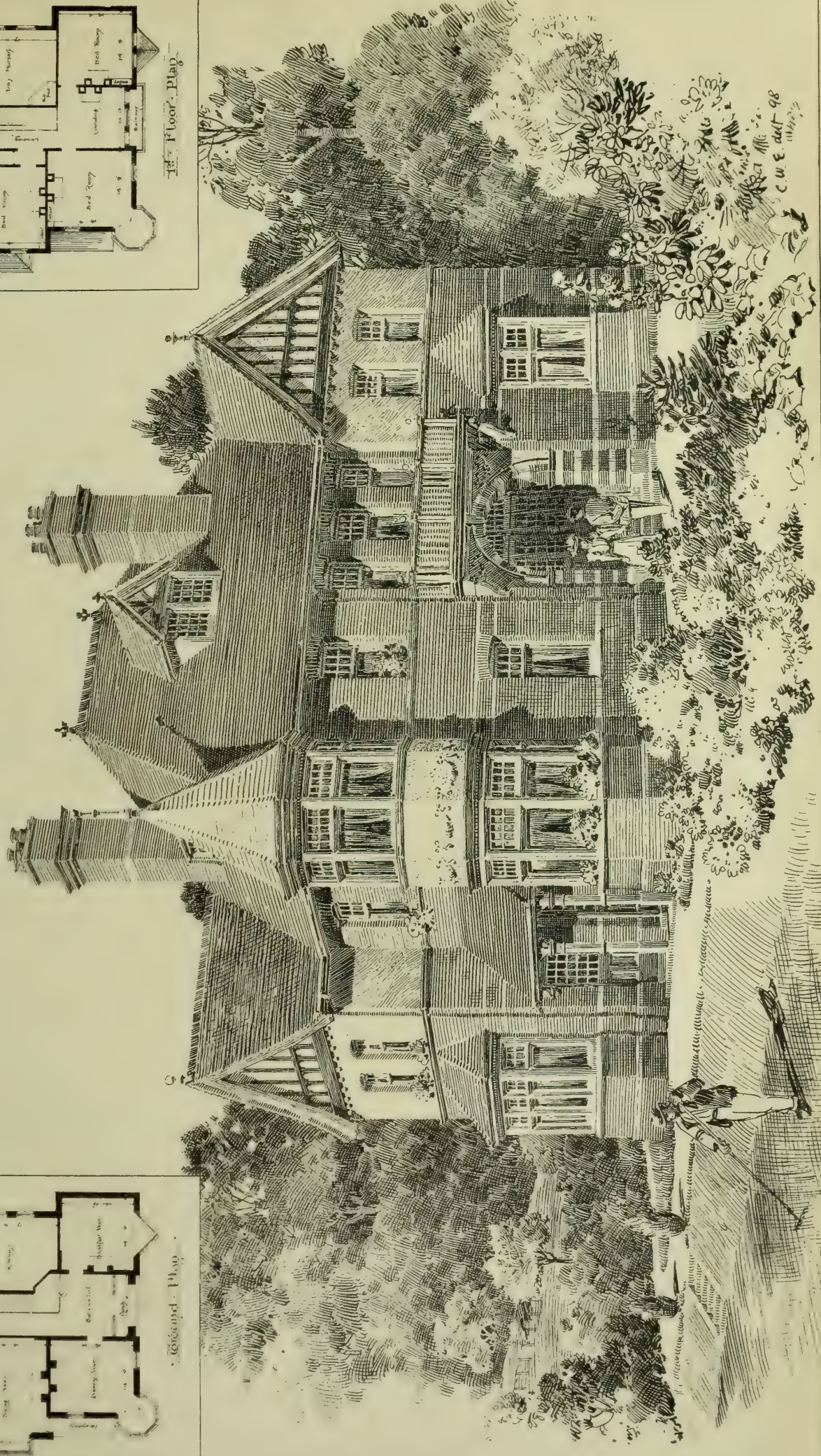
• HIGFIELD BELPER FOR MR MAURICE HUNTER.  
• HUNTER & WOODHOUSE. ARCHT'S.



Ground Floor Plan



First Floor Plan



C.W.E. delt 98  
1850







## WATER SUPPLY AND SANITARY MATTERS.

**THE LONDON WATER COMMISSION.**—At Monday's sitting of the Royal Commission on the Metropolitan Water Supply, Sir A. R. Binnie, chief engineer to the London County Council, recalled, gave evidence with regard to the future supply of water from the river Lea. He drew the conclusion that the Lea valley was, for all practical purposes, exhausted; that to construct in it further reservoirs of larger capacity would only be a wasteful expenditure of money, and that it would be better to go to some other and more bountiful source. He also contended that to enable the Thames to meet the demands that would be made on it if no supply were sought elsewhere, the storage reservoirs would need an additional capacity of 25,500,000 gallons. Mr. C. J. More, engineer to the Thames Conservancy, said that body still adhered to the view that in no case should the quantity of water taken from the river be allowed to reduce the discharge at Teddington Weir below 200,000,000 gallons per day unless compensation were made by a tidal reservoir. Colonel Lockwood, M.P., chairman of the East London Water Company, gave evidence to the effect that the failure of the company to supply their customers last year was in great measure owing to the removal of the cisterns, and was aggravated by deliberate waste of water by consumers. The company were unwilling to sell their undertaking, especially to the London County Council, whom they regarded as the Jack Cades of the 19th century; but if purchase was decided upon, it ought to be under the Lands Clauses Act. On Tuesday, the same witness was cross-examined by Mr. Balfour Browne, Q.C., on behalf of the London County Council. He objected to any further control being exercised over the companies; but if they were to be placed under any other body, he would prefer a Government department. Mr. Bryan, engineer to the East London Water Company, maintained that the company could obtain 20,000,000 gallons a day from their wells in the chalk. The reason why the London water companies did not propose to go to Wales for fresh supplies was one of expense. What they proposed could be done for £15,000,000, as against £57,000,000 for the Welsh scheme. At the conclusion of Mr. Bryan's evidence the Commission adjourned till Monday.

**BURRATOR RESERVOIR.**—The last act of the great Plymouth water undertaking took place on Friday, when for the first time, the enormous reservoir became full to the overflowing point, and the waves began to leap up to the five arches under the roadway at the Burrator dam. The sight was witnessed by the Mayor (Alderman J. Pethick), the chairman of the Water Committee (Alderman J. T. Bond), and the Water Engineer (Mr. E. Sandeman), who throughout has carried out the work during the past seven and a half years. The lake, which covers 117 acres, is broad at the lower end and narrows away till it takes the appearance of a river towards the Lowery. At the Burrator dam the depth is greatest, being 77ft., while at the Sheepsator dam it is only 17ft. At present the amount of water in the reservoir, which is as much as it will hold, is 651 million gallons, and Plymouth could be kept upon full supply for 130 days without replenishment, the consumption daily being about 4½ million gallons. A few minor matters remain to be finished, such as the erection of a screen chamber and gauge-house. The reservoir itself, however, might have been filled at the beginning of December. The overflow which is now taking place through the arches under the roadway is 125ft. long, the five arches having each a span of 25ft., while they are 7ft. 6in. in height. The water thus released flows to the River Meavy. The Burrator dam itself is 62½ft. thick, and at the base 77ft. The sale of plant at the Burrator Works last week realised £2,300, and this, with the proceeds of a previous sale, makes a total of £5,700 received from the disposal of plant.

**GAINSBOROUGH.**—Nearly two years ago Messrs. Timmins and Sons, of Runcorn, were carrying out the second bore-hole of the Gainsborough artesian well scheme. Through the accidental breaking of the rope used in boring, the contractors lost the boring tool, weighing 35cwt., and being 30ft. in length, at a depth of 72ft. On Saturday morning the tool was successfully brought to the surface, together with several tons of soil. A sum of £3,000 has just been laid out in a new pumping plant for the No. 1 bore-hole, and a similar sum is to be expended in connection with the second boring.

Mr. Bicknell, C.E., held an inquiry on Friday at New Mill, Holmfirth, respecting the New Mill Council's proposal to borrow £9,000 for the purposes of sewage works. The council propose to join Holmfirth at the sewage outfall works, where Dublin's system of purification will be adopted. Manufacturers present formally protested against the scheme, on the ground that it does not deal with trade effluents.

## Our Office Table.

At Tuesday's sitting of the London County Council an address calling attention to the practice of advertising in main thoroughfares by illuminated signs, and signed by about 300 architects practising in London, was submitted by Dr. G. B. Longstaff, on behalf of the National Society for Checking the Abuses of Advertising. The memorialists urged that this rapidly extending form of illuminated advertisement was leading to the progressive degradation of the Metropolis, and submitted that reasonable regard for individual liberty required that those who wished to use public thoroughfares should not be subjected to annoyance at the discretion of the owners of adjacent buildings. It should be for the duly-constituted local authorities to decide to what extent the appeal to the eye should be permitted. The fundamental issue was whether the people of the Metropolis were to be molested in the use of public thoroughfares; whether the interest of the inhabitants of a great city in maintaining the dignity and beauty of its aspect was to be sacrificed to the rivalry of tradesmen; whether architecture and scenery were to be converted at the caprice of individuals into an insignificant background for the brawls of competing makers and vendors. The memorialists contemplated no interference with such methods of advertising as were either in themselves artistic or were consistent with dignity and propriety in the aspect of our city. Even on mere grounds of safety to life and limb some of the illuminations were most objectionable. They desired to see enforced a principle of regulation which, while covering the case of illuminated signs, would necessarily apply to all advertising devices of a similar character, and suggested that the council should absolutely forbid the use of any letters exceeding a certain size or at more than a specified height above the ground level. The signatories to this appeal included Mr. G. Aitchison, R.A., P.R.I.B.A., Mr. T. G. Jackson, R.A., Mr. R. Norman Shaw, R.A., Mr. A. Waterhouse, R.A., Sir A. W. Blomfield, A.R.A., Mr. G. F. Bodley, A.R.A., Mr. J. Belcher, Mr. J. M. Brydon, Mr. W. D. Caröe, Mr. Arthur Cates, Mr. Basil Champneys, Mr. Ernest George, Mr. G. Goldie, Mr. E. W. Mountford, Mr. Rowland Plunbe, Mr. J. Oldrid Scott, Mr. J. Slater, Mr. C. F. A. Voysey, and Mr. W. White, F.S.A.

The purchase by the Trustees of the National Gallery of the two pictures by Rembrandt known as the "Burgomaster and his Wife" from Lord de Saumarez, which was announced in July last, and which it was afterwards found could only be effected by permission of the Court of Chancery, is now completed by a decision of the Court, and the pictures are placed in the large Dutch Room, No. X. Mr. Alexander Lang Elder, late of 38, Hyde Park-gardens, has presented to the National Gallery a picture of the Spanish school, "Christ disputing with the Doctors," by Francisco de Herrera the elder. This picture will shortly be hung in Room XIV.

A loan collection of 135 pictures, lent by Mr. Merton Russell Cotes, of Bournemouth, is on view at the Glasgow People's Palace. Prominent in the chief gallery is Marcus Stone's "Letter Bag," and Sir J. Gibbert, R.A., is represented by "The Timber Waggon," and other prominent works are "The Daughter of Jairus," by Edwin Long, R.A., and J. Macwhirter's "In the Cold," with a donkey as the central figure, and also Briton Riviere's "Tick Tack," showing a pug dog listening to the ticking of a watch. A specimen of the brush work of B. W. Leader, R.A., "The Lleddr Valley," is also included in the collection, which likewise embraces paintings by Sidney Cooper, R.A., Fred Morgan, R.I., E. Hume, Mrs. L. Alma Tadema, D. F. Laugée, W. L. Wyllie, A.R.A., Yeend King, A.R.A., Erskine Nicol, and T. Creswick, R.A.

So rich in historic interest is Hever Castle, built in the 15th century by Sir Geoffrey Boleyn, great-grandfather of Anne Boleyn, that its treatment is a matter of national rather than private concern. Captain Sebright, the present owner, who is having some alterations carried out at the castle, was recently approached by the Society for the Protection of Ancient Buildings and entreated to reconsider some rumoured intentions, such as the removal of the guard-house,

and to allow a survey and a report upon the condition of the building on the lines followed by the society in the case of Haddon Hall. Captain Sebright has, however, for reasons which have not transpired, declined the society's offer.

The work of laying the underground cable from London to Birmingham to supplement the existing overhead telegraph and telephone lines is progressing steadily, and the authorities of the General Post Office anticipate its completion in the latter part of the current year. The pipes through which the cables will pass have been laid between London and Warwick, and contracts in relation to the remaining portion of the distance have been entered into, and the work is being proceeded with in three sections. The length of the new cable between the Metropolis and Fenny Stratford is already in use, and the results are completely satisfactory, the new cable having been of great assistance as a reserve during the recent gales, which tried the overhead lines severely. The cable is formed of seventy-six copper wires, and each of these conductors is insulated with a longitudinal wrapping of paper. A lead sheathing is placed over the whole, which has then a diameter of rather more than 2½in., and can be drawn through the 3in. cast-iron pipes placed at a depth of about 2½ft. below the surface of the ground in readiness to receive it.

The second volume of the annual publication of Mr. Alex. Koch's "Academy Architecture" has this week been issued to subscribers. It well maintains the excellence of the little reproductions which enrich its pages from the architectural drawings shown at Burlington House and some other exhibitions, together with a selection of foreign works and a capital series of sculptures, which give an individuality to this well-produced small folio, which is nicely printed and neatly bound. Among the contributors are Messrs. Aston Webb, G. F. Bodley, A.R.A., W. Goscombe John, A.R.A., Geo. Frampton, A.R.A., J. M. Brydon, J. Belcher, Maurice B. Adams, E. Onslow Ford, R.A., Sir Arthur Blomfield, A.R.A., W. D. Caröe, Ernest Newton, and G. H. Fellowes Prynne, P.A.A. Several of the drawings have appeared in our own pages; but that does not detract from this excellent record.

In connection with the Building Trades' Exhibition to be held at the Royal Agricultural Hall from April 26th to May 6th next, an exhibition of road-making methods and appliances, similar to one that took place two years ago, will be organised under the direction of the *Surveyor*. The executive committee are Mr. J. Patten Barber, chief surveyor to the Islington Vestry, and Mr. C. H. Cooper, Mr. E. J. Lovegrove, and Mr. O. Claude Robson, the surveyors respectively to the urban district councils of Wimbledon, Hornsey, and Willesden. The exhibits will illustrate road and street construction, maintenance, and cleansing, road-making machinery, tools used in road-making materials for town carriageways, covers for access to sewers, pipes or conduits, and types of lamp columns, kiosques, hydrants, and fire-alarm posts.

The curator of the Maidstone Museum has received a letter from Mr. A. Santer Kennard, of Beckenham, relating to the acquisition, by the Museum, of the Harrison collection of prehistoric flint implements, in which he states that, seeing there is now a possibility of a large part of Mr. Harrison's collection finding a home in the County Museum, provided the negotiations are brought to a successful issue, he will be pleased to present to the museum the pick of his own collection of Paleolithic implements from the neighbourhood of West Wickham, numbering upwards of 1,000 specimens. "So soon as I have described them," adds Mr. Kennard, "they will be at the disposal of the curator of the institution upon the conditions referred to above."

At the meeting of the City Council of Manchester on Wednesday, a number of recommendations were submitted bearing upon the proposed rearrangement of the city surveyor's department. The Town Hall Committee have resolved that it is desirable to divide the work of the city surveyor's office into two departments. It is proposed that there should be a head of the architectural department who would be responsible for all ordinary architectural work, and the plans and estimates in connection therewith. It is not thought desirable that this new department should be entirely severed from that of the city surveyor. The Town Hall Committee recommend that Mr.



George Meek be appointed chief architectural assistant at a salary of £270 per annum. The Rivers Committee have resolved that as the present managerial requirements of the Rivers Committee are largely chemical, they contemplate relieving the city surveyor and placing the general administration of sewage works at Davy-hulme under the control of their chemist, Mr. Fowler. The city surveyor to supervise the work of the office from time to time as may be desired by the Rivers Committee, and also to be appealed to in all cases of accident or emergency on the works. The Tramways Committee have obtained the sanction of the city council to appoint a competent engineering assistant to carry out the engineering work required in connection with the permanent way, and that he be under the control of the city surveyor.

### CHIPS.

Colonel C. H. Luard, R.E., one of the Local Government Board inspectors, held a public inquiry at the Municipal Offices, Southampton, on Thursday in last week, with respect to an application by the town council for sanction to borrow £488 for wood and tar paving, and other works of street improvement. The borough engineer (Mr. W. B. G. Bennett), explained the proposals.

John Charles, a well-known Grimsby builder, summoned James Walter Brown, at Barton Petty Sessions, on Friday, for stealing two wooden planks. The case was dismissed, but prosecutor was promptly arrested himself, however, for not having paid a fine of £5 imposed recently for an infringement of the urban district council's by-laws. A warrant had been issued for a month's committal to Hull gaol in default. Just as the train for Hull was about to depart the necessary money was paid and Mr. Charles released.

An inquiry was held on Jan. 26th, at the National Schools, Tiddington, near Stratford-on-Avon, by Major-General H. Darley Crozier, R.E., an inspector of the Local Government Board, relative to an application by the Stratford Rural District Council for permission to borrow a further sum of £1,230 (making altogether £3,500), for works in connection with the Alveston water supply. Mr. Wilcox, C.E. (Birmingham), the engineer, gave particulars of the proposals.

Proceedings at the Estate Mart, Tokenhouse Yard, last week, were very dull, and the results of transactions but meagre. The total result was only £41,580, against £238,803 for the corresponding week of last year.

At the request of Mr. J. S. Sargent, R.A., the council of the Royal Institute of British Architects have sanctioned the removal of the portrait of Mr. F. C. Penrose, past-president, from the Institute to Boston, U.S.A., to form part of an exhibition of the artist's works which is to be held early next month in that city. It has been heavily insured against accident, and will be away for two months.

At a gathering of the York Architectural Society, on Saturday, the president (Mr. George Benson, A.R.I.B.A.) said that there was a constant and increasing traffic of heavy waggons along the road which skirted the Minster from the east end to the west front. This constituted a real danger to the stability of the fabric when they considered the enormous weight of the building pressing on the ground, and the fact that already the south transept leaned outwards.

On Wednesday week, an inquiry was held at the Town-hall, Great Yarmouth, by Lieut.-Colonel A. C. Smith, R.E., on behalf of the Local Government Board with reference to a loan for £750 for the construction of an underground lavatory on Theatre Plain.

The City Court of Common Council have approved of the appointment of Mr. Henry Stock as single arbitrator, under the Central London Railway Acts, 1891, 1892, and 1894, to determine the amount to be paid for the purchase of freehold land and hereditaments in Oxford-street, South Molton-street, and Davies-street.

The death occurred on Monday, at Moret, near Fontainebleau, at the age of 58, of M. Alfred Sisley, the landscape painter. His works did not meet with proper appreciation except during the last ten years, and even now the Luxembourg is the only public museum in which one of them is to be found. He was influenced first by Corot and latterly by Monet.

The lodging-house erected in East North-street, Aberdeen, by the Corporation was formally opened on Saturday afternoon by Lord Provost Fleming and the town council. The building has cost £16,500. Accommodation is provided for men only, and the bedrooms or cubicles altogether number 252. The premises are well equipped, and fitted throughout with electric light.

### MEETINGS FOR THE ENSUING WEEK.

**MONDAY.**—Royal Institute of British Architects. "Public Baths and Washhouses," by A. Hessel Tiltman, F.R.I.B.A. 8 p.m.  
"Surveyors' Institution. Discussion on 'The Official Supervision of Buildings in London.' 8 p.m.  
"Carpenters' Hall Free Lectures. 'Ornament,' by Professor Banister Fletcher, F.R.I.B.A. 8 p.m.  
"Society of Arts. 'Bacterial Purification of Sewage,' by Dr. Samuel Rideal. Cantor Lecture No. 4. 8 p.m.  
"Liverpool Architectural Society. 'Ideals and Realities of Modern Practice,' by E. Prioleau Warren. 6 p.m.  
"Leeds and Yorkshire Architectural Society. 'British Plaster Work: its Past and Future,' by P. Bankart. 6.30 p.m.

**TUESDAY.**—Institution of Civil Engineers. "The Water-works of the Madras Presidency," by J. A. Jones. 8 p.m.

**WEDNESDAY.**—Society of Arts. "Nernst's Electric Lamps," by James Swinburne. 8 p.m.  
"Sanitary Institute. 'Supply of Water to London by the Welsh Scheme,' by R. E. Middleton. 8 p.m.  
"Northern Architectural Association. 'Notes,' by J. T. Cackett, F.R.I.B.A. 7.30 p.m.  
"Edinburgh Architectural Association. 'Some Words about Edinburgh Architecture,' by T. A. Croall, F.S.A.Scot. 8 p.m.  
"St. Paul's Ecclesiastical Society. 'Low Side Windows,' by Philip M. Johnston. 7.30 p.m.

**FRIDAY.**—Institution of Junior Engineers. Joint Meeting with the Discussion Section of the Architectural Association. "Factory Design," by J. H. Pearson, M.Inst.C.E., Westminster Palace Hotel. 7.30 p.m.  
"Birmingham Architectural Association. 'Ancient and Modern Buildings in Palestine,' by Beresford Pite, F.R.I.B.A. 6.45 p.m.

**SATURDAY (Feb. 11).**—London and Provincial Builders' Foremen's Association Annual Dinner at Anderson's Hotel, Fleet-street, E.C. 6.30 p.m.

## Trade News.

### WAGES MOVEMENTS.

**THE PLASTER DISPUTE.**—The officials of the National Association of Operative Plasterers have despatched ballot papers to the secretaries of all the London district branches. The vote of the members is requested on the single question: "Are you in favour of withdrawing the resolution compelling managing foremen plasterers to join the union?" The ballot papers are to be returned not later than Wednesday in this week, and they will be counted at the chief district office on Tuesday next. Mr. Dan Hennessey, the organising secretary of the London district plasterers, has publicly described the action of the "new unionists" as "a mistaken policy," and declared that he thought the time had arrived when these petty squabbles with employers should come to an end.

**ABERDEEN.**—Mr. Wm. Sutherland, the secretary of the Aberdeen Master Plumbers' Association, has sent out to wholesale merchants and manufacturers who trade with plumbers in Aberdeen, a circular stating that the members of his Association have resolved not to support wholesale merchants and manufacturers who trade with plumbers in Aberdeen who are not members of the Association. A strike affecting over 600 men commenced in Aberdeen on Wednesday, the master joiners having refused the demands of their workmen for an advance of 3d. per hour in wages—from 8d. to 8½d.

**PENRYN, CORNWALL.**—A labour question has arisen at Penryn. A section of the stone-dressers in the extensive granite quarries of that neighbourhood are anxious to substitute day-work for the piece system. On Saturday evening a large number of the men devoted four hours to a discussion of the subject in the Temperance Hall, Penryn. At the close of the proceedings, the secretary intimated that there was no information to communicate publicly at that stage. Probably there was never greater briskness in the Cornish granite trade than at the present time, and the demand for granite for Gibraltar, a new light-house in course of erection off the Irish coast, and important undertakings elsewhere, is sufficient to keep the staff of Messrs. Freeman, Sons, and Co. busy for a considerable period.

A large water filtration project has been submitted to the Philadelphia councils by Director Thompson, of the department of public works. It provides for filtering 270,000,000 gals. daily and a new pumping station of 150,000,000 gals. capacity on the Delaware River. Sand filters are recommended at three stations and mechanical filters at two. The cost is estimated at £2,310,000 sterling.

## LATEST PRICES.

IRON, &c.			
	Per ton.	Per ton.	
Rolled-Iron Joists, Belgian.....	£8 0 0	to	£8 10 0
Rolled-Steel Joists, English.....	6 10 0	to	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	to	6 10 0
Bar Iron, good Stuffs.....	7 5 0	to	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	to	17 5 0
Do., Welsh.....	5 15 0	to	5 17 0
Boiler Plates, Iron—			
South Stuffs.....	7 17 6	to	8 5 0
Best Suedsall.....	10 0 0	to	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	to	£11 0 0
Best ditto.....	11 5 0	to	11 10 0
Cast-Iron Columns.....	£6 5 0	to	£8 15 0
Cast-Iron Stanchions.....	6 5 0	to	8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	to	8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	to	7 15 0
Galvanised.....	10 10 0	to	11 10 0
Cast-Iron Sash Weights.....	4 2 6	to	4 5 0
Cut Clasp Nails, sin. to 6in.....	9 0 0	to	10 0 0
Cut Floor Brads.....	8 15 0	to	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/0 9/6 10/9 11/6 12/6 13/6 15/3 17/3 per cwt.			
Cast-Iron Socket Pipes—			
3in. diameter.....	£5 10 0	to	£5 15 0
4in. to 6in.....	5 5 0	to	5 10 0
7in. to 24in. (all sizes).....	4 15 0	to	5 0 0
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....	106s.	to	110s.
Hot Blast, ditto.....	57s. 6d.	to	62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard			
Lists f.o.b.:			
Gas-Tubes.....			75p.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 5cwt. casks.			
Per ton.	Per ton.		
Zinc, English.....	£28 0 0	to	£28 10 0
Do., Vieille Montagne.....	29 10 0	to	29 15 0
Sheet Lead, 3lb. per sq. ft. super.....	15 5 0	to	16 5 0
Pig Lead, in 1cwt. pigs.....	14 7 6	to	15 7 6
Lead Shot, in 28lb. bags.....	18 0 0	to	19 0 0
Copper Sheets, sheathing and rods.....	75 0 0	to	77 0 0
Copper, British Cake and Ingot.....	67 7 6	to	68 2 6
Tin, Straits.....	109 0 0	to	110 0 0
Do., English Ingots.....	112 0 0	to	113 0 0
Spelter, Silesian.....	23 17 6	to	24 7 6
TIMBER.			
Teak, Burmah.....per load	£13 0 0	to	£15 10 0
" Bangkok.....	10 10 0	to	14 10 0
Quebec Pine, yellow.....	4 7 6	to	6 5 0
" Pitch.....	8 5 0	to	8 15 0
" Oak.....	4 0 0	to	6 0 0
" Birch.....	3 0 0	to	5 0 0
" Elm.....	4 12 6	to	5 15 0
" Ash.....	3 17 6	to	5 5 0
Dantaic and Memel Oak.....	3 5 0	to	3 15 0
" Fir.....	2 0 0	to	4 0 0
Wainscot, Riga p. log.....	3 15 0	to	5 15 0
Lath, Dantaic, p.f.....	4 10 0	to	5 10 0
St. Petersburg.....	4 0 0	to	6 10 0
Greenheart.....	8 0 0	to	8 5 0
Box.....	4 0 0	to	15 0 0
Sesquia, U.S.A.....per cube foot	0 1 9	to	0 2 0
Mahogany, Cuba, per super foot			
1in. thick.....	0 0 6½	to	0 0 7
" Honduras.....	0 0 4	to	0 0 6
" Mexican.....	0 0 3½	to	0 0 4
Cedar, Cuba.....	0 0 4	to	0 0 4½
" Honduras.....	0 0 3½	to	0 0 4
Satinwood.....	0 0 9	to	0 1 9
Walnut, Italian.....	0 0 8	to	0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in.:			
Quebec, Pine, 1st.....	£18 15 0	to	£25 5 0
" 2nd.....	13 15 0	to	17 0 0
" 3rd.....	6 0 0	to	10 0 0
Canada Spruce, 1st.....	8 10 0	to	10 10 0
" 2nd and 3rd.....	7 5 0	to	8 10 0
New Brunswick.....	7 5 0	to	8 0 0
Riga.....	8 5 0	to	9 5 0
St. Petersburg.....	11 15 0	to	14 5 0
Swedish.....	9 15 0	to	16 15 0
Finland.....	9 15 0	to	10 5 0
White Sea.....	10 15 0	to	18 0 0
Battens, all sorts.....	5 0 0	to	16 0 0
Flooring Boards, per square of 1in.:			
1st prepared.....	£20 9 6	to	£20 16 3
2nd ditto.....	0 8 0	to	0 13 3
Other qualities.....	0 6 3	to	0 7 9
Staves, per standard M.:			
Quebec pipe.....			
U.S. ditto.....	£35 0 0	to	£42 10 0
Memel, cr. pipe.....	210 0 0	to	220 0 0
Memel, brack.....	180 0 0	to	190 0 0
OILS.			
Linseed.....per ton.	£16 17 6	to	£17 7 6
Rapeseed, English pale.....	22 0 0	to	22 5 0
Do., brown.....	20 10 0	to	20 15 0
Cottonseed, refined.....	14 10 0	to	15 5 0
Olive, Spanish.....	28 10 0	to	29 0 0
Seal, pale.....	21 5 0	to	21 10 0
Cocoonut, Cochín.....	30 0 0	to	30 10 0
Do., Ceylon.....	23 5 0	to	23 15 0
Palm, Lagos.....	23 0 0	to	23 5 0
Oleine.....	18 15 0	to	19 15 0
Lubricating U.S.....per gal.	0 6 8	to	0 7 6
Petroleum, refined.....	0 6 6	to	0 6 6½
Tar, Stockholm.....per barrel	1 0 0	to	1 5 0
Do., Archangel.....	0 15 0	to	0 18 0
Turpentine, American.....per ton	£23 15 0	to	£29 0 0



## LIST OF COMPETITIONS OPEN.

Tottenham—Refuse Destructor	£25, £15, £10	P. E. Murphy, Engineer U.D.C., 712, High-road, Tottenham	Feb. 7
Dartford—York-road Board Schools (1,650 places)	30gs., 10gs.	Arthur S. Dixon, Clerk to School Board, Dartford	" 10
Wisbech—Converting Buildings into Vagrant Ward	Guardians	G. Carrick, Clerk, Union Offices, Wisbech	" 15
Northwich—Dwelling House (£25 rent) for Erection on Land			
Liable to Subsidise	£20, £10, £5	F. A. Cowley, Clerk to Salt Compensation Board, Northwich	" 24
Knutsford—Cemetery Buildings	£20 and £10	W. J. Downes, Surveyor U.D.C., Knutsford	" 28
Beverly—Grammar School Buildings (limit £3,000; Assessor)	£25 and £10	F. G. Hobson, Clerk to the Governors, Newbegin, Beverley	Mar. 4
Shoreditch—Additions to Town Hall (limit £12,000)	£50 and £25	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C.	" 22
Doncaster—House for Grammar School Master (limit £3,500; Assessor)			
Forfar—Isolation Hospital (Assessor)	£50 (merged), £25	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster	" 30
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee	" 31
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50	The City Surveyor's Office, Bradford	April 14
Nelson—New Church of St. Philip's	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds	June 1
Gosport—Technical Institute and Public Library (about £4,000; limited to Architects within 100 miles of Gosport; Assessor)		H. Duerdon, Hon. Secretary, 180, Barkerhouse-road, Nelson	"
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair)	£100, £25, £10	P. Tostevin, Sec., District Council Offices, Gosport	"
Wandsworth, S.W.—Guardians' Board-room, Offices, &c.	£100 (merged), £60, £40	F. Moggridge, 18, King's-place, Portman-square, W.	"
		Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W.	"

## LIST OF TENDERS OPEN.

## BUILDINGS.

West Hampstead—School	Aske's Haberdashers' Sch. Managers	Widnell and Trollope, 20, Tothill-street, Westminster, S.W.	Feb. 4
Bedlington—House at West End		J. T. Kidd, Barrington Colliery, Bedlington	" 4
Dartmouth—Alterations to Shop and Premises, Duke-street	E. M. Hawke	E. H. Bach, C.E., M.S.A., Architect, Dartmouth	" 4
Carlisle—Fifteen Houses		George Armstrong, Architect, 24, Bank-street, Carlisle	" 4
Kingston-on-Thames—Dining-Hall, &c., at Workhouse		W. H. Hope, Archt., Union Offices, Portsmouth-rd, Kingston-on-T.	" 4
Dewsbury—Seven Dwelling-Houses, Vulcan-road	Guardians	Joseph Firth and Son, Architects, 67, Vulcan-road, Dewsbury	" 4
Carlton—Classroom		W. E. Richardson, Architect, 23, Bond-street, Leeds	" 4
Morecambe—Two Houses, Euston-road	Lofthouse-w-Carlton School Board	Albert Gorton, Architect, 24, The Crescent, Morecambe	" 4
Hunslet—Thirty-Four Houses and Two Shops, Dewsbury-road	J. Greenall	C. Fredk. Wilkinson, Architect, 35, Park-square, Leeds	" 4
Lancaster—Alterations to Premises		C. F. Thompson, Architect, The Arcade, Lancaster	" 4
Chippenham—Technical and Secondary Schools	F. Wolfenden	Robert E. Brinkworth, F.S.I., Architect, Chippenham, Wilts.	" 4
Wombwell—Stable, &c., Royal Oak Inn	Education Committee	J. Robinson, Wombwell	" 4
Aberystwyth—Four Houses, Bath-street		Hipkiss and Bassett, Architects, Terrace-road, Aberystwyth	" 4
West Hartlepool—Grill and Restaurant, Club-Room, Shops, and Offices, Church-street	Hugh Hughes		" 4
Newcastle-upon-Tyne—Additions to Spital Tongues School	School Board	J. Blackwell, Architect, West Hartlepool	" 6
Leeds—Alteration of Public Baths in Cookridge-street	Baths Committee	W. Lister Newcombe, F.R.I.B.A., 89, Pilgrim-st., Newcastle-on-T.	" 6
Nelson—Additions to Zion Baptist Chapel		Walter Hanstock and Son, Architects, Branch-road, Batley	" 6
Wilton—Alterations to Wards at Workhouse	Guardians	H. Whitaker, Architect, 21, Market-square, Nelson, Lancs.	" 6
Benllech—Extensions to Welsh C.M. Chapel		John Harding and Son, 58, High-street, Salisbury	" 6
Normanton-by-Deby—Additions to Schools	School Board	J. Owen, Architect, Menai Bridge, Anglesey	" 6
Gateshead—Nurses' Home		Naylor and Sale, Architects, Iron Gate, Derby	" 6
Walmer—Pair of Residences, Dover-road	Walmer Estate Company, Ltd.	L. H. Armour, 16, West-street, Gateshead	" 6
Chippenham—Alterations, &c., to Passenger Station	Great Western Railway Co.	The Architect's Offices, 4, College Chambers, High Holborn, W.C.	" 7
Bradford—Engine-House, &c., Sunbridge-rd. Destructor Works	Corporation	The Company's Engineer, Bristol Station	" 7
Abbey Hulton—Infants' School	Stoke-on-Trent School Board	J. H. Cox, City Surveyor, Town Hall, Bradford	" 7
Halifax—Seventeen Houses at Haugh Shaw		R. Scrivener and Sons, Architects, Hanley	" 7
Ballygawell—Cottage at Whitebrook Level Crossing	Great Western Railway Co.	Medley Hall, Architect, 29, Northgate, Halifax	" 7
Walmer—Dwelling House, Liverpool-road	Walmer Estate Company, Ltd.	The Company's Engineer, Gloucester Station	" 7
Crews—Recreation-Ground Work	Town Council	The Architect's Offices, 4, College Chambers, High Holborn, W.C.	" 7
Salford—Public Hall, &c., King-street, Irlands-o'-th-Height	Corporation	G. Eaton-Shore, Borough Engineer, Earle-street, Crews	" 7
Paddington Station, W.—Goods Shed	Great Western Railway Co.	B. C. P. Heywood, M.A., Architect, Salford	" 7
Harpden—Converting Old British School Buildings into Public Hall and Offices	Urban District Council	The Company's Engineer, Paddington Station, W.	" 7
Blanchardstown—Labourers' Dwellings (Two)	North Dublin Union Guardians	The Surveyor's Office (Old Schools), Harpenden, Herts.	" 8
Barnsley—Alterations, &c., to Hollogates, Sackville-street	Vestry	J. Morris, Clerk of Works, 24, Cabra-parade, Dublin	" 8
Fulham, S.W.—Destructor Buildings, Town Mead-road	George W. Cook, Newbridge, Mon.	Herbert Crawshaw, Architect, 13, Regent-street, Barnsley	" 8
Blackwood—Villa	Swansea Improvements & Tram. Co.	Charles Botterill, A.M.I.C.E., Surveyor, Town Hall, Waltham Green	" 8
Swansea—Power House, &c.	Guardians	Thomas Rowland, F.I.A.S., Architect, Market Bldgs., Pontypridd	" 8
Barnet—Mortuary	Trustees of St. John's Church	J. P. Jones and Rowlands, Architects, 53, Wind-street, Swansea	" 8
Newcastle—Vicarage		The Master of the Workhouse, Barnet	" 8
Brentford—Vestry Hall, Half Acre	North-Eastern Railway Co.	John Russell, C.E., Architect, 16, Waring-street, Belfast	" 8
Hull—Five Cottages, Hawthorne-avenue	North Dublin Union Guardians	Nowell Parr, Architect, Clifden House, Boston House, Brentford	" 8
Ballycoolan—Labourers' Dwellings (Four)	Mrs. Agnes Bolland	William Bell, the Company's Architect, York	" 8
Sheffield—Twenty-four Houses, Parkwood Springs	Guardians	J. Morris, Clerk of Works, 24, Cabra-parade, Dublin	" 8
Bramley—Six Through Houses	Provident Industrial Society, Ltd.	Edmund Winder, jun., Architect, Wharf-street, Sheffield	" 8
Rotherham—Converting Premises into Caretaker's House	Guardians	Fredk. Wilkinson, Architect, 35, Park-square, Leeds	" 8
Elgo—Additions to Surgery at Infirmary	Kinsale Union Guardians	J. Platts, Architect, High-street, Rotherham	" 8
Bradford—Store, Manning-lane	W. J. Sellers	W. T. Vernon, Registrar, Board Room, Sligo	" 9
Cardiff—Additions to Clifton-street Chapel	Urban District Council	Ryeford and Frith, Archts., Bank Bldgs., Manchester-rd., Bradford	" 9
Walsall—New Board-room and Offices, Pleck-road	Fermanagh County Infirmary Govrs	Habershon, Fawckner, and Groves, Architects, Pearl-street, Cardiff	" 9
Croshawen—Reconstruction of Dispensary	Hand-in-Hand Lodge of Oddfellows	H. E. Lavender, Architect, Bridge-street, Walsall	" 9
Tayvalich—New Free Church	Health Committee	R. Evans, C.E., Engineer, 53, South Mall, Cork	" 9
Exmouth—Four Shops and Houses	Thomas Taylor	Neil Gillies, Architect, Lochgilphead	" 9
Normanton—Lodge, &c., Newland-lane Recreation Ground	Guardians	Philip Kerley, Architect and Surveyor, Exmouth	" 9
Buckpool—Dwelling-house, James-street	T. and J. Arkell	The Council Offices, Normanton	" 9
Enniskillen—Additions and Alterations to Infirmary	Urban District Council	James Perry, Architect, Buckie	" 9
Sheffield—Wesleyan Chapel and Schools, Stafford-road	West Riding County Council	C. Wilson, Registrar, Enniskillen	" 10
Dorchester—Hall and Two Dwelling-Houses, Charles-street	Willesden District Council	John Willis, Architect, Victoria Chambers, Derby	" 10
Carlisle—Dwelling-House, Stable, &c., Wigton-road	Industrial and Provident Co., Ltd.	A. L. T. Tiley, Architect, 26, South-street, Dorchester	" 10
Blackburn—Cattle Lairs, Summer-street	Urban District Council	A. W. Johnston, Architect, 81, Castle-street, Carlisle	" 10
Kendal—Villa Residence at Arnside Knott	Guardians of Stockton Union	Wm. Stubbs, A.M.I.C.E., Borough Surveyor, Victoria-st., Blackburn	" 10
Bruntcliffe—Stabling, &c., Shoulder of Mutton Inn	Guardians of Stockton Union	John Stalker, M.S.A., Architect, Kendal	" 10
Cardiff—Extension of Workhouse Mortuary	Guardians of Stockton Union	John Jackson, M.S.A., Architect, Barry-street, Bradford	" 10
Northallerton—Villa Residence	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	E. Seward, Architect, Queen's Chambers, Queen-street, Cardiff	" 11
Swindon—Rebuilding Foresters' Arms Inn	Lighting Committee	Wm. Perkins, M.S.A., Architect, Bishop Auckland	" 11
Bryan—Farmhouse		W. Drew, M.S.A., 22, Victoria-street, Swindon	" 11
Wimbledon—Isolation Hospital		Sampson Hill, Architect, Redruth	" 11
Lisacard—Central Hospital, Lisacard-road		C. H. Cooper, Surveyor, Council Offices, Broadway, Wimbledon	" 13
Preston—Cloakrooms, &c., at Public Hall, Lune-street		Hurrell and Taylor, F.F.S.I., 6, Stanley-street, Liverpool	" 13
Leeds—Additions to St. George's Church		The Borough Surveyor, Town Hall, Preston	" 13
Crossgates—Police Station and Dwelling-House		Henry Walker, Architect, 8, Upper Fountain-street, Leeds	" 14
Kilburn—Public Offices, Dyne-road		J. Vickers Edwards, County Hall, Wakefield	" 14
Ilzingworth—Stables, Cart-Shed, and Storeroom, &c.		O. Claude Robson, M.I.C.E., Public Offices, Dyne-road, Kilburn	" 14
Letterkenny—Plasterers' Work at New Cathedral		Medley Hall, Architect, 29, Northgate, Halifax	" 15
Rugby—Public Offices, High-street		W. Hague, Architect, 50, Dawson-street, Dublin	" 15
Hastings—Workhouse Buildings, Cackle-street		D. G. Macdonald, A.M.I.C.E., Surveyor, Rugby	" 15
Huddersfield—Alterations and Additions to Orphan Home		Jeffery and Skiller, Architects, 5, Havelock-road, Hastings	" 16
Wadebridge—Vicarage at Eglosayle		John Kirk and Sons, Architects, Huddersfield	" 16
Stockton-on-Tees—Two Pairs Cottage Homes, Windsor-road		Eglosayle Vicarage, Wadebridge	" 17
Stockton-on-Tees—Pair Cottage Homes, Hartington-road East		John Rodham, 16, Finkle-street, Stockton-on-Tees	" 20
Stockton-on-Tees—Pair Cottage Homes, Hartington-road West		John Rodham, 16, Finkle-street, Stockton-on-Tees	" 20
West Kensington—Foundations for Central Savings Bank		Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 21
Gorton—Alterations, &c., to Buildings at Sewage Works		Charles J. Lomax, Engineer, 37, Cross-street, Manchester	" 22
Knarborough—School Buildings, &c.		Barrowcliffe and Alcock, Architects, Mill-street, Loughborough	" 22
Workington—Cottage		James Howes, 23, Curwen-street, Workington	" 24
Elton—Three Shops and Storeroom		Townsend and Fordham, Architects, Cross-street, Peterborough	" 24
London—Works and Repairs to Public Buildings (Three Years)		Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
London—Gasfitters' Work to Public Buildings (Three Years)		Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
Wolverhampton—Extension of Electric Lighting Station		J. W. Bradley, C.E., Boro' Engineer, Town Hall, Wolverhampton	" 27
Glasgow—Exhibition Buildings, Kelvingrove Park		H. A. Hedley, Secretary, 141, Buchanan-street, Glasgow	Mar. 15



## BUILDINGS—continued.

Ashton-under-Lyne—Pair of Villas, George Mellor-road	Methodist Church Trustees	George and Son, Architects, Old-square, Ashton-under-Lyne
Whitehead—Lecture Hall	Todd and Wardell	Herbert Sykes, M.S.A., Ann-street, Belfast
Steeeton—Eighteen Cottages	Wm. Holmes	J. Judson and Moore, Architects, Keighley
Hull—Printing Works in Chapel-lane	William Martin	Brodrick, Lowther, & Walker, Architects, York Chambers, 77, Lowgate, Hull
Peterborough—House, Charles-street	Leeds School Board	J. G. Stallebrass, Architect, North-street, Peterborough
Ulverston—Villa, Kilner's Park	R. Fry and Co., Ltd.	Settle and Farmers, Architects, Ulverston
Steeeton—Institute	Guardians	J. Judson and Moore, Architects, Keighley
Middlesbrough—Alterations to Two Shops, Corporation-road	West Orchard Chapel Committee	Robt. Moore, 27, Albert-road, Middlesbrough
Rogers-ton—Fourteen Semi-Detached Houses	S. M. Carlisle	Swailwell and Creighton, Architects, Dock-street, Newport, Mon.
Leeds—Southern Higher-Grade School, Burton-road	Blaydon Industrial Society	J. Mitchell Bottomley, Architect, Bank Chambers, Park-row, Leeds
Morecambe—Warehouse, &c., Curzon-road	Mitchell, Toms, and Co., Ltd.	Rayner and Sager, Alfred-street, Blackpool
Worthing—Mineral Water Factory	Board of Guardians	Clayton and Black, Architects, 152, North-street, Brighton
Harrogate—Twenty-four Lock-up Shops, Lowther Arcade	G. Markham	G. E. Bolshaw, Architect, 189, Lord-street, Southport
Wallingford—Three Cottage Homes for Children	A. D. Paul	Charles Smith and Son, Architects, 164, Friar-street, Reading
Dudley Hill—Combining Shed and Warehouse	General Accident Assur. Corporation	F. Holland, Archt., 11, Parkinson's Chambers, Huddersgate, Bradford
Coventry—Classrooms	Thos. Cromack	Geo. and Isaac Steane, Architects, 22, Little Park-street, Coventry
Walthamstow—Twenty Houses (of rental value 10s. 6d.)	J. Porter	People's Land, Building, & Dwellings Co., 5, Adelaide-p., Lndn Bdge
Belfast—Premises, Old Lodge-road and Hanover-street	Cardiff Hotels Co., Ltd.	E. and J. Byrne, Architects, 4, Waring-street, Belfast
Gateshead—Nurses' Home, Coatsworth-road	Wm. King	L. H. Armour, 16, West-street, Gateshead
Chopwell—Branch Store and Cottages	Mitchell, Toms, and Co., Ltd.	Liddle & Brown, Architects, Prudential Bldgs, Mooley-st., Newcastle
Abergavenny—Joint Cottage Hospital and Dispensary	Arthur W. Yeomans, Architect for the Company, Chard	E. A. Johnson, M.S.A., Abergavenny
Chard, Somerset—Repairs, Fittings, Painting, and Decorating at Furnham Hotel and Dolphin Inn	Jeffrey and Skiller, 5, Havelock-road, Hastings	
Hastings—Workhouse, Cackle-street	Isitt, Adkin, and Hill, Architects, Prudential Buildings, Bradford	
Ben Rhydding—Two Pairs of Semi-detached Villas	J. Hall, Architect, Huntly Grove, Peterborough	
Peterborough—Two Houses and Shop, Vergette-street	Frederick W. Rhodes, Architect and Surveyor, Upper Wortley	
Churwell—Fourteen-Chamber Kiln and Chimney	Arthur W. Yeomans, Architect, Chard	
Chard, Somerset—Alterations and Additions to Snowdon House	George P. K. Young, Architect, 42, Tay-street, Perth	
Perth—Offices	Rev. A. Martin, Budleigh Salterton	
Branscombe— Wesleyan Chapel and School	F. W. Rhodes, Architect, Upper Wortley, Leeds	
Holbeck—Ten Through Houses, Elland-road	Burton & Percival, Architects, 150A, Stamford-st., Ashton-u-Lyne	
Ashton-under-Lyne—Additions to New Jerusalem Schools	Marshall Bros., Architects, Back-crescent, Morecambe	
Morecambe—Two Houses, Clarendon-road, West End	Fredk. W. Rhodes, Architect, Upper Wortley, Leeds	
Holbeck—Chimney (35 yards)	J. P. Jones, Richards, and Budgen, Archts., 18, St. Mary-st., Cardiff	
Cardiff—Alterations at Royal Hotel	Walker and Collinson, Architects, Market-street, Morecambe	
Heysham—Pair of Semi-Detached Villas, Ferncliffe Estate	F. Bath, F.R.I.B.A., F.S.I., Architect, Salisbury	
Fordingbridge—Alterations and Additions to Napier Villa	F. W. Ridgway, F.R.I.B.A., Architect, Borough Chmbrs., Dewsbury	
Earlshaton—Alterations to High Close		
Seaton Junction, Devon—Skittle-Alley, Porch, Seating, and Fittings to Shute Arms Hotel		
Burntisland—Mason Work of New Street Buildings, Port		
Wrexham—Hotel, corner of Regent-street and King-street		
Cheshire—Sanatorium, Baguley Lodge		
Southampton—Iron Frame Building (100ft. by 60ft.)		
Bentley—New Primitive Methodist Church		
Killygordon—Creamery		
Ryton—Two Shops and House, Elvaston-road		
Holbeck Moor—Public Shelter		
Anfield Plain—Block of Buildings		
Morecambe—Four Houses and Shop, Bold-street		
Odeal—Villa		
Holbeck—Ten Through Houses		
Southampton—Twenty-Nine Houses on Old Jail Site		
Earlshaton—Extension of Weaving-Sheds		
Higham Ferrers—Three Dwelling-Houses		
Dewsbury—Two Shops and Houses, Halifax-road		
Hatfield Heath—Schools		

## ENGINEERING.

Denton—Sinking Well	Rural District Council	John Haviland, Clerk, 2, St. Giles's-square, Northampton	Feb. 4
Wexford—Pump, &c.	Guardians	D. E. McCarthy, C.E., Wexford	" 4
Glasgow—Reconstruction of Tramways in Crown-street and Cathcart-road	Corporation	John Young, General Manager, 88, Renfield-street, Glasgow	" 6
Buxton—Electric Light Station	Urban District Council	Prof. A. B. W. Kennedy, 17, Victoria-street, Westminster	" 6
Newton—Widening of Railway	Caledonian Railway Company	George Graham, C.E., Buchanan-street Station, Glasgow	" 6
Belfast—Steel Barges (Twelve)	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Harbour Office, Belfast	" 6
Lowestoft—Electric Lighting Plant	Corporation	W. C. C. Haytway, Consulting Engineer, 9, Queen Street-place, E.C.	" 6
Bailieborough—Fifty-gallon Portable Boiler at Workhouse	Guardians	Hugh Clarke, Clerk, Bailieborough	" 6
Tingmouth—Single-lift Steel Gasholder and Tank	Urban District Council	Chris Jones, Surveyor, Town Hall, Teignmouth	" 7
Halifax—Bridge over Godley-road	Improvement Committee	E. R. S. Escott, Borough Engineer, Town Hall, Belfast	" 7
Bathampton—Reconstructing Bridge, &c., Bathampton Station	Great Western Railway Co.	The Company's Engineer, Bristol Station	" 7
Whitechapel—Electrical Plant	Board of Works	Arthur Wright, 28, Bush-lane, Cannon-street, E.C.	" 7
Hull—Electric Wiring and Fittings for Tramways Power Station, Osborne-street	Corporation	A. S. Barnard, City Electrical Engineer, Dagger-lane, Hull	" 8
Fulham, S.W.—Artesian Wells at Town Mead-road	Vestry	C. Botterill, A.M.I.C.E., Surveyor, Town Hall, Fulham, S.W.	" 8
Kames—Reservoir, &c.	Cowal District Committee	J. and A. Leslie and Reid, C.E., 72A, George-street, Edinburgh	" 8
Warrington—Thirty-ton Waggon Weighing Machine	Gas Committee	W. S. Haddock, Gas Engineer, Warrington	" 8
Troutbeck—Bridge over River Troutbeck	Birmingham Corporation	Joseph Bintlcy, County Surveyor, 7, Lowther-street, Kendal	" 8
Hagley to Frankley—Aquaduct (5½ miles)	Waterworks Company	James Manserg, Engineer, 5, Victoria-street, Westminster	" 10
Bristol—Pipelaying (2½ miles)	Urban District Council	T. and C. Hawksley, C.E.'s, 30, Great George-street, Westminster	" 11
Ashford—Purifiers and Telescopic Gasholder	Urban District Council	Stevenson & Burstal, Engineers, 38, Parliament-st., Westminster	" 11
Barry—Pump	Gas Committee	E. W. Waite, A.M.I.C.E., Barry	" 13
Nelson—Gas Condenser at Brierfield Gasworks	Guardians	William Foster, Engineer, Nelson, Lancashire	" 14
Kingston-upon-Thames—Telephonic Communication at Work-house Premises	Gas Committee	W. H. Hope, Architect, Union Offices, Kingston	" 14
Nelson—Electric Lighting Plant	East Indian Railway Co.	Wm. Foster Nelson, Engineer, Lancs.	" 14
London, E.C.—Twenty Locomotive Boilers	Coast Development Co., Ltd.	A. P. Dunstan, Secretary, Nicholas-lane, London, E.C.	" 15
Walton-on-the-Naze—Brick Bury Grone near Pier Hotel	Government	H. W. Gladwell, Surveyor, 5, Crescent-road, Walton-on-the-Naze	" 15
Alexandria, Egypt—Two Swing Bridges over Canal	Corporation	The Inspector of Third Circle Irrigation, Alexandria	" 16
Southampton—Heating, &c., at Isolation Hospital, Mousehole-l.	Corporation	The Municipal Offices, Southampton	" 17
Southampton—Elec. Lighting, Isolation Hospital, Mousehole-l.	Corporation	The Municipal Offices, Southampton	" 17
Eastbourne—Pier Improvements	Pier Company, Ltd.	M. N. Ridley, 11, Dartmouth-street, Queen Anne's-gate, S.W.	" 20
Gorton—Sludge-Pressing Machinery	Urban District Council	Charles J. Lomax, 37, Cross-street, Manchester	" 23
Christiana—Porcelain Telegraph and Telephone Insulators (140,400)	Norwegian State Telegraph Administration, Christiania		" 26
Wrexham to Rhos—Railway (3½ miles)	Great Western Railway Co.	The Office of the Engineer, Paddington Station, S.W.	" 28
Wakefield—Waterworks	Corporation	C. C. Smith, A.M.I.C.E., Waterworks Eng., Town Hall, Teignmouth	" 29
Llanidloes—Storage Reservoir (6,000,000gal.) at Nant-y-Geifr	Town Council	Arthur Davies, Town Clerk, Llanidloes	Mar. 1
Edinburgh—Aquaduct, Bridges, &c.	Edin. and Dist. Water Trustees	James Wilson, Engineer, 72A, George-street, Edinburgh	" 3
Shanghai—Electric Trolley Tramways (23 miles)	Municipal Council	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	" 15
Belem—Waterworks	Government of Pará	The Treasury of Pará	" 15
Southampton—Electrical Installation	H. Cleaver, Engineer, 52, Bridge-road, Southampton		" 15

## FENCING AND WALLS.

Crumpsall—Retaining Wall abutting upon River Irk	Rivers Committee	The City Surveyor, Town Hall, Manchester	Feb. 4
Galston—Walling, &c., Cemetery	Parish Council	Allan Stevenson, C.E., 14, Cathcart-street, Ayr	" 4
Salford—Retaining Walls to Canal, Bedlam-lane	Corporation	Saml. Brown, Town Clerk, Town Hall, Salford	" 9
York—Fence Wall in Kent-street	Corporation	A. Creer, City Engineer, Guildhall, York	" 10
Kilchrenan—Corriemony Fencing (3½ miles)		C. J. R. Fraser, Kilnmuir, Kilchrenan	" 10

## FURNITURE AND FITTINGS.

Beddington Corner—Furniture, &c., for Isolation Hospital	Croydon Rural District Council	James Wilson, Clerk, Town Hall, Croydon	Feb. 9
Barrow-in-Furness—Desks, &c., Three Schools	School Board	W. Hutchinson, Clerk, Town Hall, Barrow	" 9

## PAINTING.

Wakefield—Outside of Workhouse	Guardians	H. Beaumont, Clerk, Union Offices, Wakefield	Feb. 4
Manchester—All Stations on Line	Lancashire and Yorkshire Ry. Co.	The Engineer's Offices, Hunt's Bank, Manchester	" 6
Leeds—Belgrave Lecture Hall and Classrooms	Corporation	The Painting Committee, Belgrave Chapel, Leeds	" 6
Doncaster—Line of Waterworks between Thryberg & Doncaster	Waterworks Co.	The Borough Surveyor's Office, Mansion House, Doncaster	" 6
Wrexham—Offices, Egerton-street	Town Council	The Secretary, Waterworks Co., Wrexham	" 9
Luton—Baths, Waller-street and Park-lane		The Borough Surveyor, Town Hall, Luton	" 14

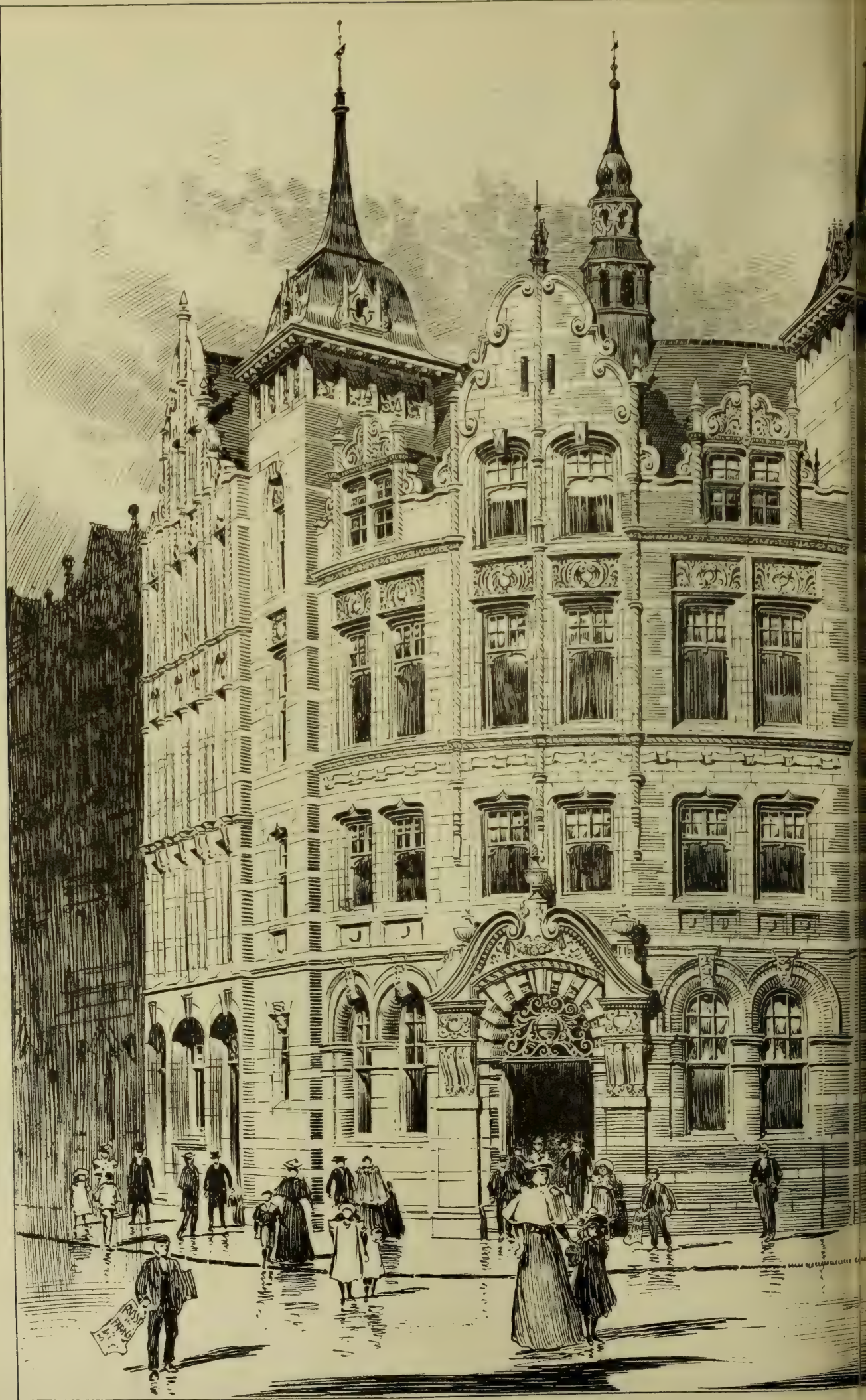
## PLUMBING AND GLAZING.

Perth—New Offices	Gen. Accident Assur. Corporation	G. P. K. Young, Architect, 42, Tay-street, Perth	" 14
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THE CANARD HOUSE · BRISTOL  
FOR MESSRS FORD AND CANNING  
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THE BUILDING NEWS, FEB. 3, 1899.





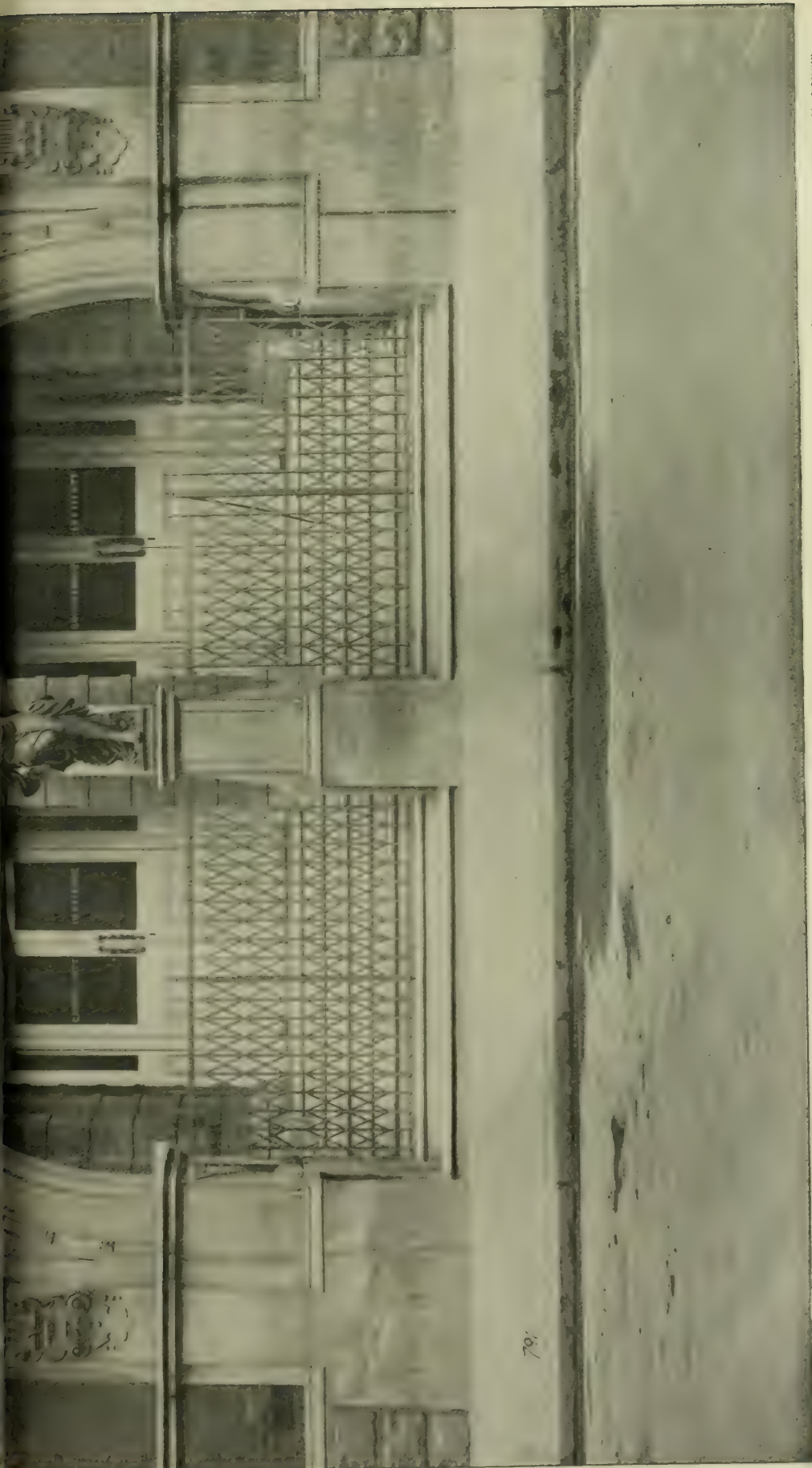


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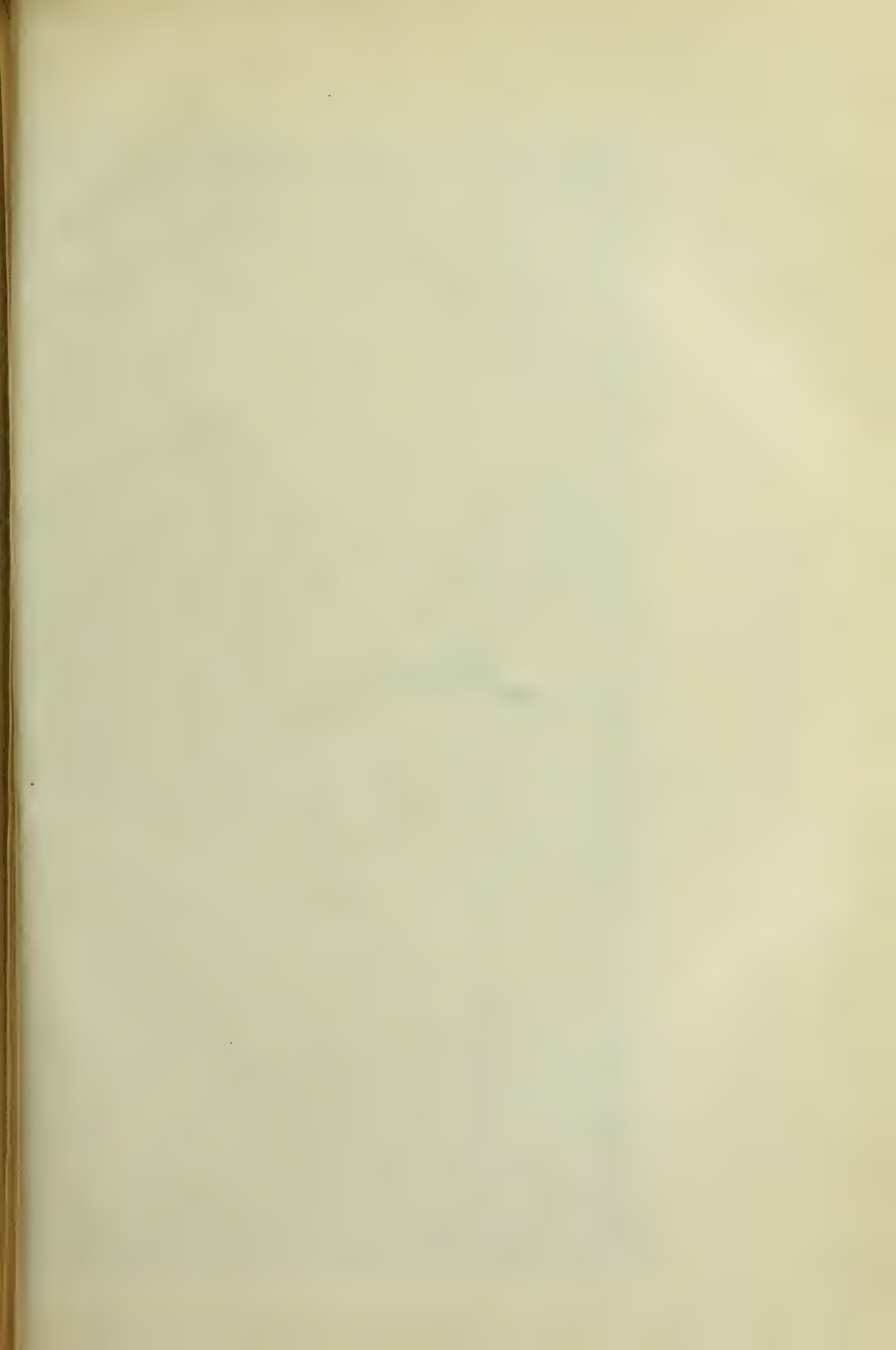
CRIPPLEGATE POLYTECHNIC INSTITUTE, MAIN ENTRANCE.

SIDNEY R. J. SMITH, ARCHITECT.



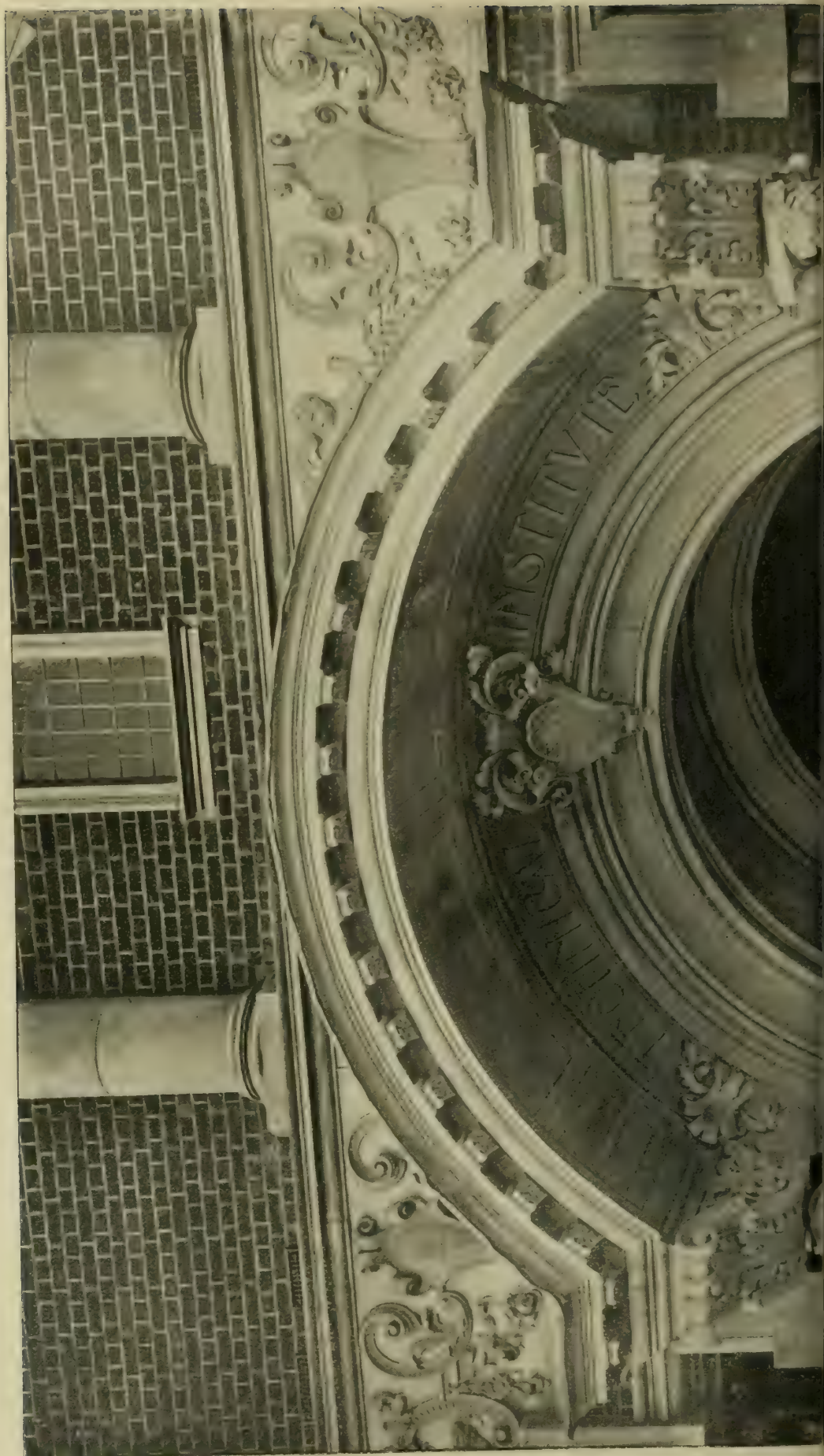








THE BUILDING NEWS, FEB. 3, 1899.





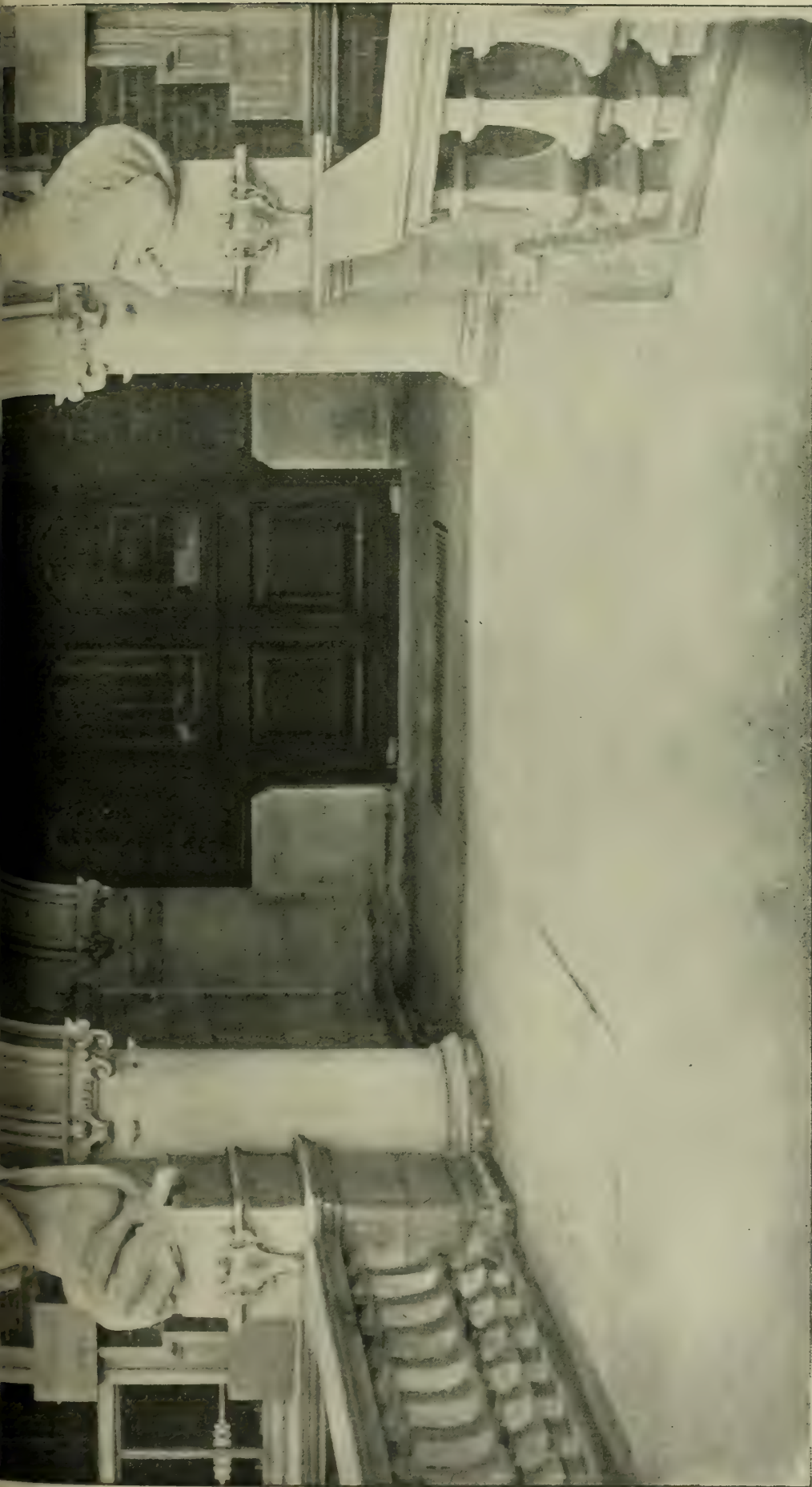


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WEST HAM TECHNICAL INSTITUTE, MAIN ENTRANCE.

MESSRS. GIBSON & RUSSELL, ARCHITECTS.







# THE BUILDING NEWS AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2301.

FRIDAY, FEBRUARY 10, 1899.

## BUILDING TRIBUNALS AND CONTROL.

THAT it would be wise or desirable to set up a court of censorship or taste upon buildings in London or any large city will be always a more or less vexed question. There are many who favour a power of control vested in some central authority, who should be able to exercise their power not only in enforcing good construction, but also in arranging new thoroughfares and passing elevations. For the want of such a control they point to the incongruous buildings of our new streets—to their lack of unity and harmony. These apologists can triumphantly refer to the many disfigurements of street arrangement and skyline that have been the result of street reconstruction during the last decade; that, in spite of exceptional opportunities created by disastrous fires and the demand for sanitary rehousing, little or nothing worthy of any great Continental capital has been done in London. But there are many more who regard personal freedom as the heritage of every Englishman; who persistently refuse to be tied to regulations imposed by any authority, or to be dictated to in any question of design. They draw a fast line between statutory interference and any opinion. Yet there is some degree of inconsistency in this. The very men who openly repudiate any suggestion or opinion of others better able to judge of merits than themselves quietly submit themselves to the yoke of compulsory law. They will submit to strict by-laws enforced by civil authority on such points as foundations and thickness of wall and sizes of timbers, but will not listen to the good counsel of men who may suggest an improvement in an elevation. And all heated controversies have proved, as in a recent agitation, that there are many, even in art circles, who would force legislation on everybody else but themselves. They revel in licenses; like to have their own way in matters of construction and taste; erect buildings of the most eccentric character; but would not allow the slightest freedom to those they differ from in questions of taste. The more undisciplined the builder the less is he inclined to acknowledge his own shortcomings, or allow others his own freedom. These are reasons which have made it difficult to propose any tribunal of taste. Municipal authorities have now to decide upon a variety of matters connected with building, and in many cases their discretionary powers are called into requisition. When we consider the vast number of applications and building questions that come before the London County Council, we begin to see that considerable discretionary powers are necessary. In questions of frontage lines and projections alone, the work is very heavy, and considerable judgment is called for. There is a Tribunal of Appeal, before whom questions can be argued, composed of competent men—one architect, appointed by the Institute; one surveyor, appointed by the Institution of Surveyors; but that it combines the necessary qualifications in every case is doubtful.

A very interesting paper by Mr. David Lyon was read last week at the Society of Architects, on "The Supervision and Regulation of Building Operations in Edinburgh," a report of which we published in our last issue. It describes the present constitution, jurisdiction, and functions of the Dean of Guild Court, and is worth attention by all interested in building regulation and supervision. The

section dealing with the cases submitted to this court shows the wide extent of the powers conferred on the court, and there are some things that we should like to see adopted here. The Dean of Guild Court is practical, the men composing it are men well versed in building regulations and requirements, their decisions carry weight, and it is capable of dealing with questions without delay. A warrant of court is required in every case of erecting buildings, of altering any existing building, of using any building not originally built for human occupation. A petition in each case for warrant is to be lodged with the clerk of court, and this is required to set forth full particulars of the building or intended alteration, and be accompanied by plans of site of adjoining properties, the width and particulars of streets or courts, pavements; plans, sections, and elevations of the building lines, of drainage, relative levels of drains, sewers, &c., arrangements for heating and ventilating, ingress and egress of buildings for public resort, and these drawings are to be to a large readable scale. But the most important point to notice is the registration of the petition and plans. These are to be registered and indexed, and these registers and indexes are to be open for inspection by any owner or ratepayer upon payment of a fee of 1s. If the new building does not affect the property or rights of other owners, the court can remit the application of any building owner to the master of works, who can grant warrant for the execution of the alterations, which are to be executed to his satisfaction. These provisions appear to be more thorough and simple in operation than those of the London Building Act: there is less opportunity for misunderstanding and friction; the adjoining owners can make any objection they like before the building is commenced, and if there should be any interference with or obstruction of light and air, it can be at once detected. And this seems to be the great advantage of the Edinburgh system of building regulation over that of London. It prevents, because it renders impossible, any dispute and waste of time and money in litigation. The Guild Court examines and proves for itself the facts of every case, and therefore expert evidence is not required. A builder or owner who wishes to argue or dispute on trivial questions cannot do so. His plans and views are submitted to a competent tribunal who have powers to carry out their own decisions, instead of leaving every would-be litigant to act for himself. He, in fact, is thus saved from his own rashness or precipitancy.

In alterations of a trivial or minor kind, the submission of a simple sketch accompanied by a descriptive letter, is all that is required, thus saving unnecessary labour to the officials and trouble to owners. But what we particularly wish to notice is the exercise of some control over the external design—as far, at least, as the choice of material is concerned. The Dean of Guild Court requires that all persons shall set forth the material proposed to be used in the construction of the elevations of any building. In this direction the court certainly goes beyond that of other authorities, because it assumes a control over the architectural treatment. By making every building owner name the material to be used, it naturally implies that it has power to veto any objectionable material—say, for example, that of brick. Stone is, of course, in favour in the Northern capital. But material involves treatment, and the court exercises, at least, its influence in persuading speculative builders in this direction, but it does not go beyond persuasion. Any arbitrary control will be out of the question, even in Edinburgh, and one may be sure in London any dictation as to style, or even material, would be repudiated.

The London County Council have before them many buildings, the requirements of which are by no means incompatible with artistic construction. Take, for example, the buildings intended for housing the labouring classes. These are, to say the least, very commonplace and depressing-looking buildings, with high walls of brick pierced by square openings, generally flatly treated, and without relief or agreeable skyline. At Clerkenwell, Bethnal Green, Blackfriars, Camberwell, and other thickly-populated parts, these buildings are exceedingly repulsive, and it would be a public benefit if more pleasing and less sordid-looking elevations were made a condition of their erection. The design of elevations of houses on new estates like that of Millbank, for example, ought not to be left entirely to the speculative builder, and in new and widened streets care also should be exercised in the elevations of commercial buildings and rows of houses. Although any arbitrary power would be out of the question, influence might be brought to bear as to the proper treatment of building material, and any objectionable features disallowed. A tribunal capable of dealing with elevations in their general features and of estates would become a public boon to the Metropolis.

## MODEL SPECIFICATIONS.—LI.

GLAZIER—PAINTER.

COLOURED varieties of glass are chiefly muffled or rolled, and are about  $\frac{1}{16}$  in. thick; but care should be used in selecting the particular kind required, or in specifying the name of manufacturer, and of obtaining samples.

One kind of rough plate is made in which wire netting is imbedded on the glass, which is a great security in case of fire, as the network prevents the cracked pieces from falling out, and holds them together. For roofs, conservatories, and the glazing of windows where clear glass is not so much required as strength it is useful. The "Luxfer" copper electro-glazing already referred to, supplied by the British Luxfer Prism Syndicate, Ltd., is ornamental in appearance, and the prisms are made to suit all situations as regards light, and in ornamental patterns. These electro-glazed plates are very strong, and can be used for lean-to and ornamental purposes. The bars or small ribbons of copper which hold the glass prisms, when subjected to the action of the electric bath, clench the glass quarries, the deposit of copper acting as a self-made *came*, securing the glass. For this reason the copper electro-glazing is better adapted than lead glazing for the upper sashes of office windows and ornamental panels.

19. *Glazing of Panels.*—Fill in the panels of screen (or door) with stout lead-light glazing, the irregular and ornamental panes being made to carefully-prepared templates. The glass to be 21oz. sheet in quarries, or 16oz. "cathedral" glass, banded and fixed and pinned with copper wire to frames; or Nicholls and Clarke's "Figure rolled" pattern A; or specify the panels to be supplied by Williams Brothers and Co., Chester, or other manufacturers.

19. *Cathedral Glass.*—The panels of doors to be filled with Young and Marten's "cathedral" glass squares, with two ornamental roundals, or centre pieces, 3ft. super. each, as per design, and with coloured border; the lights to be secured to  $\frac{1}{2}$  in. round saddle-bars. Or—

Fill in panels with 16oz. (or 21oz.) "pot metals," of tints to be selected, in squares, set in leaded frames, and secured by saddle-bars 16 in. apart.

20. *Quarry Rolled Plate.*—The panels of screens in buffet to be glazed with patent quarry rolled plate, small pattern,  $\frac{1}{16}$  in. or  $\frac{1}{8}$  in. thick, bedded in wash leather, and secured to rebates by beads; screwed to frames; or specify Nicholls and Clarke's rolled quarry (Nos. 1 or 2).

21. *Lead Lights to Vestibule Doors.*—Glaze with lead lights according to design, and muffled glass in varied tints, and with narrow clear glass border,



the vestibule screen and door, bedded in white-lead. The lead lights to be fixed with stout copper wire bands to wrought-iron saddle bars  $\frac{1}{2}$  in. diameter, fixed not more than 16 in. apart.

The windows marked in elevation to have wrought-iron casements, section 1, quality 2, supplied by Burt and Potts, bedded in white lead.

(It is desirable to supply all necessary templates for the glass, and these should be checked before being sent.)

22. *Quarry Glazing.*—Glaze the traceried windows of church with quarries and borders in strong lead  $\frac{1}{2}$  in. wide, the leadwork to be secured to the saddle bars and stanchions with strong copper wire soldered to lead and securely twisted round the saddle bars. The glazing to be securely cemented and let into grooves of stonework, neatly pointed with lime and stonedust. The glass to be Powell's quarries or rough cathedral glass  $\frac{1}{2}$  in. thick, of tints to be selected.

23. *Ornamental Glazing.*—The panels marked A to be glazed with ornamental sand-blast designs, bedded in washleather, and screwed to rebates with beads. Glaze the upper panels of framed screen and vestibule with the "Luxfer" prismatic window glass, ornamental design selected, or according to design; the work to be done by the British Luxfer Prism Syndicate, Ltd. Or—

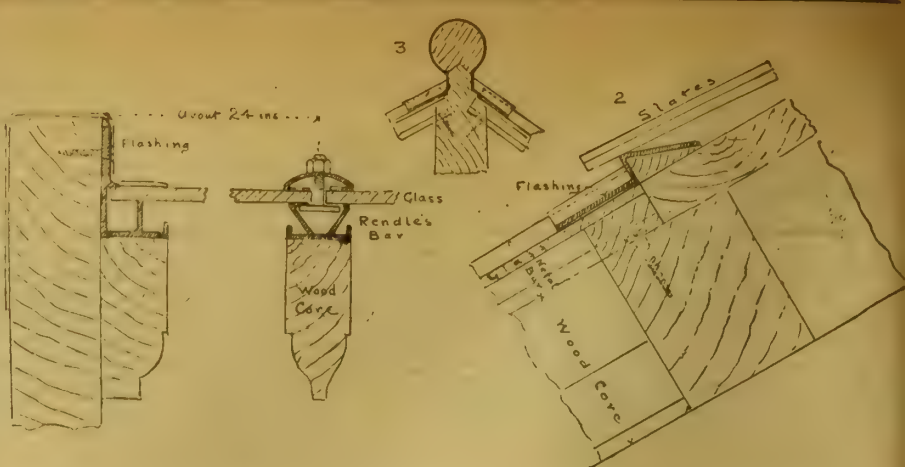
Glaze the panels with enamelled glass (or with quarry rolled rough plate), small pattern,  $\frac{1}{2}$  in. thick, cut to squares 8 in. by 6 in. or other size; or with diamond rough plate in relief patterns, as design; or with Muranese glass, "tinted Medieval rippled," or Venetian rippled glass, fixed in lead comes to design, or in the wood rebates, secured by screwed heads.

24. *"Invincible" Glazing to Roofs.*—The roofs of conservatory or glazed corridor to be glazed with Rendle's Patent "Invincible" system of glazing, according to details supplied, and according to directions of W. Edgumbe Rendle and Co., of Victoria-street; or specify the section of "Invincible" bar and the size of the wood core, the length of glass up to 10 ft. width between rafters, and the metal cap, whether of copper or zinc, water-channel and inside gutters, how finished at ridge and eaves. (It is best to supply detail drawings, or provide a p.c. sum in specification for the glazed roofing.)

The sketches we give illustrate Rendle's patent "Invincible" glass roofing. Section 1 shows the bar on moulded wood core, the glass and the mode of finish at end. Fig. 2 shows how a slated roof finishes over the skylight, and the form of flashing over tilting fillet. If instead of slates the roof is entirely of glass, a drip is formed, with metal stop screwed to wood drip, to secure end of glass sheet. Fig. 3 shows the lead or zinc ridge capping which covers the glass on each side. Details half full size are supplied by Messrs. Rendle and Co.

#### THE PAINTER.

This is a trade in the exercise of which there is much opportunity to disregard the provisions of the specification. Without a clerk of works it is not possible to be sure whether the work has received its specified number of coats, and as a check, it is sometimes required that there should be a different tint for each coat. Wood and plasterwork ought to have four coats of paint in ordinary cases; for superior work six or more coats. Ironwork should have at least three coats, and boiled-oil should be used for outside painting. Some preliminary knowledge of materials—such as white-lead, linseed oil, "driers," turpentine, &c.—is necessary to write a painter's specification, and we refer the reader to "Notes on Building Construction" and other textbooks. Woodwork should be thoroughly dry before being pointed, and be clean and smooth; the knots should be "killed" by painting them over with "size" or "patent knotting." Sometimes knots are covered with fresh-slaked hot lime for a time and then scraped off and painted with "size knotting," or they are coated with red and white lead in linseed oil, and after rubbed smooth with pumice; or in good work knots are covered with gold or silver leaf. The primary coat is laid on next, composed of red-lead or white-lead, which fills up the pores of the wood, and



sets hard. Red-lead is used as a drier. After "priming," the wood should be rubbed down with fine sand paper or pumicestone, and holes and cracks stopped with putty. The second and third coats are then applied; after the latter is dry, the work is rubbed down to receive the finishing coat. Flattening is sometimes added for interior work, and this coat is mixed with turpentine only, a flat dead surface is thus produced. Sometimes it is mixed with a little copal varnish, which makes it more durable.

For outside work boiled oil should be used. Describe if any special iron paint is to be used such as Torbay paint, and if any special solution is to be used for stone or plaster work as Szerelmey's stone liquid, or the Bath Stone Firms' (Limited) "Fluate." For ironwork red-lead and linseed oil or oxide of iron paint is used; all rust should be removed by files or wire brushes and petroleum. Castings should be primed before being exposed to the weather, and cement should not be painted within two years of its completion. For grained work four or five ordinary coats are necessary, the last of equal parts of oil and turpentine of the tint required. Then glazings of different tints can be applied; these may be ground in water and mixed with small beer. For oak graining the colour is mixed with turpentine and turpentine varnish, and the surface, while wet, combed to imitate the grain of the wood, and knots made by the fingers. "Overgrained" work has a glaze of colour in beer laid over the combed work in shades.

For painting plasterwork the walls may be distempered, and then left for two years before painting, then brush the distemper down and paint; or prime the plaster with glue size to prevent absorption, and then paint four coats of lead paint. Plaster may also be primed with two coats of boiling linseed oil, and when dry cover it with a thin coat of weak size tinged with red lead to stop all absorption, and then finish with two coats of oil paint and a flattening coat.

For varnished work a smooth surface is necessary. Apply four coats of paint, after them give two coats of French oil varnish or pale copal, between each coat felt surface with pumice powder till the desired finish is obtained.

1. *Materials.*—The materials to be of the best quality. The oil colours to be made with best old white-lead and pure linseed-oil, mixed on the building. The varnish to be the best copal.

2. *Generally.*—All the tints to be approved by the architect, and each coat to be of a different tint. Rub down with sandpaper, and stop between each coat; knot, prime, stop, and oils all the woodwork not otherwise mentioned. Or—

Knot, pumice down, smooth, stop, and prepare all woodwork, externally and internally, usually painted, and prime and paint same four coats in two or more shades.

3. *Priming.*—The whole of the woodwork to be glasspapered, knotted, and primed with lead and oil priming, and well stopped.

4. *Notice to Architect.*—The contractor is to give the architect written notice of each separate coat of paint, &c., before applying to wood, iron, plaster, and separate notices to be given for both exterior and interior work. Or—

5. *Samples.*—The painter to prepare sample tints, and submit the same to architect for his approval.

6. *External Woodwork.*—All external woodwork, doors, sash-frames, &c., to have two coats of oil colour before being fixed, and two coats after fixing.

7. *Internal Work.*—The internal woodwork to have four coats of oil colour, except where otherwise specified.

8. *Special Work.*—The woodwork of drawing-room (or boudoir) to have two coats of oil colour and two coats of white enamel. Or—

Finish the reception-rooms and best bedrooms in party colours, with the mouldings of panels, architrave, and skirting picked out in a separate tint approved by the architect.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of the Royal Institute of British Architects was held on Monday evening, the President, Professor George Aitchison, R.A., in the chair.

#### THE PROPOSED ROYAL GOLD MEDALLIST.

THE PRESIDENT said that the Council had decided to recommend to her Majesty, under by-law XI, as the recipient of the Royal Gold Medal in Architecture for 1899, the name of Mr. George Frederick Bodley, A.R.A. (Loud applause.) By the cordial reception just given to the announcement of the nominee of the Council, he felt sure that the members would be practically unanimous in endorsing the selection for that honour of so admirable an architect and so excellent a man as Mr. Bodley. A letter from Mr. Bodley intimating the pleasure he should have in accepting the honour if offered, was read by the secretary, Mr. W. J. Locke.

#### PUBLIC BATHS AND WASHHOUSES.

A paper upon these subject, illustrated by a number of plans, sections, and elevations, and a few photographs of Continental and English baths, was contributed by Mr. A. HESSELL TILTMAN, F.R.I.B.A. The illustrations included the establishments in Kennington-road, Hornsey-road, and Tibberton-square, all designed by the author, and various "people's" and public baths at Hamburg, Stuttgart, Vienna, and other Continental cities. Owing to indisposition and increased deafness, Mr. Tiltman, although present, was unable to read his paper, and his place was taken by Mr. W. J. Locke, the secretary. Mr. Tiltman explained his personal views upon the ordinances which should govern the arrangement of baths and washhouses in the future, and their influence upon the arrangement and details of their various departments. The Baths and Washhouses Act, 1846, was passed "to encourage the establishment of public baths and washhouses." Under this and amending Acts a large number of these establishments had been erected. The municipal duty, however, of providing facilities for the cleansing of the bodies and linen of the poor had not been adequately performed. Statistics showed only a small proportion of the class for which these establishments were chiefly intended availed themselves of the opportunities



offered. The reasons for this partial failure the author considered were—first, that the initial distribution and classification of the establishments were frequently at fault; secondly, sufficient effort was not made to educate the masses as to the necessity and benefits of the bathing habit. The bathing community to be catered for consisted of the middle class, the working class, and the very poor. A great initial blunder was committed in associating these, in large proportions, for all purposes of swimming, bathing, and washing, in almost every establishment. The remedy lay in the practical adoption of some system of central and branch establishments, classified and distributed to suit the special needs of each district.

#### ABLUTIONARY BATHS AND PUBLIC WASHHOUSES SHOULD BE DECENTRALISED,

and located at much more frequent intervals throughout those districts requiring them, forming a series of branch establishments; whilst swimming-baths should constitute centralised establishments at one or more points, equally dividing up the whole district. The author then enumerated the requirements of the suggested establishments. The central establishment should be the chief and most attractive. The branch establishments should consist of two types: (1) baths and washhouses; (2) people's baths. Either type could be put upon the site of from two to four small houses in a by-street, which would be neither costly or difficult to acquire. In extending the provision of baths and washhouses the authorities should consider the advisability of doing so in the direction of branch rather than central establishments. The author had visited and inspected a very large number of baths and washhouses throughout the United Kingdom, and in France, Belgium, Germany, Austria, and Hungary. In Germany he had found much to admire in the arrangement and administration of these institutions by the State, and the true spirit and intention of the Baths and Washhouses Act would be much better carried out if that part of the German system were adopted. A committee of medical and other experts in New York, after careful investigation, had reported their preference for the arrangement and administration of the new form of German and Austrian

#### PEOPLE'S BATHS.

The distinguishing features and hygienic advantages having been fully explained, the author went on to describe the plan and arrangement of each of the three classes of typical establishments advocated by him. The central establishment site should have a superficial area of from 30,000 to 40,000 sq. ft., be in a prominent position, and easily accessible from all parts of the town or parish. It should admit of the perfect drainage of all portions of the establishment without necessitating an expensive treatment of levels of the building generally. Much saving may be effected by having only a small frontage towards the main thoroughfare. A good site may often thus be secured, carrying with it sometimes sufficient frontages to back streets, where minor entrances may be provided. In baths carried out for the Islington Vestry the author had adapted

#### THE QUADRANGULAR SYSTEM

to such a site as that described with excellent results. The water supply must be abundant, pure, and soft. It should be sufficient to meet the largest demands, and include a storage for some 15,000 to 20,000 gallons. Ponds of very large size are not advisable. It is better to increase their number rather than their dimensions, when the latter exceeds 90 ft. by 30 ft. Five is a useful number for central establishments—two for each of the sexes, and a fifth or small pond to be used alternately for both sexes, principally as a teaching pond. In England swimming-baths were usually closed during six months of the year; but, with adequate warming and other arrangements—as in Germany, where, though the climate was much colder, swimming-baths were open all the year round—swimming clubs would gladly use them throughout the winter months. The arrangement of one of the swimming-baths during the winter months for public entertainment purposes was next considered, and the best means of meeting the London County Council requirements in the matter of exits, &c. Taking into account costly sites, the extra space secured, the advantage to exterior architectural grouping. The author preferred to distribute the baths between the

ground and first floors, and, if proper lighting can be obtained, the basement as well. Much accommodation is lost and convenience sacrificed by keeping all the slipper-baths upon one floor. The location of hot-air baths, laundry, boiler-house, and engine-rooms, apartments for superintendents and engineer, &c., having been indicated, the author went on to deal with the details affecting the various departments—viz.: swimming-baths for both sexes, douche or cleansing-rooms, slipper and rain-douche baths, hot-air baths, the establishment working department, boiler-house, engine-room, accumulator room, receiving-room, washhouse, drying-room, folding and distributing store-rooms, mess-room, engineers' workshop, and the administrative department.

#### A DEFECT REQUIRING CORRECTION

in English swimming-baths was the insufficiency of dressing-box accommodation in proportion to the superficial area of pond surface. The almost universal arrangement of placing the dressing-boxes down two sides and possibly one end of the hall ought to be improved upon. This might be done by adopting the Continental method of placing an equal proportion of the dressing-boxes or places upon the gallery floor, or by arranging them in a series of transeptal bays upon one or both sides of the bath. The pond should be rectangular in shape, and in the proportion generally of length to width as 3 to 1. Steps to the water should be of wood, and made removable. An open self-draining channel, close to the top of the pond and running continuously round it, serves as a scum overflow and spitting-trough, and at a suitable height above the water-line an iron or copper safety rail should run all round the pond for the use of tired swimmers. At the shallow end, a portion of this rail is usually converted into a spray-pipe, extending the whole width of the pond. By raising or depressing the direction of the perforations in this, a useful and pleasant means of freshening and clearing the top surface of the water is obtained. Further points considered in this connection were the depth and temperature of the water, gangways round the ponds, flooring materials, dressing-boxes and their fittings. An important feature of the swimming-bath should be the douche or cleansing room. This is almost unknown in this country in connection with swimming-baths; but it is a universal provision of the German baths, and used by every bather as a matter of necessary routine, it being understood that before entering the swimming-pond he should, out of consideration for his fellow bathers, undergo a thorough cleansing process.

#### HOT-AIR BATHS

should be upon the lines of the improved form of the Anglicised Turkish bath, consisting of three rooms—viz., the tepidarium (140° Fahr.), the calidarium (180° Fahr.), and the laconicum (250° Fahr.)—together with a combined cooling and dressing-room, and a shampooing and douche-room. For the second-class hot-air baths the author recommended the system suggested in Metcalfe's "Sanitas Sanitatum et Omnia Sanitas," which consists of a combination of hot-air rooms of the Turkish bath, with a system of warmed lavatories in lieu of the shampooing process and plunge bath. This modification of the Turkish bath, for ordinary purposes of ablution, would be perfectly effective, less provocative of colds, and more economical than the ordinary warm slipper-bath. In considering the second part of his subject—

#### PUBLIC WASHHOUSES,

the author said that their present arrangement required complete overhauling. Full details of a small installation were given as an indication of the line the new modification should take, and it was urged that among the rooms provided in such an establishment should be public washhouses, mangling-room, waiting-hall, cloak and bonnet room, crèche, and ticket-office. Reverting to bathing establishments, the author explained that the smaller type of his branch establishment—viz., people's baths—was intended to meet, in the cheapest and simplest manner, the needs of the very poor for cleansing facilities. It consisted of very small establishments of rain douche baths, built at very frequent intervals, in the poor and populous districts, after the manner of the Germans and Austrians. These establishments could be made so small and compact as to permit of their erection at frequent intervals under our streets in a manner similar to

our underground lavatories and conveniences. Finally, the author touched upon the questions of construction and architectural treatment. Construction should be of such a character as to resist the action of water in every form, whether from carelessness or from the necessities of frequent cleansing. It should be easily kept clean, free from vermin, and especially so with respect to the transfer of contagious matter. As to external architecture, the design of the building should clearly express its purpose, quite apart from all questions of style. It should appear exactly what it is, and not ape the dignity and expression of the modern town hall. In the treatment of the natural outcome of the plans themselves there are infinite opportunities for original and distinctive arrangement peculiarly suitable to the purpose of the structure.

Mr. WILLIAM EMERSON, hon. sec., proposed a vote of thanks to Mr. Hessel Tiltman for his very careful and useful paper. One point on which he should have liked some information had been entirely omitted—namely, the best method of specifying and securing that a large swimming-bath should be absolutely water-tight.

Mr. H. L. FLORENCE, vice-president, in seconding the vote of thanks, remarked that while the paper had given them much information, it did not afford so much scope for discussion as most of the subjects which came before the Institute. He did not quite understand how the arrangement for rain-water douches to be used before entering the public bath was carried out, but it was obvious that if the system were to be generally adopted in this country it would necessitate a revolution in the accepted mode of planning such establishments. The dressing-boxes would have to lead into the douche baths, and would also need to be as accessible as at present to bathers emerging from the swimming pond, while the present pathway round the pond would be quite as essential as now. Unless the dressing-boxes only had an exit through the douche-bath, there would be no guarantee that it had been taken. He differed from the author in his recommendations to use York paving for walling and the pathway round baths. His experience was that slate was a pleasanter material to touch and walk upon, and was more easily kept clean.

Mr. A. T. BOLTON said one of the chief difficulties in London was to make public baths self-supporting. In many cases in the Metropolitan public baths formed substitutes for suburban town halls throughout the winter months, and that necessitated the special planning of entrances and exits. If the managers of baths could be consulted, they would one and all be in favour of maintaining the baths for their primary purpose, and if they could be used, as in Germany, all the year round for bathing purposes, it would certainly simplify the problem of planning them for architects, and also be acceptable to managers. One objectionable feature in many baths, notably in those at Westminster, was the great noise arising from the reverberation of every splash or cry, and this, he believed, resulted from the excessive amount of glass in the roof reflecting the sounds back upon the surface of the water. The remedy was to restrict the glazed area to coves and a central lantern-light. The overhead shower had been introduced at Westminster and elsewhere; but it was found that bathers were very sensitive to falling water, and objected to going under its spray. If a refreshment-room or tearoom could be introduced under the same roof as an adjunct, and let out to a caterer, it would be remunerative, and would also be appreciated by bathers.

Mr. A. SAXON SNELL remarked that he had to read a paper at the Architectural Association three weeks hence, and realised that Mr. Tiltman had exhausted his subject in the very able paper read that evening. He regretted that more plans of English baths had not been published, and were not shown that evening. The new swimming-bath at Shoreditch exhibited a very great stride onwards, and proved that even vestrymen had come under the spell of imagination, and if members of our local governing bodies began to dream dreams, and see visions, the prospect for architects was good. One way in which baths could be managed economically was to utilise them alternately for different sexes; women preferred to visit baths in the mornings, and men were most free in the evening. He agreed with Mr. Tiltman that the aim should be to reduce the size of baths, and localise these establishments; people had a great



objection to going long distances to and from baths. He hoped to see a great increase in the number of rain water shower-baths—a system which had been introduced with great success of late by a manufacturer in the North of England, for the benefit of his workpeople. The separate entrances for men and women ought to be abolished; they were as unnecessary as similar arrangements would be at a railway station. The size of the swimming-pond was usually much too great; the large amount of water required to fill it was a costly item, and, for racing purposes, 100ft. by 55ft. was the maximum dimension required. For convenience and economy of management, all the slipper-baths should be arranged on one floor—the first; tiers of slipper-baths necessitated the employment of separate attendants on each floor. He could not concur in Mr. Tiltman's objections to rounding the corners of baths, but it was not desirable to do more than round off the mere angle; nor did he agree with his wish to abolish the doors of dressing-boxes. Wood-work should be employed for all doors and fittings as far as practicable, and there were now on the market two or three paints for wood, which were perfectly impervious to water, and would bear washing.

The President then put the vote of thanks, which was carried by acclamation, and briefly acknowledged by Mr. TILTMAN.

### THE ARCHITECTURAL ASSOCIATION.

THE ordinary fortnightly meeting of the Architectural Association was held at 9, Conduit-street, W., on Friday evening, the President, Mr. G. H. Fellowes Prynn, F.R.I.B.A., in the chair. Messrs. F. J. Palmer, J. H. Taylor, and A. S. Vernon were elected as Members.

#### THE MAKING OF STAINED GLASS.

Under this title Mr. CHRISTOPHER W. WHALL gave a running commentary, or, as he styled it, a "work-bench talk" on a practical process of the mode of making stained glass. The address was illustrated by examples of work executed by the lecturer's pupils at the Central School of Arts and Crafts in Regent-street, and also by Mr. Whall's own cartoons. The lecturer asked the members at the outset two questions: What do you want to know about stained glass? and, secondly, Why do you want to know? In other words, he wished to inquire the reason why and the degree in which young architects should interest themselves in the crafts, of one of which he proposed to speak that evening. Mr. Whall proceeded to describe the processes which led to the actual production of a stained-glass window. A small sketch having been made for the client, it was, when approved, reproduced as a full-sized cartoon, and this cartoon must necessarily be made by one who was fully acquainted with all the processes which were involved in stained-glass work, and who realised to the full its limitations. The cartoon, when made in outline, was indelibly set with spray, and then the remainder of the working lines were drawn over it with charcoal. A tracing is next made showing only the leading lines, and from this tracing the entire work was executed. The glass was laid upon it and cut to the pattern, space being allowed for the leadwork, and then it was painted. All the important features were laid down on the cartoon and traced with the pigment—oxide of iron combined with flux. The tracing completed, the pieces were waxed up and placed on a glass plate below which was a light. The actual painting was then commenced, an opaque pigment being laid on with an even surface, and then brightened with stumps of hog's-hair brushes. The firing followed, the pieces being taken off the plate, the wax chipped away from the edges, and the whole was laid on trays and passed into an intensely heated kiln. The whole question of the permanency of the colour depended not upon the pigments used, but upon the sufficiency of the firing. The paint had to be executed twice as dark as it would appear when finished, much being lost in the firing, and sometimes a second painting was required, and then it had to be refired. The window was now complete with the exception of the yellow stain. This pigment was perfectly permanent when subjected to dry and low heat, and any required shade could be obtained between primrose and ruby. For the obtaining of good effect in stained glass, white—pearly white—was essential; speaking for himself, he did not approve of the windows recently

so frequently executed, in which the highest white was a greenish-grey. The next step was to lead out the work; the window was fitted together in a similar way to a child's puzzle, on the bench, and the lead was put round each piece, fixed in position by horseshoe nails, and then fixed with solder. The window was, last of all, rendered hard, stiff, and waterproof by being cemented. Mr. Whall continued that there were several practical questions in reference to stained glass, which would appeal to his audience as architects. The specimens were not examples of his own work, but of that of his pupils at the Central School of Arts and Crafts in Regent-street—not the designs in all cases, but the actual handicraftsmanship. Such work would give pupils a sympathetic knowledge of the craft, and, he thought, supplied an answer to the question how far it was possible for an architect to take up any craft to a useful end. It was, he fancied, impracticable that an architect should so take up a craft as to become master of it; but a good deal might be learnt in a short time, and it was certainly good and proper that whatever might be the architect's position as director in the matter, those who actually produced a thing should know how to do the whole of it themselves. They were endeavouring to do this in the Central School. In the Central School pupils were taught design and the craft on alternate evenings; this method had a good influence on their work, and had brought out much originality. In this connection the lecturer showed a portfolio of designs made by his pupils in the Regent-street School.

A short discussion followed the delivery of the address, in which Messrs. FRANCIS BOND, HAMPDEN W. PRATT, FRANCIS G. F. HOOPER, A. S. FLOWER, D. F. FYFE, MATT. GARbutt, and T. G. LUCAS, and the President took part, and a cordial vote of thanks was accorded to the lecturer.

In his response, Mr. WHALL replied to Mr. Hooper's drastic criticisms of the portfolio of students' designs from the Central school, pointing out that not all of the designs were for complete leaded lights, but were in most cases patterns made for diapers, apparel, and jewelry in robes, for quarries, canopy, and architectural details, which entered so largely into the production of figure-work in stained glass. He concluded by inviting the members of the Association to inspect some of his own figure-work which he was executing for Gloucester Cathedral at Messrs. Lowndes and Drury's, 35, Park-walk, Chelsea, on Saturday and Sunday, the 18th and 19th inst., between the hours of 2 and 5. Stained-glass work in progress might also be seen by any architect interested in the subject if he cared to pay a visit to the Central School of Arts and Crafts on any Tuesday, Wednesday, or Thursday evening between 7 and 9 o'clock.

### THE SUPERVISION AND REGULATION OF BUILDING OPERATIONS IN EDINBURGH.\*

(Continued from p. 157.)

I NOW propose to deal with the manner of bringing cases into court, and with the procedure there, and I shall begin by describing the petition, which is the foundation of all proceedings there. This petition is prepared in accordance with an Act of Sederunt of our Supreme Court, which prescribes the forms of procedure in courts of Royal burghs. It is, therefore, a paper which would properly be drawn by a lawyer; but for convenience a printed form is issued by the court which may easily be filled up by any intelligent person. It consists of three parts:—(1) The petition proper; (2) a statement of facts; and (3) the pleas in law. The first portion describes the proposals of the petitioner, and also contains a list of the neighbouring proprietors and others whom the petitioner may consider have an interest in the proposed operations, including in each case the Lord Provost, magistrates, and council of the City, and craves an order of the court to serve a copy of the petition on these respondents, as they are called, and to ordain such as have objections to the petition to lodge a note of these within a specified time after service of the petition, the time usually fixed being four days. The second portion, the statement of facts, describes the property to be built, or ordered, with its boundaries, and states that the respondents

enumerated in the petition are the only parties interested in the proposed operations. The third portion, the pleas in law, contain what may be described as the legal propositions of the petitioner. The first is, that as the operations proposed are confined to the petitioner's own property, and can be executed without danger, the petitioner is entitled to warrant as craved. The second is one which you will find at the end of all judicial petitions of this kind, and is to the effect that any one opposing the application should be found liable in expenses. The clerk of court having received the petition and plans, writes the necessary order for service on the petition, which is then put into the hands of the officer of the court, whose duty it is to serve a copy of the petition on each of the respondents named in it. A copy of the petition is in each case served on the town council, and this seems the most convenient place to make clear the position of the town council or corporation in the Dean of Guild Court. In the corporation is vested all public rights and property, and among the rest is the right to the solum of the streets; they have, therefore, naturally an interest to see that public property is not to be encroached on in the course of any building operations. But, besides this, the corporation has various statutory powers giving them the control of the laying-out of new streets and of the height of the buildings to be erected in them, and also of the height of existing buildings which are being enlarged. It has to be satisfied that public sewers are not to be interfered with, that bakehouses and dairies are being constructed conformably to its requirements, and generally that the provisions of the Municipal Acts bearing on such matters are being observed. The reason, therefore, for the corporation being a respondent in each case will be evident to you; but it comes into the Dean of Guild Court just on a par with any other objector, and must maintain its rights there in the same manner as any other respondent. After service of the petition has been made, the clerk of court must give notice to the burgh engineer, whose duty it is, before the petition is heard, to report to the court whether, in his opinion, the plans are in conformity with the provisions and requirements of the Edinburgh Municipal and Police Acts, and this report is submitted to the court when it meets to consider such petitions and plans. Between the time of the service of the petition and the first meeting of the court thereafter, the respondents are expected to examine the plans of the operations in which they are interested, and to formulate their objections, if any, and for the corporation the plans are examined by the city architect. He makes a report of any objections he may have to the town clerk, who represents the corporation in these proceedings. The court sits weekly all the year round, with the exception of the months of August and September, when the meetings are held fortnightly. Before the court sits in public, the members meet and consider all applications, so as to inform themselves as to the proposals of petitioners, to go over the plans, and to receive the reports of the burgh engineer. Each case is carefully considered and notes are made by the Dean of Guild as to whether or not the plans are such as may be passed, and also of any improvement in architectural detail or internal arrangement which the court may desire to suggest. The public court is then held at a fixed hour. The clerk calls a case, and the petitioner or his law agent, and usually his architect, appear at the bar. If the plans are all in order, warrant is granted without comment. If there are only some slight alterations proposed either by the court or by the petitioner to meet the objections of the respondents, who are also expected to attend at this time, the matter may be adjusted at the bar and the plans passed. If, however, the objections either by the court or by a respondent are vital, the case is usually continued to allow the petitioner to decide whether he is to abandon his petition, to modify his plans, or to insist on his position and prepare to fight the case.

#### THE LEGAL PROPOSITIONS OF A PETITIONER

are these: This is my property; the proposed operations are confined to that property; they can be executed with safety; therefore, I am entitled to warrant. The objections which may competently be stated against these propositions are separable into two classes—legal and practical. Into the first category fall the objections usually taken by neighbouring proprietors—viz., that

\* Abstract of a paper read before the Society of Architects on Thursday, Jan. 26, 1899, by DAVID LYON, Clerk to the Edinburgh Dean of Guild Court.



the property does not belong to the petitioner, that the operations are not confined to his own property, or that they will interfere with some right or servitude belonging to the objector, and also the objections competent to a superior that the conditions of the feu charter are not being complied with. In order that you may understand the terms "superior" and "feu charter," let me explain that in Scotland leasehold of property is almost unknown, in the sense in which the term is used here. The tenure of heritable property with us is almost wholly feudal. The owner of land in Scotland is called the "superior," and when he disposes of a portion of his ground for building purposes, he does so in terms of a feu contract entered into between himself and the intending builder, who becomes in law his vassal. This vassal binds himself and his heirs in perpetuity to pay to the superior and his heirs an annual ground-rent or feu duty as the consideration for being allowed to erect a building on the ground; but the right of property in the house or building belongs for ever to the vassal, his heirs and successors. Of course, in granting this feu charter or contract, the superior may impose such conditions on his vassal as he may consider desirable. He may prescribe the class of property to be built—in the case of dwelling-houses whether they shall be villas or tenements—or, as is often done in Edinburgh in streets of high-class houses, he may insist on the elevations being built to conform to a particular design. He may prohibit the carrying on of any trade or manufacture in property on his ground, and he may constitute a servitude of light and prospect over one house or building in favour of another. As it is a matter of considerable importance to anyone interested in building operations in towns, perhaps I might at this point inform you as to the Scots law in reference to

#### SERVITUDES OR EASEMENTS.

First let me explain that the tenement having right to the servitude is called the dominant, that subject to its burden the servient. Prædial servitudes, as servitudes attached to heritable property are called, are either positive, where the dominant proprietor has right to exercise some right; or they are negative, where he only restrains the servient proprietor; and negative servitudes cannot be acquired by possession, but are constituted by title alone. The owner of a servient tenement is only bound to suffer; he is under no obligation to do any act. He must do nothing to limit the servitude; but beyond its proper limits he is free, while the owner of the dominant tenement cannot increase the burden. The urban servitudes are (1) support giving the right to rest the dominant tenement against the servient; (2) stillicide, the right to send the water from the roof of the dominant tenement on to the servient property; (3) light or prospect, whereby buildings are prevented from obstructing the light or prospect of the dominant tenement; and (4) *Altius non tollendi*—not to build above a certain height. Probably there is a general resemblance between the law of England and of Scotland on this subject, but one important difference at least exists. In England a servitude of light may be acquired by usage, for, I think, twenty years; but with us such a servitude can never be thus established. In Scotland, if any building is to have a servitude of light and prospect over an adjacent building it must be expressed in the title to both properties. The theory in Scots law is that a proprietor is only bound to provide light and air for his own property, and any open space which he may leave is not to be reckoned on by his neighbour to provide him with light. A common result of this is that a man who has built up to the boundaries of his property some day finds the windows on one side of his property closed up by a building of his neighbours, and the law provides him with no remedy, because in building he ought to have left sufficient open space to supply his house with light and prospect if he wished it. This appears to me to be an important difference between the laws of the two countries, and I must say we seem to take the more equitable view of the matter. With regard to the other classes of servitudes, I know of no other marked difference in our practices, so I need not more particularly refer to them. The questions, then, between conterminous proprietors and between superior and vassal supply the grounds of the legal objections to a petition in the Dean of Guild Court, and I shall now go on to deal with the second class—the practical. Objections of this kind are naturally

mainly taken at the instance of the court itself. A respondent may of course bring under the notice of the court any apparent weakness in construction, and the court, if satisfied that the objection is well founded, will take care that the deficiency is remedied; but for all practical purposes I may say that an absolute discretion in these matters is vested in the Dean of Guild Court, and their judgment will not be called in question. The same remark applies to the powers conferred and the responsibility devolving upon the court by statute, and these may not be filed by the respondents. By this I mean that it is not competent for a respondent to plead that the provisions of the Act are not being complied with, as it is assumed that where these requirements are absolute, the court, as a matter of course, will see that these are given effect to, and where the powers are discretionary, that discretion is intrusted to the Court, and may not be called in question. I shall briefly review these

#### STATUTORY POWERS OF THE COURT,

as they may be of interest to you. First, there is the specification of the plans to be lodged, which I have already read to you, and the approval of the material to be used in elevations. Then comes an important section dealing with open spaces in rear of houses, which provides that every new house, and any building altered for the purpose of being used as a house, shall have in the rear thereof or directly attached thereto, and pertaining to and used exclusively in connection with such new house or building altered for the purpose of being used as a house, an open space at least equal to three-fourths of the area to be occupied by the intended house, where such house is not of greater height than four stories; and where such house shall exceed that height, such open space shall be of equal area with that of such house; and such open space shall be free from any erections thereon other than water-closets, coal-houses, or other convenience to be used in connection with such house, all which conveniences shall, as to height, position, and dimensions, be erected subject to the consent and approval of the Dean of Guild Court. Provided always that in any case where the thorough ventilation or light of any house or building is, in the opinion of the Dean of Guild Court, otherwise secured, or under other special circumstances, the said court may, in their discretion, allow the open space to be reduced. Provided also, that in the case of the erection of houses with shops on the ground floor, or of the conversion of a house into a building to be used for business premises only, the Dean of Guild Court may sanction the erection of saloons upon such open space, of such height and construction as to them shall seem proper, such saloons to continue so long only as such building is so used for business purposes; but where any building is to be used for business premises as much open space shall be required as in the discretion of the Dean of Guild Court shall be sufficient for the purposes of light and ventilation, but not exceeding the extent required by this section in the case of a house. Provided further that, from and after the passing of this Act, all existing houses having any open space adjacent thereto shall, as regards such open space, be subject to the foregoing provisions of this section applicable to new houses to the extent to which such open space is available. Provided further, that the provisions of this section with respect to such open space, shall not affect any feuing plans which, prior to the passing of this Act, have been submitted to, and approved by, the magistrates and council, in which a less open space than is in this section prescribed has been so approved. Also, in cases where it is proposed to alter or take down in whole or in part the front wall of a house or building which has in front thereof a sunk or other area or garden plot, and to bring the same or any part forward so as to build or cover over such area or garden plot or any part thereof, the outer line of the front wall shall not extend forward beyond the middle or centre line of the existing wall of such area or garden plot. In every new house, and in every building altered to be used as a house, every habitable room, except attic rooms, shall be in every part thereof not less than 9ft. in height from the floor to the ceiling, and every habitable attic room shall, unless otherwise sanctioned by the Dean of Guild Court, be at least 8ft. in height from the floor to the ceiling throughout not less than one-third of the area of the room, and shall at no part thereof be less

than 4ft. In every new house, or altered building to be used as a house, every habitable room shall have at least one window, and the total area of glass in the windows, clear of the frame and sash, shall be (unless in any case the Dean of Guild Court otherwise determine) at least one-tenth of the area of the room; and the top of at least one of the windows shall not be less than 7ft. 6in. above the floor, and in case of a sash window the upper half at least shall be made to open the full width, and in case of a casement window one-half at least shall be made to open. Then there are provisions as to buildings causing

#### EXTRA RISK OF FIRE,

chimney stalks for furnaces, buildings for noxious trades, the height of rooms in dwelling-houses, and the ventilation of inclosed spaces—that is, where a person proposes to erect a block of buildings inclosing a space containing an area of less than 2,000 superficial yards, and being less than 40yds. wide at the narrowest part. Finally, there is the general power to decline to grant any warrant until the court is satisfied that the plans provide suitably for strength of materials, stability, mode of access, light, ventilation, and other sanitary requirements, and are otherwise in conformity with the provisions of the Edinburgh Municipal and Police Acts.

(To be concluded.)

#### FISHMONGERS' HALL.

IN the course of last year the Court of the Fishmongers' Company decided to redecorate their great hall, with the entrance and main staircase leading to it. Mr. Crace was invited to assist the Company's surveyor, Mr. H. Chatfield Clarke, in reporting upon the treatment desirable; and their joint report was adopted by the Court. The works decided upon were carried out during the autumn, and completed before Christmas. The previously existing decorations were executed thirty years ago under the direction of Mr. Owen Jones, and some of the work then done remains in the reception-rooms adjoining the hall.

The building itself was erected in 1831, from the designs of Mr. H. Roberts, and is in the rather cold "Greek" character affected at that time. The late Sir Gilbert Scott, who was articulated to Mr. Roberts, took some part in supervising the erection. It was an instruction of the Court to Mr. Chatfield Clarke and Mr. Crace that the architectural detail and character should in nowise be disturbed. This has been strictly adhered to; but a much warmer and more "hospitable" result than before has been attained.

The square entrance-hall, which has a flat coffered ceiling divided by flat beams, and walls divided by pilasters, has the wall spaces of a lively Pompeian red, the pilasters, frieze, and cornice being of a vellum tint, relieved in the frieze by a moderate amount of ornament executed in dull yellow and chocolate brown.

The pavement here, as also in the adjoining staircase corridor, is of marble mosaic, laid out on a simple geometric scheme in mixed shades of white with bands of black, light red, grey, and yellow. The corridor in question, and the lower story of the grand staircase, to which it is open on one side, have also red as the ground colour of the walls; at the top a frieze is painted in light ornament upon the red ground, interrupted at intervals by panels or medallions with dark grounds. Below, a dado of simple Pompeian character is worked on a darker tone of red.

The large piers at intervals are in light colour, with bronze and gold enrichments, and the ceiling is vellum white with grey-blue panels, and some relief of bronze and gold in the mouldings. The doors and other woodwork here and throughout are of oak, once French polished, but now bared of polish, brought to a natural surface of quiet tone, and wax-rubbed, the mouldings being gilt.

In the Grand Staircase the red is continued up to the gilt string-course on the first-floor level, the niche in which Walworth's statue is placed being gilt, as also are the metal balustrades throughout. Above this level the walls are panelled, as well as being broken by scagliola pilasters and columns, by doorways, and by the large triple window. In the panels are full-length portraits, the panels and margins being in two low tones of green, divided by mouldings in gold and vellum. The ceiling here is also coffered in square panels, now in quiet light blue with gilt centre flowers, and the enrichments of



the cross-beams, mouldings, &c., as also of the cornice and architrave, are mainly in bronze and gold. There is a rich maroon ground in the frieze, intended for an inscription. The triple window of three equal lights (originally filled with ground glass and coloured margins), is now glazed with leaded glass, of which the design is expressive of the sea fisheries, the general ground being white, ornamented with sea plants, fish, and festoons of nets, while the borders are formed entirely of seaweeds and "crustaceans," all carefully drawn from nature. In the centre of the middle light are the company's arms and supporters, while on either side are the arms of the former companies of stock-fishmongers and salt-fishmongers, which were united in the existing company in 1535.

The Great Hall, with five windows on the east front, has its ceiling, which rises on a low elliptical section, also divided into rectangular panels with bold flowers in the centre. These are divided into groups by bold bands of Greek guilloche ornaments, which have been solidly gilt with good effect, as have the centre flowers, the panels being light blue, and the mass of the ceiling margins and framework in broken white. The deep cornice and frieze are in light tones, with the enrichments boldly gilt, and a dull red background to the scroll of the frieze. The scagliola pilasters remain, and the walls are painted in low-toned green as a ground for the pictures, whilst between the bronze and gold capitals of the pilasters and close under the frieze are ranged the interesting series of old carved and gilt shields which commemorate the arms of the Prime Wardens from early in the 17th century. The woodwork here, as elsewhere, is of wainscot, now freed from polish and with the mouldings gilt, and a dado of similar wainscot panelling has now been added to connect the rest. A good effect is obtained by making the walls of the music gallery of a dull red.

The hall has now been lighted with electric light, partly from four points in the ceiling, where groups of lights are inclosed by pendant cut-glass drops, and partly by lights concealed by the cornice on two sides of the hall.

#### THE CAUSES AND RELATIONS OF GOTHIC ART.

AT the Municipal School of Art, Manchester, on Friday evening, Mr. W. R. Lethaby delivered a lecture on "Gothic Art as Set Forth at Chartres Cathedral," illustrated with lantern views. Mr. Charles Rowley presided.

Mr. Lethaby explained that his purpose was to endeavour to suggest to his audience what Gothic art was in its deeper causes and its wider relations. The pictures he had to show were intended to awaken an interest in the works themselves and the age which produced them. "I want you," he said, "to realise that we have scattered over England not only great numbers of cathedrals and abbeys, but thousands of parish churches, each one of which (so far as it has been spared from the falsifying process called restoration) is an authentic piece of the life-work of the fore-dwellers in the land." The origin and growth of the Gothic art were next dealt with. The fundamental fact, said he, of the relation of Christianity to art in Europe in the Middle Age was this—that the world and the Church at that time became co-extensive, or, in more general language, activity was controlled by idealism. Earlier, and in the East, idealism had a tendency to repudiate activity. In modern days activity seemed to have repudiated idealism. In other words, then, these were the days of what we called science, and science disclaimed any selection. Power and the plunder of the earth were the great facts. Few asked what for; but the time would doubtless come when a new ideal would make this gathered knowledge again reasonable. Art was defined by the lecturer as idealism manifested in man's daily work. "It is a soul put into matter, and, so to say, the religion of hand labour." Under such influences the whole of Western Europe became one great work of art. In a great free town a cathedral was much more than a bishop's church. A cathedral of a free city like London was its great heart, considered as a structure; it was its soul, considered as an idea. In all aspects it was built by the citizens for the use of the people and to make the city holy. Such a cathedral was no curious compound of sacred edifice and sumpenny show. But, built by the side of the marketplace, its great doors stood wide open to the

people from dawn till late at night. As to these marvellous buildings his heart failed him, like the Queen of Sheba's; the half of their glories and wonders could not be told; they were more than buildings, more than art; something was built into them with the stones and burnt into their glass more than any of us would ever understand. The work of a man a man might understand, but these were the works of ages, of nations; all a consistent development, stone balanced on stone, vault springing from vault, tracery interlacing and sustaining brilliantly-dyed glass as branches held sun-saturated foliage in a beech avenue. Towers stood firm as cliffs, spires were flung into the air like fountains. The cathedral was, in short, a great outward manifestation of men working in free association under the impulse of a noble idea. Coming to speak particularly of Chartres Cathedral, which he described as "one of the most famous of the cathedral churches of France," Mr. Lethaby gave a glowing picture of its beauty, some lantern sketches helping to give the audience a vivid idea of the wondrous "poem in stone," an edifice more wonderful, in Mr. Lethaby's view, than "any imagined palace of Aladdin."

#### THE TESTING OF MATERIALS OF CONSTRUCTION.\*

A SECOND edition of the invaluable work of Professor W. Cawthorne Unwin, F.R.S., embodying the latest investigations and results of the testing of materials, will be gladly received. Although there are numerous treatises on the strain and stress of materials used in construction, very few deal with the methods by which the data are determined, and yet such information is of considerable importance in accepting such data. The methods of testing are now more important to the engineer and architect if they are to select the most suitable materials for their purpose. Professor Unwin's is the only complete English work that deals with the methods and apparatus used in testing. The present treatise deals (1) with the mechanical properties of materials; (2) with the apparatus used in the engineering laboratory, than which no one probably has had greater opportunity of examining and using; (3) and with the most trustworthy results of testing of all ordinary materials. All the facts observed about a material are recorded, and the tables given are a valuable collection of reliable results, and have been reduced to common units. The author says truly, "Little information is derivable from tests of completed structures," owing to the necessary limitation of the testing load. Only the ordinary working load can be applied. The more useful tests are those on specimens of the materials submitted to straining actions. Professor Unwin distinguishes two kinds of tests—one scientific and the other commercial. The first deals with the physical constants of the material and theory of stress; the second deals with samples of a material, and whether it complies with arbitrarily chosen standards. The "properties of bodies under stress" are thoroughly discussed in the first chapter. Tension and compression, shearing-stress, bending-stress, deflection of beams are mathematically explained; the plasticity and hardness of materials embracing in these terms malleable, ductile, plastic properties. Thus iron at welding heat takes every figure given to it in the rolls or under the hammer and retains it; it is almost perfectly plastic, and M. Henri Tresca's scientific experiments on the plastic properties of solids are referred to. "Stress-strain diagrams" for different materials are considered, with the help of curves. It is shown that curves giving the relation of stress and strain during plastic deformation are parts of hyperbolas.

The chapter on testing machines is of practical interest. Those who are about to equip laboratories and institutions devoted to engineering and technical science will derive much valuable advice from these remarks. As Professor Unwin says, "With every increase of complexity in the machine, and with every addition to the accessory apparatus, greater difficulty in using the machine, more care in adjustment, and more loss of time in adapting it to particular experiments is involved. Hence, the extent to which it is desirable to combine different functions in a single

machine is a matter for careful consideration in any given case." The instructions and descriptions are given of the principal types of testing machines, the Woolwich Dockyard 100-ton machine, the Werder machine, vertical testing machine of Messrs. Buckton and Co. (shown in photographic frontispiece at the Central Technical College), compound lever machinery, the Olson 100-ton machine, the Watertown 450-ton testing machine, &c. The chapters on measuring instruments—as those used by the author; Professor Kennedy's extensometer, a simple lever arrangement; Unwin's mirror extensometer, Professor Ewing's instrument and autographic recording apparatus, the procedure in testing, and the experiments on timber, stone, and bricks, limes, and cements are of much value to all engineers and students. The book is well printed, and full of diagrams and data derived largely from original research.

#### A FIRE-TESTING STATION.

THE British Fire Prevention Committee, founded by Mr. Edwin O. Sachs after the Cripplegate fire, has established on the banks of the Regent's Canal, near St. John's Wood-road Station, a unique fire-testing station. Its object is to test various materials and systems of construction used in building practice, so as to obtain trustworthy information respecting the resistance they offer to fire. What information of this sort is at present available is, with few exceptions, the result of inquiries carried on by makers or inventors, and therefore cannot claim the authority attaching to independent investigations. At this station the tests are to be made by independent experts, who in their reports will state nothing but the bare facts, anything like expressions of opinion or criticisms being rigorously excluded. Moreover, anyone who submits an article or device to be tested must bind himself not to publish, or allow to be published, any account of the results except the duly authenticated official report of the committee without abbreviation. With these precautions to obtain simple facts free from bias of any kind, the tests applied are to be arranged on scientific lines, though with due regard to the practical purposes in view, and to be taken with such instruments as to secure trustworthy data. They are to be under the superintendence of the members of the council of the committee, and their general arrangement is to be settled by the executive in accordance with definite principles laid down after careful study and experiment. For "full-size" tests, brick huts in the garden of the institution will be used. In these, temperatures up to 2,500° can be realised by means of a water-gas installation, readings being taken by automatic electrical pyrometers and pictures of the condition of things inside the huts by photography. The expenses of establishing the station have been met by a special subscription, by which also the costs of conducting tests of general technical interest will be defrayed. Inventors or manufacturers must, however, pay for the tests they require, though the charges are so calculated as only to cover the actual cost of the investigation.

#### IRON CONSTRUCTION IN DRAINAGE WORK.—VII.\*

By T. E. COLEMAN, F.S.I.

WHERE a water-closet is connected to an external iron soil-pipe by means of a lead branch, the yielding nature of the lead permits any slight settlement taking place without affecting the soundness of the joint. But when a fitment is directly connected to the rigid arm of an iron soil-pipe branch, any settlement or disturbance from careless usage might break the stiff cement joint between the iron and earthenware. For this reason the provision of a short lead branch is considered preferable.

To prevent siphonage of the water seal in the closet-trap, a 2in. diameter lead anti-siphonage pipe is taken from the lead branch at a point near the crown of each trap. In the case of a single closet, the anti-siphonage pipe is then carried through the wall and connected directly to the soil-pipe.

When two or more closets are arranged on different floors, and discharge into the same soil-pipe (as illustrated in Fig. 91), an anti-siphonage branch from each closet is taken to the main

\* The Testing of Materials of Construction. A Text-book for the Engineering Laboratory, &c. By WILLIAM CAWTHORNE UNWIN, F.R.S., M.Inst.C.E., &c. London: Longmans, Green, and Co.



anti-siphonage pipe outside. The upper end of this pipe is then connected by means of a brass ferrule to an "inverted branch" of the iron soil and ventilating pipe placed well above the level of the highest closet.

The soil-pipe must be continued full bore above the eaves of the house, so that it may act as a ventilating or vitiated-air extracting pipe. In some instances an exhaust ventilating cowl is provided; but generally the open end of the ventilating pipe is simply finished with a hemispherical copper wire grating.

Wrought-iron welded spigot-and-socket pipes may sometimes be advantageously adopted for long straight lengths of ventilating shafts, &c. The number of joints required only amounts to about one-half that of cast-iron pipes of the same diameter, whilst they are considerably stronger than cast-iron pipes having the same thickness of metal. Fig. 101 is a section through Spencer's patent wrought iron spigot-and-socket pipes.



FIG. 101.

They are manufactured in lengths up to 16ft., and are capable of withstanding a pressure of 1,000ft. head of water. The average weights and thickness of pipes of different diameter are as follows, viz.—

WROUGHT-IRON SPIGOT-AND-SOCKET PIPES.

Diameter.	Thickness.	Approximate weight per yd. run.
Inches.	Inches.	Pounds.
2	$\frac{3}{16}$	14
2 $\frac{1}{2}$	$\frac{3}{16}$	17
3	$\frac{3}{16}$	20
3 $\frac{1}{2}$	$\frac{3}{16}$	24
4	$\frac{3}{16}$	27
5	$\frac{3}{16}$	33
6	$\frac{3}{16}$	39

The joints are run with lead, and caulked in the usual way. Any slight bends or curves may be formed in the pipes themselves if required; but any junctions or other irregular forms must be made of cast iron. The pipes may be galvanized, coated with Argus Smith's solution, or enamelled inside.

In the United States, steel or wrought-iron lap-welded pipes, put together with screwed joints, are very extensively used for soil, waste, and ventilating pipes. The drains and branches are also constructed of similar pipes, when they are not buried in the ground, but exposed to view throughout, as in the basements of buildings. The junctions, bends, traps, &c., are made of heavy cast iron with properly screwed sockets to receive the wrought-iron pipes. It is found that for the construction of the tall buildings so largely affected in America, the use of wrought-iron tubing in drainage work possesses certain advantages over cast iron. As the former may be obtained in lengths of about 20ft., the number of joints required is proportionately less. The long lines of wrought-iron pipe are also more elastic, and adapt themselves to any slight settlement or disturbance without cracking, whilst the pipes may at any time be taken down, and a necessary alteration or addition expeditiously completed.

Many sanitary engineers in this country use lead soil, waste, and ventilating pipes in preference to cast iron. The former metal is practically unaffected by exposure to air, and does not deteriorate by oxidation or "rusting," whilst a thoroughly reliable solder joint can readily be obtained between the several pipes or branches. Drawn lead pipes have a smooth interior, and are obtainable in 10ft. lengths instead of 6ft., as for cast-iron soil-pipes, so that fewer joints are required. Lead pipes also lend themselves to easy manipulation by the skilled plumber, so that any alterations or cuttings required for bends, junctions, connections, &c., can be easily carried out on the spot, whereas with such an intractable metal as cast-iron it is not practicable to make similar modifications if required.

On the other hand, owing to the readiness with which lead expands and contracts when subject to differences of temperature, there is a great tendency for long soil and waste-pipes of this metal to gradually "creep" down towards the

base of the building, unless they are well supported at frequent intervals. In the case of waste-pipes having hot water poured through them, it is not advisable to use lead pipes, as the

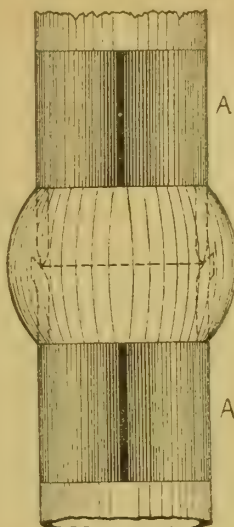


FIG. 102.

continual expansion and contraction soon cause them to crack.

Lead soil and waste-pipes should be of the description known as "hydraulic drawn," in 10ft. lengths, and having a thickness of metal corresponding to a weight of at least 7lb. per foot super. Generally the pipes are specified to be of 8lb. thickness, whilst in some instances heavy lead soil-pipes of 10lb. thickness are used.

The weights for lead soil and waste-pipes of various sizes and strengths are as follows, viz. :—

DRAWN LEAD SOIL AND WASTE PIPES.

Weight per 10ft. Length.			
Internal Diameter.	7lb. Thickness.	8lb. Thickness.	10lb. Thickness.
2 $\frac{1}{2}$ in.	48lb.	55lb.	—
3	57	65	—
3 $\frac{1}{2}$	67	76	97lb.
4	76	87	110
4 $\frac{1}{2}$	85	97	122
5	94	107	136
6	112	128	164

The minimum weights for lead soil-pipes (per 10ft. length) permitted under the by-laws of the London County Council are as follows—viz. :

MINIMUM WEIGHT FOR LEAD SOIL-PIPES.

Diameter.	Weight per 10ft. Length.
3 $\frac{1}{2}$ inches	65lb.
4 "	74lb.
5 "	92lb.
6 "	110lb.

These weights are equivalent to a thickness of lead weighing about 7lb. per foot superficial.

The joints on lead soil and waste-pipes should be made with a "wiped" solder joint, as shown in Fig. 102. After the ends of the pipes have been slightly enlarged by means of a wooden cone or "turn-pin," they are neatly and

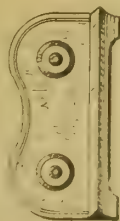


FIG. 103.

accurately filed to the shape indicated by the dotted lines in the sketch, so that when brought together absolute contact is insured at the joint, and any risk of molten solder entering the interior of the pipes avoided. To prevent the solder adhering to the pipe, except at the joint, the adjacent surfaces A A are painted with "soil" or "smudge" (composed of lampblack

and size). When the smudge is dry, each end is scraped with a shave-hook in order to expose a clean untarnished surface for the proper adherence of the solder to the lead. Immediately the scraping is completed the surfaces are smeared with tallow to prevent oxidation from exposure to the air. Molten plumber's solder (composed of two parts lead and one part tin) is then poured on the joint, the superfluous metal being carefully wiped off with a cloth.

The length of a wiped solder joint varies with

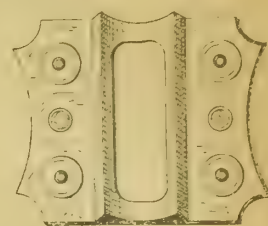


FIG. 104.

the diameter of the pipe, and also according to the individual predilection of the workman making it. Well-made wiped joints should be about 2 $\frac{1}{2}$ in. long for pipes  $\frac{1}{2}$ in. to  $\frac{3}{4}$ in. diameter; 3in. long for 1in. to 2in. pipes; 3 $\frac{1}{2}$ in. for 3in. to 4in. pipes; and 4in. long for 5in. and 6in. pipes. The quantity of solder required for each joint averages about 1 $\frac{1}{2}$ lb. for every inch in diameter of the pipes to be joined. Thus a 4in. soil-pipe requires about 5lb. of solder for every wiped joint.

The pipes must be thoroughly well supported by means of strong cast-lead "tacks" soldered thereto. Fig. 103 is a sketch of what is known as a "single tack" ready for soldering to the soil-pipe, whilst Fig. 104 shows a "double tack." They vary from 4in. to 9in. long, and may be

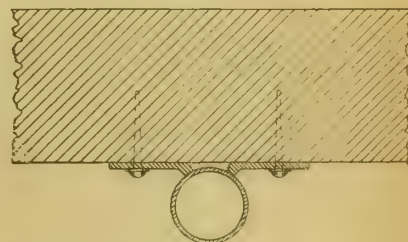


FIG. 105.

obtained in numerous ornamental patterns for pipes up to 6in. in diameter. They are secured at the back of the pipes with a strong solder joint, as indicated in Fig. 105. To prevent "creeping," the tacks should be spaced about 3ft. apart, or, say, three tacks to every 10ft. length of pipe.

#### THE FAWCETT FIREPROOF FLOOR.

FIRE-RESISTING floor construction has made very rapid development during the last few years, and by the law of survival of the fittest, two or three systems among many have become generally accepted as embodying the main principles of a sound system. The floor ought to be impenetrable to the passage of air or fire upwards; the iron or steel beams should be protected from the action of fire, so as to prevent them buckling or distorting the walls, and this protection ought to insure a complete insulation of the lower flange. Experience has proved that this is best done by interposing between the lower flange and the terracotta a space through which the air may circulate. The Fawcett ventilated fireproof floor fulfils these conditions in a manner that leaves little to be desired. In this construction, a fire may heat the terracotta casing to a white heat, but the air space between it and the lower flange of beam forms a layer of air which circulates the more it is heated, thus forming a cooling non-conducting medium. Many of our readers are acquainted with the Fawcett floor, which may be described briefly as consisting of steel I-beams placed about 2ft. apart, between which, resting on the lower flanges, tubular terracotta semicircular lintels are obliquely placed, the lower flat-plate of each encasing the beam flange, allowing an air-passage under each beam transversely through the lintels.



These are connected with an air-brick flue in outer walls. The cinder concrete filling bears on the bottom flanges, and occupies the whole depth of floor. The lower plate of lintels is dovetail-grooved as a "key" to the plaster, while the flooring-boards or blocks are fixed to dovetail-shaped pieces, which run along on the top of each beam, making a solid and impervious floor. The tubular lintels, each about 7 in. wide, are grooved on the outer side to form a better "key" to the concrete, and are 3 in. thick, and are the outcome of study and experience in their proportions and make. These floors have been extensively used, not only in the United States, but also in this country in numerous Government buildings, including the new Record Offices, the new Admiralty block. In the latter building, the patentees have adopted it on the sloping roofs, for which it is well adapted, and forms an external buttressing as well as a roof. We have also seen its other applications to buildings in London. Several important office buildings, residences, and apartment-houses in Philadelphia, New York, Boston, and Pittsburg, have been constructed upon the system, a list of which is before us. Of these, we may mention Bank of North America, the Halle Building, designed by Mr. Willis G. Hall, the Gerard Building, several insurance offices, storage warehouses, public schools. The St. James Office Building, Broadway, New York, by Mr. Bruce Grice, architect, shows a very important application of the Fawcett ventilated fireproof system to a tall building 16 stories high, the whole steel skeleton construction of which was erected on the system before the outer skin of masonry was built. The Fawcett floor really combines all the chief merits of the fireproof system: it is easily applied to existing as well as to new buildings, and it is capable of carrying a load of 1,500 lb. per square foot. The names of the architects who have used it are a high guarantee of the merits of the system, as applied, not only in this country, but in the United States.

Mark Fawcett and Co. have introduced an improved wood-block floor, suitable not only for their own but other systems, the special feature of which is that the blocks, arranged herring-bone-wise, are connected together by steel tongues, which run through the corners of each block in a manner which affords perfect rigidity and elasticity. We saw, the other day, sample pieces of this floor, made of maple wood, and we have no hesitation in saying it is constructed on a very scientific principle of connection. Blocks about 9 in. by 3 in. and 1½ in. thick, placed at right angles to each other, herring-bone fashion, have saw-cuts made on two opposite angles of each, and through these steel tongues, about 1 in. wide, are run, giving great strength and rigidity to the flooring at their weakest points. The effect of these continuous tongues is to connect together a large square of the flooring. Floors on this principle have already been laid by Mark Fawcett and Co., at Her Majesty's Mint, the Natural History Museum, Eastern Post Office, and the company are about laying down a floor to the Buckingham Palace additions. Polished maple, pitch-pine, or other wood blocks, with steel-tongued joints, make very effective parquet borders, dados, and wall-linings, and this mode of connecting the blocks deserve the attention of all architects.

#### MEMORIAL HOSPITAL AT BULAWAYO.

THE extension of the front of the memorial hospital has reached such an advanced stage that the outside was practically completed when the mail left.

"A walk through the interior of the new portion (says a correspondent) leaves one with an impression of bright, airy, and well-ventilated rooms—all the qualities which conduce in a most marked manner to the well-being of patients. The corridors, and most of the rooms (a few of the latter are concreted) are floored and ceiled with 4 in. boarding, and all the rooms are ventilated by Boyle's patent ventilating air-pumps.

"Along the whole of the front under the roof and above the ceiling, a main ventilating-shaft will run, on the top of which, on the roof, six of the patent air-pumps are to be placed—three on the old and three on the new fronts respectively. From those rooms that are not directly ventilated by the main shaft, a connecting shaft will be run to the former. Another special feature introduced by Messrs. Benzie and Deeble in the ventilation line is the provision of an opening, 2 in.

wide, all round the building between the roof and the brickwork, the opening being protected from the weather by eaves, which project 1 ft.

"The general ward is a very fine room, 83 ft. long, 24 ft. wide, 14 ft. to the ceiling, and another 13 ft. to the pitch of the roof, splendidly lighted and ventilated, and affording 1,500 cu. ft. of air-space to each patient, the intended number of the latter being 20 (the cubical capacity per patient being that recommended by the best authorities). The ward seems in every way an ideal one, and would appear to justify the architect's encomium thereon—that it equals any to be found in any of the best hospitals at home."—*South Africa.*

#### THE SURVEYORS' INSTITUTION.

THE discussion on Mr. Weaver's paper on "The London Building Act and the Official Supervision of Buildings" was resumed by Mr. E. W. Hudson, who said that it seemed to him the question was whether any change of the kind proposed—the uniting of the offices of district and parish surveyor—was necessary, who asked for the change, and who would be benefited by it? It was said that some change was inevitable, and Mr. Wheeler somewhat oracularly predicted its near approach; but there were, on the other hand, indications that it was by no means a foregone conclusion. It could not be expected that the County Council would willingly relegate any of its powers to the local authorities, although that body was always ready to take up new duties and responsibilities. There was, no doubt, a distinct tendency toward some measure for adding to the dignity of the vestries; but he agreed with Dr. Longstaff's view that if the change were made compulsory, it would not be successful. It had been said that all work in connection with a district surveyor's duties should be vested in a local authority. But why? The public was content, so long as its sewers and roads were attended to, to consider the local surveyor responsible, and the builders and architects, who were the persons most directly interested, seemed satisfied to let the *status quo* remain. The speculating builder would, of course, welcome the removal of the burden of fees from his own back to that of the ratepayer; but it would be difficult to persuade that long-suffering individual that he should pay the fees which naturally fell upon the profit-maker.

Mr. William Eve, speaking as one who had to submit to the decisions of no less than five different district surveyors, as a vestryman of 28 years' standing, as a member of a works committee for the last 18 years, and as one of the delegates to the London County Council on the subject, claimed to have some knowledge of the matter under discussion. He was willing to admit the capability of the district surveyors of London, and he thought it desirable, from his own experience, that a single rather than a dual authority should have control over all public works. Of course, if vested interests were interfered with they must be compensated. It was said that outside the Metropolis the existing system involved delay; but he saw no reason why legislation should not avoid that by fixing a time limit for the approval or rejection of plans. His lengthened experience taught him that there did not exist the corruption and favouritism which some speakers had attributed to vestries. He did not say the respective duties were not now satisfactorily discharged; but he thought the system under which one surveyor fixed the position, for instance, of the w.c.'s, and another determined the thickness of the walls of those same w.c.'s, was anomalous and cumbersome.

Major I. H. Isaacs said it would be mere affectation on his part to say that he was unqualified to speak on the subject of Mr. Weaver's paper, for his experience of the duties of a local surveyor's practice extended from the time of his first pupillage until the present date, and after carefully considering the suggestions contained in the paper, he must say that he agreed with Mr. Weaver that the present dual system was unsatisfactory. As Mr. Weaver had shown, the laying out of roads, for instance, was controlled by one authority and the sewerage of the same roads by another. The road plans left with the County Council were referred to the local authority, and the sewer plans deposited with the local authority were referred to the County Council, both cases involving power to object, and causing unnecessary waste of time, which in

building operations meant waste of money. He quite agreed that the present system, by which the surveyor was paid by the people over whom he had to exercise vigilance, was an anomalous one, and he could only compare it with the payment by a shipowner of the fees of a Custom House officer, who was appointed by law to prevent any smuggling on his ship. The surveyor had definite duties to perform in seeing that the law was not infringed, and he ought to be independently paid for his services. If, as Mr. Freeman had been quoted as saying, a district surveyor was merely appointed under Act of Parliament, and was responsible to no one, he thought the time had come when such an anomalous state of things should cease to exist.

Mr. A. W. Tanner said the subject has, he thought, been approached from two sides, the sentimental and the practical, but it ought to be possible to provide some bridge between these two. There was a decided feeling that some change in the present anomalous dual control of district and local surveyors was needed. Mr. Weaver had said that the district surveyor had no champion. But where could he expect to find one? Would the builder, who was his natural enemy, champion him? Would the vestries back him? Would the public, who did not understand him, or the Press, which was, as a rule, ignorant of his position and duties, advocate his cause? He was created by Parliament, and in Parliament lay his only chance of help. By all means let London be divided into separate municipalities, so long as each was large enough to maintain an efficient engineer, an architect, a medical officer, and a surveyor, each with an efficient staff. There was a strong feeling in favour of some change, and the question was how best to effect it.

Mr. A. A. Hudson said he presumed the object of the paper was the transference to the local authorities of the duties which were now performed by district surveyors for the benefit of the public; but the word "public" must not be construed to mean only those who were about to build or were interested in buildings: what must be considered was the interests of London as a whole. District surveyors performed many duties which could not well be carried out by anyone else, though no doubt some of their work could well be relegated to the local authority. It was one of his pet schemes to see established some system of technical tribunals who would deal with all these questions with elasticity and skill.

Mr. F. Wallen thought it would be an excellent plan to revert to the former custom of placing the entire supervision of the works in a house under the control of the district surveyor.

Mr. Weaver, in reply, confessed to being a little surprised and pained that an expression in his paper had been misunderstood. When he said that the office of district surveyor was sought for the sake of the private practice it might bring, he only meant that there were many persons who, having no preference for any particular architect, would employ the district surveyor both because his position was a guarantee of his skill and integrity, and because he was likely to be more conversant than another with the regulations of the Building Acts. He did not propose in his paper to transfer the duties of the district surveyors to the parish surveyors, many of whom would be hardly qualified to carry them out; but he proposed to amalgamate the two offices in one, and thus abolish the present anomalous dual supervision. It appeared to him unreasonable to appoint an architect to the position of district surveyor on account of his architectural skill, the non-user of which was a condition of his appointment. It was, he held, most essential that the official, whatever he might be called, should have an intimate knowledge of all the circumstances of the district, such as water supply. He did not assume any negligence on the part of a district surveyor in the case of dangerous structures; he only said that, as a rule, his duty only commenced when his attention was called to them. He thought it would be well to invest the existing tribunal of appeal with power to determine all questions under the Building Act.

Works of water supply have just been carried out at Mundesley, Norfolk, for the rural district council of Erpingham. The engineer was Mr. Stephen H. Terry, Messrs. Merryweather and Sons (Limited) took the contract for the well, and Messrs. Willment Brothers are supplying the engine and pumps.



## SANITARY FITTINGS AND PLUMBERS' WORK.

A VERY comprehensive and excellently printed and illustrated catalogue of sanitary and general goods has just been issued by the well-known firm of Nicholls and Clarke, lead and glass merchants, of Shoreditch. The Sanitary department of this firm is a very large one, and a glance through the sectional index shows the wide range of goods supplied for the plumber and sanitary engineer. The catalogue is more than a mere price-list: it is a compendious book of reference for the architect's office and builder's workshop. Under the head of Closets we have well-illustrated descriptions of every leading kind of valve and wash-down, pedestal, wash-out, &c., from which it ought not to be difficult to select a suitable closet for every purpose, from the mansion to the cottage. Nicholls and Clarke's "Special" valve-closet, with "fawn-coloured" basin, flush rim, copper regulators, or "regulating valve," is remarkable for make and price. No. 11 is of best quality, and ranges in price from £4 7s. 6d. to £5 5s. Nicholls and Clarke's best quality (Underhay's system) has a high repute. Other varieties, by well-known makers, comprise Hellyer's patent "Optimus" valve; Jennings's patent valve-closet and trap in one piece, and "Trapless" and several improved wash-down pedestal closets, such as the "Deluge," "Doulton's" "Simplicitas," "Hygienic" (Hellyer's), &c. Automatic flush-tanks, Nicholls and Clarke's "Era" siphon waste preventer, approved by the London School Board, the "Monarch" preventer, and others are illustrated. The sinks, of stoneware, glazed fireclay, earthenware, enamelled cast iron, steel, kitchen and slop-sinks leave nothing to be desired, some fitted with hot and cold valves and brass-hinged grating. The pages illustrating traps of various kinds are valuable for reference by architects and others, and comprise all the leading types of traps, like Hellyer's anti-D-traps and stoneware interceptors. The "Improved Kenon" disconnecting trap and channels for man-holes and manhole covers show improved makes. The section on Lavatories is most complete, embracing every class of arrangement, angle and oblong, and all kinds of fitting and finish, ranging in price from the simple bracket lavatory to the ornamental cast-iron and cabinet arrangements. Baths also are numerous illustrated, and include every design and description of bath. The "Combination" cast-iron baths which require no casing marbled outside and enamelled in; the patent "La Marguerite" cast-iron bath, and several kinds of capital portable baths of sheet-iron are shown. Pumps and fittings, cisterns, boilers, gas-fittings, and plumbers' brasswork and fittings are included, and the by-laws and waterworks regulations make a very valuable book of reference for the architect and sanitary engineer. In addition, we find descriptions and prices of plate and ornamental glass and iron casements. We can highly recommend Nicholls and Clarke's handsomely got up catalogue to the building trade and profession.

The county council of Staffordshire have instructed Mr. H. T. Hare, of London, the architect of the recently-completed council buildings at Stafford, to prepare plans for the extension of the technical institution schools on a site in St. Martin's-place recently acquired for that purpose.

At the first annual meeting of the Association of Civil Engineers, Architects, and Surveyors of Newport, Mon., Mr. W. Hitchcox, F.S.I. (Graham, Son, and Hitchcox), was elected president, and Mr. W. S. Smyth (Alexandra Docks and Railway Company) vice-president.

On Wednesday week a party of the City of London College Science Society, under the guidance of the new president, Professor Henry Adams, M.Inst.C.E., M.S.A., visited the locomotive works of the North London Railway at Bow. The works extend for a mile from the Bow-road to the Lee Cut, and find employment for a staff of 800 men. A vote of thanks was proposed to the locomotive superintendent, Mr. H. J. Pryce, for permitting the visit, and to Mr. E. J. C. Manico and his assistants for their guidance and explanations.

At Greenwich Police-court, on Monday, Allen Harvey, of the Pavement, Crofton Park, Brockley, was summoned by the Greenwich District Board of Works for permitting two houses in Horsted-road, Brockley, to be occupied as dwelling-houses, without having obtained certificates from the Greenwich Board of Works of a proper and sufficient water supply. Mr. Kennedy fined the defendant £5 and 2s. costs in each of the two cases.

## OBITUARY.

By the death of Mr. THOMAS CHAMBERS HINE, F.S.A., which took place at his residence in Regent-street, Nottingham, on Monday night, at the ripe age of four score years and five, one of the last of the old Revived Gothic school of architects has passed away. The late Mr. Hine, the son of Benjamin Hine, a hosiery manufacturer of Nottingham, and a member of an old Dorsetshire family, was born in 1813, and was articled to Mr. Habershon, a local architect, who was in partnership with Mr. Patterson, a builder. In those days it was a common occurrence for architects and builders to be associated as partners. When Mr. Hine attained his majority (Mr. Habershon having retired), Mr. Patterson took him into partnership. They were in business together for about fifteen years, doing a great deal of work in the city and county and the neighbouring counties. During this time he built the imposing house in which he died. In 1849, on the dissolution of partnership, he commenced practising on his own account, his offices being in his residence. The first work with which he was connected after the partnership came to an end was the Bentinck memorial in Mansfield Market-place, erected to the memory of the late Lord Geo. Bentinck. He erected and restored numerous churches and vicarages, and in Nottingham, in the early days of the lace trade, he built most of the principal warehouses and factories in the Lace Market. In 1857 Mr. Hine took into partnership Mr. Robert Evans, who had been a pupil and afterwards an assistant in his office, and they were associated in the new relation for ten years. Early in 1854 Mr. Hine was appointed surveyor to the Newcastle estates by the fifth Duke the "statesman Duke," and the architect subsequently laid out the Nottingham Park estate, both designing and erecting most of the houses upon it. Seven years after his appointment the Duke of Newcastle spent the sum of £4,000, realised by the sale of the timber blown down in Clumber Park by a great gale, in the erection of a church from Mr. Hine's designs at Shireoaks for the use of his colliers in that village. In 1864, on the death of his Grace, the management of the estates was vested in the late Mr. W. E. Gladstone and Lord De Tabley, the great statesman frequently visiting Nottingham in connection with their superintendence. He never came to Nottingham without visiting Mr. Hine. When the new Duke—the sixth—succeeded to the title he desired to erect a chapel near Clumber House, and he commissioned Mr. Hine to design it. Before the building was finally completed the Duke was in pecuniary difficulties, and was adjudicated a bankrupt, and, in consequence, the chapel was left in an unfinished condition until the present Duke came of age eight years afterwards. His Grace then pulled down the chapel to make room for a magnificent church, over which he spent £60,000. In 1867, the term of the partnership with Mr. Evans having expired, that gentleman left the business, and Mr. Hine took in his place his eldest son, Mr. George Thomas Hine, and they continued a large practice until the year 1890, when Mr. Hine, sen., retired altogether, and the son went to London, and he has since been widely known as a specialist in designing asylums and similar institutions. In 1876 Mr. T. C. Hine suggested to the corporation of Nottingham the idea of leasing the castle from the Duke of Newcastle's trustees and converting it into a museum of arts. By a special Act of Parliament the Castle, which was then in ruins, as left after the Reform riots of 1831, was leased from the Duke's trustees for a term of 500 years. The museum, the work of restoration being designed by Mr. Hine, was opened by the Prince of Wales. Perhaps the greatest work with which Mr. Hine's name is associated as architect is the Great Northern Railway Station in Nottingham. Mr. Hine may be regarded as a leader of the Revived Gothic architecture in the Midland Counties; but, of late years, in his domestic work, he adopted a style bordering on the Renaissance. He was keenly interested in antiquarian and archeological research. He never associated himself with the Institute of British Architects, but he founded the local architectural society, and he did all he could to advance the profession. Of late years, since his retirement from active work, he amused himself with drawing and water-colour painting, and he has left a large collection. In his younger days he was a most indefatigable worker. Until he reached the age of 70 he was generally at work from nine

o'clock in the morning till six at night, and after dinner and a short rest—at ten o'clock—he would recommence and work on till one or two o'clock in the morning. Mr. Hine, who had been a widower since 1853, leaves three sons and four daughters.

THE death is announced at the age of 66 of Mr. JOHN CHARLES DUNLOP, J.P., one of the most energetic members of the corporation of Edinburgh. Mr. Dunlop, who died on Saturday, was engaged for many hours of the previous day as convener of the streets and buildings committee of the above-named body—a position he had held for ten years. He was the son of a joiner and cabinet-maker at Stockbridge, and succeeded to that business, which he greatly developed, and retired in 1881, though still continuing to act as a valuator of property. Besides his work on the streets and buildings committee, Mr. Dunlop was also chairman of the improvement scheme committee of the Edinburgh Town Council, where his great practical knowledge was of the utmost value to the city in the purchasing of slums and other properties; and he took a leading part in the acquisition of the properties on the North Bridge in connection with the widening of that thoroughfare. To his initiative is due the formation of the Council Museum, and he was chairman of the committee which has that collection under its charge.

## CHIPS.

The Bishop of Gibraltar, who has now completed the twenty-fifth anniversary of his consecration to the See, was presented at Cannes on Tuesday with a portrait of himself in oils, by Mr. H. Olivier. The portrait, which will eventually be hung in Christ Church, Oxford, depicts Dr. Sanford in the robes of an Oxford Doctor of Divinity, and in the background is the Rock of Gibraltar.

The town council of Portobello, near Edinburgh, have received a report from Mr. Cooper, their borough engineer, recommending the widening of the promenade to 50ft., and its protection by a sea-wall, at an estimated cost of £40,000.

On Saturday, Mr. H. C. Richards, M.P., unveiled the new west window of St. Peter, Newlyn, the parish church of the Artists, on the Lands End-road. The window contains memorial lancets to the late Bishop Philpott, of Exeter, and Archbishop Benson, the first Bishop of Truro.

An explosion of acetylene gas occurred on Thursday night in last week at the brickworks of Messrs. C. J. Sanders and Co., near Chesterfield, by which Mr. W. F. Richmond, M.I.M.E., of the firm of Richmond, Stockton, and Co., Limited, Staffordshire, and a workman were injured. For working night shifts at the brickworks an acetylene gas-making plant was being installed by Messrs. Richmond, Stockton, and Co. The explosion occurred within the gas-holder, which was hurled from its position. Mr. Richmond and a workman were buried beneath the ruins, and sustained some injuries. Eight or ten other persons had narrow escapes.

Definite instructions have been given by the Clunty Trustees to Mr. Barron, C.E., Aberdeen, to proceed with the erection of a fish market for Buckie, and workmen are engaged clearing the site on the south side of the Clunty Harbour. The mart will be opened this season.

On Friday, an inquiry was held at the Guildhall, Stafford, before Mr. W. O. E. Meade-King, M.Inst.C.E., one of the inspectors of the Local Government Board, relative to an application by the town council for sanction to borrow £1,200 for carrying out certain alterations in the Guildhall and St. John's Market Hall, for providing an improved council chamber, and justices' room, with offices. The plans were shown and explained by Mr. Blackshaw, the borough surveyor.

A third inquiry by Colonel Hepper, a Local Government Board inspector, was held at Bath on Saturday, into the application of the urban sanitary authority for compulsory powers to purchase property on the upper side of London-street, where an improvement is contemplated. They have power for the lower side, and when another inspector held an inquiry last September into an application to borrow £18,000 for the work, he said it would be unsafe to carry it out unless the property on the upper side were acquired. Evidence was given in support of the proposal by Mr. Fortune, city surveyor, and Mr. A. W. Moore, engineer to the G.W.R. There was no opposition.

In connection with the rebuilding of the Colston Hall, Bristol, destroyed by fire in September last, Sir William Henry Wills, M.P., has undertaken to provide an organ, to be built by Mr. Henry Willis at a cost of £5,000, to take the place of the fine instrument entirely lost in the fire.



## Building Intelligence.

**CAMDEN TOWN.**—The new Bedford Palace of Varieties in the High-street, replacing a smaller structure on part of the same site, was opened on Monday. The new theatre presents a French Renaissance front to the High-street executed in Douling stone, with polished Labradorite and red Shap granite pilasters, surmounted by slate mansard roofs, and a copper dome rising some 60ft. above street level. Entered by three Italian marble steps, is an entrance-hall, with fibrous plaster decorations, gilded ceiling and walls, and floor of mosaic marble; thence, by a corridor 14ft. in width, the main crush-room is reached. This is 20ft. by 22ft. and 18ft. in height, with walls and ceiling of panelled and enriched carton pierre and mosaic floor. From this a short flight of marble stairs leads to the balcony and a lobby to the stalls. The auditorium, which, with a depth of 65ft. and clear width of 55ft., has been built without a column, is treated entirely as the stalls on the ground floor, every person on this tier and in the balcony having a tip-up plush-covered seat. The saloons are at the sides of the auditorium, and separated therefrom by a low brass rail. The private boxes, although on the circle level, are approached solely from the stalls by coved entrances through the ante-proscenium. The style of decoration throughout is Louis Quatorze, with a plentiful introduction of figure paintings in friezes and panels. The proscenium arch and box elevations were specially designed by the architect: standing on richly-ornamented pilasters, two female figures of heroic size partially withdraw a canopy from the boxes, while above a group of Cupids display dramatic emblems. Another group of female statuary surmounts the proscenium arch. The ventilation of the house is assisted in hot weather by the sliding roof, which is controlled by an electric motor in connection with the fireproof curtain. The lighting is by electricity, with gas and oil-lamps as a stand by, and the heating is by low-pressure hot-water. Mr. Bertie Crewe, of Savoy Mansions, is the architect. The general contractors have been Messrs. W. Johnson and Co. The electric light, gas, heating, fire appliances, &c., have been supplied by Messrs. Vaughan and Brown; the decorations and fibrous plaster by Messrs. Los Saveriaux and Co.; furnishing and upholstery by Messrs. Wolfe and Hollander; bar fittings by Messrs. W. Walker and Sons; marble mosaic by Messrs. Diespeker and Co.; and the stage by Mr. W. H. Wood. Mr. George Sheen, from Mr. Crewe's office, has been the clerk of works.

**CREWE.**—The chancel which has been added to Christ Church, Crewe, at a cost of £1,300, was recently consecrated by the Bishop of Chester. The architect is Mr. John Brooke, of Manchester, and the builder Mr. Matthews, of Nantwich. The complete scheme provides, in addition to the new chancel, for a morning chapel on the north side, and new clergy and choir vestries on the south side. The present contract included only the building of the new chancel. Following the method so often found in connection with Mediaeval churches, the new chancel is in a different style to the existing church, the treatment adopted being the Perpendicular. The chancel is 36ft. long by 20ft. wide. The east window has five lights, the sill being raised high above the chancel floor. In each of the side walls there are windows of two lights forming a clerestory. On the north side there is a double arcade, which will eventually open into the morning chapel, also a credence in conjunction with a squint window from the future side chapel. The old chancel arch is replaced by an arch of lofty proportions, the roof of the chancel having "hammer beam" principals, and a boarded and panelled ceiling. The walls are of brick, with Greenstall stone dressings to the windows, doors, arches, &c. The upper part of the inside walls is finished in cement plaster, with a granulated face, the lower parts of the wall being faced with specially made Ruabon bricks. The floor of the chancel and sanctuary is paved with tiles, except the space occupied by the choir stalls, which is paved with wood blocks. The whole of the paving is laid in a thick bed of cement concrete.

**EDINBURGH.**—Plans have passed the Dean of Guild Court for the erection of premises at Lochrin for an Ice and Cold Storage Company. It is proposed to erect an ice manufactory on

ground adjacent to the slaughter-houses. The space measures 112ft. by 95ft., and half of this will be taken up with machinery for ice making, and the other half with the insulated chambers for cold storage. The capacity of the chambers will be about 1,000,000c.ft., but only 30,000c.ft. will be insulated for a commencement. The meat chambers are to be insulated by means of silicate cotton. The refrigerator and ice making is on the Linde system—by ammonia compression. The cost of the undertaking, which is expected to be in operation by June, is about £10,000, £3,000 of which goes for the ground.

**LITTLE TORRINGTON.**—To mark the completion of the restoration of the tower of the parish church a dinner was given at the rectory a few days since. The rector presided, and there were also present Mr. Harbottle Reed, Exeter, the architect; Mr. Grant, of Torrington, the contractor, and his staff of workmen. The upper stage and pinnacles have been rebuilt, a large portion of the buttresses renewed, and the fractured walling made sound. By the removal of the west gallery and placing a new floor in the tower, that part of the church has been greatly improved, and this effect will be heightened by a traceried oak screen, which is to be executed from Mr. Harbottle Reed's design. In addition to the work on the tower, the arrangement of the choir has been remodelled, new oak platforms have been formed for future choir-stalls, and the aisle laid with Jackfield encaustic tiles and new Portland stone steps. The pulpit has been reconstructed, having the old oak panels worked in by Mr. Boudry.

**MORECAMBE.**—A company has been formed for erecting on the promenade a tower of novel design, and rising to a height of 232ft. The tower in general form will be a cone. There will be three dining floors above the ground-floor level. The tower at the base will have a diameter of about 155ft., diminishing to form a platform 52ft. in diameter at the summit, upon which a refreshment saloon will be placed. A spiral road round the outside will ascend by easy gradients from the entrance level to the summit platform, which may also be reached by an electric tramway or hydraulic lifts. The structural steelwork of the tower is calculated to stand the stress of a solid crowd on every portion accessible to the public equal to a weight of 1,000 tons, in addition to its own weight, and a wind stress of 56lb. per square foot over its whole surface. The foundations will be of cement concrete. The interior of the structure will be utilised to form a grand pavilion occupying the whole of the ground floor, accommodating 5,000 persons, and provided with a stage. The summit road for the first circuit will convey the idea of an Oriental street, with shops and cafés on each side, the attendants being dressed in Moorish, Turkish, and similar garb. After leaving the Oriental street the road gradually diminishes from a width of 15ft. to 9ft. at the summit. The share capital of the limited company which is floating the project is £70,000, and it has gone to satisfactory allotment. The architectural and engineering part of the work is in the hands of Messrs. W. H. and A. Sugden, architects, of Keighley, and Mr. R. J. Gifford Read, C.E. Building operations have already commenced, and the pleasure palace will be proceeded with as rapidly as possible.

**SPARKBROOK.**—A new church of St. Agatha is being built in Stratford-road, Sparkbrook, Birmingham, from plans by Mr. W. H. Bidlake, architect, Waterloo-street, in that city. The style is Late Gothic, to be carried out in red brick, with stone dressings and green slate roofs. The main characteristic of the design is that of strength and stability rather than elaborate ornamentation or excessive detail. The walls will be thick, the shadows deep, and the timbers strong. The church will have a front to Stratford-road, a tower over 100ft. in height, flanked by two deep porches, and having at the base a baptistery projecting as an octagonal apse. The nave and aisles lead to the chancel, choir transepts, and vestries, the total length of the building being 170ft. The narrowest part will be 60ft., at the commencement of the nave, but from that point the church is to open gradually until the extreme width of 78ft. is reached at the chancel. Seating accommodation is to be provided for 1,000 worshippers on the ground floor, sufficient to obviate the necessity of a gallery; the organ chamber, which is to be placed over the choir transept, being the only part raised above

the ground floor. The church is to be lighted by traceried windows. The roof will be open, and all the constructional timbers, such as the roof trusses, beams, and ceilings, will be of red deal, the pews of stained deal, and the chancel seats of oak. Room is to be provided in the tower for a peal of eight bells, and one of the latter will be the old bell from Christ Church, Birmingham. The ornamentation is to be mainly confined to the tower, the west side of which will be treated in low relief sculpture. The total cost is estimated at £10,000.

**STOREY'S GATE, S.W.**—The new building at Storey's Gate, Westminster, which has been erected for the Institution of Mechanical Engineers, was formally opened yesterday (Thursday). It adjoins the new premises of Her Majesty's Office of Works. The chief wood employed for internal fitting and furniture is Austrian oak, and many varieties of marble are utilised for the decoration of the tea and smoking-rooms, including a Mexican onyx wall decoration. The lecture-hall occupies the height of two floors. An oak staircase, with carved balusters, Persian-red walls, and a dado leads to the library, the secretary's office, and the reading-room. There are electric clocks, electric lights, and an electric lift. A large room is provided for the storage of past and present records. The building is in the Renaissance style, and the architect is Mr. Basil Slade. It has taken about three years to erect, and has cost about £30,000.

### CHIPS.

This week the North-Western Railway Co. have commenced a series of additions and alterations at Rhyl that will take two years to complete. It is intended to rebuild the south side of the station—that adjoining Vale-road—altogether. An improvement will also be effected at the Voryd, where a new viaduct is being thrown across the river to carry an additional set of rails.

At the meeting, on Tuesday, of the London County Council, the Bridges Committee recommended that the tender of Messrs. Cochran and Sons, amounting to £109,000, for the construction of the Greenwich footway tunnel be accepted. The original estimate was £85,000, and the engineer's revised estimate £83,175. The recommendation stands over for a week.

The Mersey Docks and Harbour Board considered on Friday a recommendation by the Works Committee involving the expenditure of nearly one million sterling. Some time ago a general scheme for improving and extending the dock system was agreed to, the total estimated expenditure being close on four millions, and, Parliamentary powers having been obtained, it is now proposed to proceed with the first instalment of the work. This portion of the scheme, which includes the construction of two new graving docks, will probably cost £885,335. The committee's recommendation was allowed to stand over for a fortnight in order to comply with the Standing Orders.

On Thursday last week, Mr. W. O. E. Meade-King, C.E., an inspector of the Local Government Board, held an inquiry at the Trent Valley Hotel, Lichfield, as to an application by the Lichfield Rural District Council for the issue of a provisional order for the compulsory acquisition of land for the purposes of sewage disposal for the township of Streethay. The plans have been prepared by Mr. W. E. Rogers, surveyor to the urban district council of Rugeley.

Mr. Thomas Winn, C.E., of Leeds, the umpire in the recent arbitration proceedings in regard to the Jolly Butchers Inn, Rawson-place, Bradford, has decided that the price of the property, which is required by the corporation for market extensions, should be £10,532 8s. The owners' claim was for £11,349, and the corporation's estimate was £8,000. Mr. William Weatherhead was the arbitrator for the claimants, and Mr. W. B. Woodhead was arbitrator for the corporation.

The improvement committee of the Birmingham Corporation have granted a lease of 75 years to Mr. T. C. Sharp, civil engineer, Corporation-street, Mr. J. P. Sharp, architect, Martineau-street, and Mr. C. Osborn, merchant, Eighaston-street, of a plot of land on the eastern side of the lower end of Corporation-street, having frontages to streets of 46ft., 43ft., and 62ft., and containing an area of about 672 square yards, at the rate of 7s. 6d. per square yard, or £252 per annum.

A special meeting of the Blackpool Town Council was held on Friday to confirm the resolution passed at a previous meeting, that the improvement Bill, which includes the widening of the promenade at a cost of £345,000, be proceeded with. After much discussion, the confirmation was carried by 33 votes to 2.



## Engineering Notes.

**CHESTER-LE-STREET.**—A new bridge over the River Wear has just been opened by the Right Hon. the Earl of Scarborough, near his seat at Lumley Castle. The bridge consists of a centre span of 120ft., and two side spans each 37ft. long. The main and approach girders are of mild steel lattice-work, the bottom flanges being efficiently wind-braced, and the top flanges supported with struts and overhead arches. The flooring consists of creasoted timber, with water-boards at each side. The piers are each composed of four large wrought-iron piles, properly braced, formed of four segments riveted together with cast-iron pile joints, and driven 21ft. below the river bed. Gates and proper turnstiles are fixed at the end of the bridge, and proper lighting arrangements are provided. The structure is calculated to bear a safe distributed live load of 140lb. to the square foot, with four times this amount for the ultimate load. The engineers were Messrs. D. Balfour and Son, of London and Newcastle-on-Tyne, and the erection has been carried out by Messrs. Head, Wrightson, and Co., of Stockton-on-Tees.

**SOCIETY OF ENGINEERS.**—The first ordinary meeting of the Society of Engineers for the present year was held on Monday night at the Royal United Service Institution, Whitehall. Mr. W. W. Beaumont, the president for 1898, occupied the chair, and presented the premiums awarded for papers read during that year—viz., the President's gold medal to Mr. W. Fox, the Bessemer premium to Mr. S. O. Cowper-Coles, the Rawlinson premium to Dr. J. C. Thresh, and a society's premium to Mr. G. Thudichum. Mr. Beaumont introduced the president for the present year, Mr. John Corry Fell, to the meeting, and retired from the chair, receiving a unanimous vote of thanks for his services during the past year. Mr. Fell then delivered his inaugural address. The financial position of the society, he said, was very satisfactory, and it had increased its numbers during 1898. During the past year they had lost six honorary members, Sir William Anderson, Sir Henry Bessemer, Sir James N. Douglas, Sir John Fowler, Lord Playfair, and Sir Robert Rawlinson. The vacancies thus created had been filled by Sir J. Wolfe Barry, Sir A. J. Durston, Sir David L. Salomons, Professor A. B. W. Kennedy, Mr. W. H. Preece, and Mr. A. Siemens. It was a curious fact that civil engineers availed themselves less than any other members of the profession of the privileges accorded to inventors by patent, designs, or copyright protection. It had been said that the British nation was less inventive than the American, and prior to 1883 that view appeared to be supported by the number of patent applicants in the United States as compared with those in Great Britain; but upon a reduction of the fees in 1883 the applications had reached over 30,000 per annum, and Great Britain now took a foremost place in the inventive world. With regard to successful invention, the conditions should be the result of analysis or synthesis, not mere chance dashes into an unknown field. Mr. Fell pointed out the necessity of having a special court for the trial of patent actions. He had for long past been of opinion that such a court should be established, and of late the Lord Chancellor and other judges had expressed the same views. They had publicly attributed the block in the Law Courts to the increasing number of patent cases, and the inordinate time many of them occupied. The president then gave a summary of the advances made of late years in various departments of engineering. A vote of thanks was accorded to Mr. Fell.

A coroner's court and public mortuary is about to be built in the High-street, Poplar, from plans by Messrs. Lansell and Harrison, of Bow-lane, Cheap-side, selected in open competition. The style adopted is English Renaissance, to be carried out in red brickwork and stone.

Several extensive works are being carried out by the Admiralty at the Royal Naval Hospital, Plymouth. The steam laundry is being enlarged by Messrs. A. R. Lethbridge and Sons, of Plymouth; the contract has just been signed with Messrs. Tozer and Son, of Plymouth, for the erection of a block of buildings for officers close to the hospital church within the grounds; and beyond these are four infectious model blocks and pavilion. All these works are in the vicinity of the North Gate.

## COMPETITIONS.

**GUERNSEY.**—We are asked to say that Mr. J. M. Brydon did not accept the invitation to compete for the States House and Courts, Guernsey. In giving the result of this competition a fortnight since, we printed the list of architects invited, and inadvertently omitted to state that Mr. Brydon did not compete.

**HARROGATE.**—The overcrowding at the old Pump-room, Harrogate, during the past season has resulted in the Corporation inviting competitive plans for a new building and alterations to the present structure. Mr. George Corson, F.R.I.B.A., of Leeds, who was the assessor appointed by the Corporation, has made his awards as follows:—For new pump-room—(1) £50, Mr. F. Anderson, 18, Adam-street, Adelphi, W.C.; (2) £30, Mr. A. A. Gibson, Harrogate; (3) £20, Messrs. Eade and Johns, Ipswich. For an altered and enlarged building—(1) £30, Mr. F. Anderson, London; (2) £20, Mr. E. Jenkinson, Cardiff; (3) £10, Messrs. Hunt and Shield, 3, New Inn, Strand, W.C.

**PETERBOROUGH.**—In the competition for the rebuilding of the Guildhall, the city council, acting on the advice of Mr. J. C. Traylen, of Stamford, the assessor, have awarded the first premium of £20 to Mr. A. E. McEwan, A.R.I.B.A., Birmingham; the second, of £15, to Mr. Charles Bell, F.R.I.B.A., Salters Hall-court, London, E.C.; and the third, of £10, to Messrs. C. E. Malloes and G. H. Grocock, of Bedford.

**PLYMOUTH.**—With reference to the Tavistock-road competition, the assessor, Mr. Sydney R. J. Smith, F.R.I.B.A., of London, has made his award. He has given Mr. Herbert T. Buckland, architect, Birmingham, as the successful competitor. The premium was £250. There were nine competitors.

## OBITS.

The Holy Trinity Church Restoration Committee met at the town-hall, Hull, on Monday. The architect, Mr. Brodric, reported with regret that the tenders sent in for the work of restoration already amounted to £600 more than his estimate. With regard to the stonework, the committee decided to seek other tenders. The question of electric lighting was referred to a sub-committee, and it was decided to adjourn consideration of the restoration of the bells.

Two windows, designed and painted at the studio of Mr. J. W. Knowles, of Stonegate, York, have been erected in Acomb Church. One represents the Adoration of the Magi, empanelled under canopies of the Perpendicular Period. The other window represents the figure of the Virgin standing under rich canopies.

The engineers' half-yearly report on the progress of the London Central Railway to Dec. 31 states that the expenditure to date has been £2,445,076. The main line and station tunnels are completed, with the exception of 100 yards which remain to be constructed at the Bank Station. Progress has been made with the power station and depot at Shepherd's-bush, and the large buildings for the rolling stock and electrical machinery are approaching completion. At several of the station sites building operations are in progress, and the erection of the electric lifts is in hand. The materials for the permanent way are in course of delivery, and the rails are being laid down.

The members of the Metropolitan Fire Brigade are about to have cast upon them the duty of periodically inspecting all the theatres in London licensed by the Lord Chamberlain, with a view to seeing that proper arrangements are made for the prevention of fire, that the fire appliances are in good condition, and that the water-supply is adequate in case of fire. A special staff, consisting of a superintendent, foreman, and engineer, is to be appointed for the work, and the officer at present in charge of the Southwark headquarters, Mr. C. R. Couch, who is the senior foreman of the brigade, will be promoted to the superintendentship.

A monument erected in the Market-place, Horn-castle, at a cost of £500, to the memory of the late Right Hon. Edward Stanhope, M.P., was formally unveiled on Thursday in last week. The monument, which is 31ft. high, stands on a bed of concrete 14ft. square and 2ft. thick. It is built mainly of Monks' Park stone, with a superstructure of oak and gun-metal. The work was designed and selected in competition by Mr. E. H. Lingen Baker, of Hereford. The stone carving and modelling of the medallion of Mr. Stanhope in one of the panels was executed by Mr. C. J. W. Ladds, of Keele Rectory, near Spilsby. The contractors for the whole were Messrs. Walter and Hensman, of Horncastle.

## LEGAL INTELLIGENCE.

**DAMAGES FOR INTERIOR MORTAR.**—SMITH v. JOHNSON.—Mr. Justice Bruce and a jury heard in the Queen's Bench Division last week an action to recover damages for breach of contract. The plaintiff is a lodging-house keeper in Whitechapel, and the defendant is a builder and contractor. The plaintiff was building a dormitory to one of his lodging-houses, and contracted with the defendant to supply the mortar. The mortar was supplied, and the building erected. After the building had been erected, the plaintiff was served with a notice from the County Council to pull down and rebuild, on the ground that the mortar was not in accordance with the requirements of the Building Act, 1894, which requires one part of lime to three parts of grit or sand. The plaintiff pulled down and rebuilt, and sought to recover from the defendant the whole cost of pulling down and rebuilding, and also the loss of ground rent. It was proved that the mortar was defective, and the learned Judge found that it was so supplied by the defendant. The plaintiff also proved that in a wet state the inferior quality of the mortar could not be detected. Mr. McIntyre, for the defendant, argued that the damages were too remote. It could not have been in the contemplation of the parties that, if the mortar was bad, the plaintiff would have to pull down and rebuild. If the defendant supplied bad mortar, the plaintiff should have rejected it. He cited "Baldwin v. London, Chatham, and Dover Railway." Mr. Rufus Isaacs, Q.C., for the plaintiff, contended that the damages were the natural consequence of the defendant's act. The test was whether the defective quality of the mortar could have been detected before being used. He submitted that it could not, and the defendant was liable for what happened by its use. Mr. Justice Bruce held that the question was whether the plaintiff, by reasonable diligence, could have discovered the defects in the mortar before using it. He thought the evidence was that he could not when the mortar was in a wet state before being used, and the cost of pulling down and rebuilding could properly be recovered from the defendant. The plaintiff was also entitled to damages for loss of ground-rent. Judgment was given for the plaintiff for £101.

**THE STATUS OF THE ABBEY MANSIONS.**—DRURY v. RICHARD.—In the Queen's Bench Court, on Monday, Mr. Justice Lawrence and Mr. Justice Channell heard and gave judgment in a special case stated by Mr. Marsham, a Metropolitan magistrate, raising a question as to the Abbey-mansions, Victoria-street—namely, whether they were vested in and were in the occupation of a Government Department. Mr. Daldy appeared for the appellant, Edward Drury, a district surveyor under the London County Council; Mr. Avory appeared for the respondent, William Rose Rickard, builder and contractor. A complaint was made by the appellant under the London Building Act, 1894, that, in erecting Abbey-mansions, north and south blocks, Victoria-street, certain things had been done in contravention of the said Act by the respondent. The respondent was a builder employed by C. J. C. Pawley, architect, and was engaged on June 1, 1898, in erecting the south block of the building in question. It was erected to a greater height than 80ft. without the consent of the London County Council, and, if the Act applied, in contravention of section 47 of the Act. A notice of irregularity was served on the respondent, who claimed that, by reason of section 202 of the Act, the building was exempt from the operation of the Act. That section contains the following provision:—"There shall be exempt from so much of the provisions of this Act as relates to buildings and structures, . . . any building, structure, or work vested in and in the occupation of any Department of her Majesty's Government." The respondent was erecting the said building for, and under the supervision of, C. J. C. Pawley, who was acting as architect of the building, but subject to the approval of the Surveyor of the Commissioners of her Majesty's Board of Works. The agreement between Pawley and the Commissioners was made on November 19, 1897, and Pawley (therein called the landlord) agreed to grant, and the Commissioners agreed to take, a lease of a piece of land with the messuage therein described as then in course of erection "for the term of 21 years, from December 25, 1897, or so soon thereafter as the buildings should, in the opinion of the officers of her Majesty's Office of Works, be fit for occupation." No such certificate had been given by the officers of the Office of Works, and the Commissioners had now refused to take over the buildings. One of the officers of the Commissioners of Works had on several occasions during the building visited the buildings and made suggestions. The appellant contended that the buildings were in the occupation of Pawley, and not in that of any Government Department, and at any rate would not vest in the Government until the commencement of the term of 21 years mentioned in the agreement. The magistrate was of opinion that the building came within the section 202, and was, therefore, exempt. He accordingly dismissed the complaint, but stated



a case for the opinion of the Court upon the question whether the buildings were exempt. Other questions were raised before him, but their decision did not become necessary if his view was right. Mr. Daldy said that the buildings were not exempt, and the respondent should have been convicted. The magistrate thought the whole question turned upon the construction of the agreement, and did not consider the circumstances of the case, which showed that the Government were not in occupation. The Government had agreed to take a lease from a date which might not arrive at all, and had not arrived in fact yet. Therefore there was no vesting of the buildings in the Government. The premises were occupied, if by anybody, by the builder. The only evidence of occupation by the Crown was that their surveyor would occasionally visit the buildings. Under the statute there must be both vesting in and occupation by the Crown. The lessees of Crown property generally ought to be liable to the provisions of the Act. Mr. Avory said the exemption given by the Act could not apply at all if it did not apply to buildings in course of construction, because no Government department could enter into occupation until the building intended for the occupation was completed. The clause meant that if buildings were vested in Government and intended for the occupation of a Government department, they should be exempt, otherwise the section would be of no effect. That, however, was the smaller point. The building was also vested in the Government. The document was a lease in equity. The Court held that the case must go back to the magistrate to decide the other points which he had not dealt with. Mr. Justice Lawrence, after referring to the facts, said that it was impossible to say that the buildings were "vested in and in the occupation of any department of her Majesty's Government." The magistrate was therefore wrong in the view he took. Mr. Justice Channell concurred. Difficulties had been pointed out by Mr. Avory as to the occupation of Government departments in buildings that were being built for them by contractors. If, however, there was in any real sense a vesting of the buildings in Government, it would probably be held not to be very difficult to make the occupation sufficient. He could not, however, see the equitable interest here. The contract was this, that the Government would take the buildings for 21 years from December 25, 1897, or so soon thereafter as the buildings should, in the opinion of the officers of her Majesty's Office of Works, "be fit for occupation." There was, therefore, no compulsion on the Government to take the premises until the opinion of the officers that the buildings were fit for occupation had been given. Where there was an option of that description no equitable interest arose until the election had been made. No case had been cited to contradict that view. It followed that these buildings were not vested in the Government department, and the matter must therefore go back to the magistrate.

**AN ARCHITECT'S ACTION FOR FEES.**—**TYLER V. RENAD.**—Mr. Justice Bruce and a common jury heard in the Queen's Bench Division, on Monday, an action brought by Mr. Robert Emeric Tyler, F.R.I.B.A., 22, Queen-street, E.C., against Mr. Charles Renad and Mr. Frederick Renad, well-known acrobats, to recover £300 in respect of fees for preparing the plans and drawings for a theatre at Tottenham. Defendants denied liability. Plaintiff stated that on January 25, 1897, he was introduced to Mr. Frederick Renad, who informed him that he and his brother proposed to build a theatre at Tottenham, and asked whether he would act as architect. He agreed to do so, and, in accordance with instructions which he received from Mr. F. Renad, he prepared the necessary plans and drawings, which had to be submitted to the district council at Tottenham and the Middlesex County Council. The plans were passed by these authorities, quantities were taken out, and builders were invited to tender for the erection of the theatre; but eventually the scheme fell through owing to the fact that the necessary money was not forthcoming. He now contended that he was entitled to recover from the defendants his fees at the rate of 3 per cent. on the lowest tender submitted. The defendants denied that they instructed the plaintiff to prepare the plans and drawings in question, and contended that, if he prepared them at all, he did so at the request of the Albert Theatre Syndicate (Limited), which was formed for the purpose of purchasing the freehold of the Tottenham Public Hall and adjoining land, and erecting a theatre on the site. They further said that the plaintiff was a member of the syndicate, and that his remuneration was dependent on the success of the scheme. Plaintiff, in reply, said there was no ground for the suggestion that he prepared the plans and drawings on behalf of the syndicate. As a matter of fact, he did not hear anything about the syndicate until some time had elapsed. The jury found a verdict for the plaintiff, and assessed the damages at £258 13s. Judgment accordingly.

**IN RE HENRY DEE, BUILDER, OF WALTON.**—This debtor presented himself for examination at the Kingston Bankruptcy Court on Tuesday week. The

statement of affairs showed unsecured liabilities amounting to £2,825 19s. 1d. Debtor alleged that his failure had been caused through losses on contracts, speculative building, alterations and improvements to premises, bad debts, and the ill-health of his wife and himself. According to the Official Receiver's report, the debtor commenced business as a builder and contractor at Walton in 1886 with a capital of £150, in addition to which his father lent him £300. The father was now shown as an unsecured creditor for £700, and as a partly secured creditor for £300. The furniture on debtor's premises was claimed by his wife. The books produced had been imperfectly kept, and the debtor stated that some of the books were accidentally destroyed by fire about Christmas, 1897. The Registrar adjourned the examination till February 28th.

**"SCAFFOLDING" AND THE WORKMEN'S COMPENSATION ACT, 1897.**—At Marylebone County Court, his Honour Judge Sonor delivered judgment on Wednesday week in the case of "Stack v. Coulse Brothers." The applicant was injured on September 8th by the fall of a joist while he was working, and it was admitted that he was entitled to an award in his favour if the building upon which he was engaged was within the provisions of the Act. The building where the accident happened was much lower than 30ft. in height, and on its floor there were at the time of the accident two pairs of trestles with two boards resting upon them as a temporary scaffold to enable the workmen to work at the roof or ceiling, and in the basement below there were other pairs of trestles with boards resting on them for a similar purpose. To bring this case within the Workmen's Compensation Act (section 7) it must be shown that the building in which the accident occurred "was being constructed or repaired by means of a scaffolding." His Honour said, with reference to this point, he thought that the building now in course of erection was not being "constructed or repaired by means of a scaffolding," for he thought that the proper meaning of "a scaffolding"—at all events, for the present purpose—was that in which it was used by employers and workmen in their business, and by everyone in common parlance given in the "Glossary of Architecture" (5th edition), Vol. I. p. 414—viz., "a temporary erection of poles, planks (boards), &c., for the use of workmen in building walls or executing any work which they cannot otherwise reach"—which is always secured and fixed, and not a temporary erection of two pairs of trestles with boards across them, unfixed, unsecured, and movable by the workman as occasion may require. The prefix of the article appeared to him to remove all doubt from the subject, and he must add there was strong argument in favour of attaching the meaning given by the glossary to the word in the clause under consideration from its manifest restrictive intention and operation with regard to the building business. It began by first restricting such operation to buildings "30ft. in height," no doubt on account of the additional danger attending on buildings of that and greater height, and then proceeded further to restrict it to such buildings if they were "constructed or repaired by a scaffolding," no doubt also on account of the additional danger arising from the use of the same. Now, if this was to extend to every unfixed and movable erection of trestles, boards, ladders, &c., as contended on the part of the applicant, these words would be wholly nugatory, inasmuch as every building 30ft. high must be constructed by such means, at all events as to the roofs, ceilings, &c., and the words "constructed or repaired by a scaffolding" would have no effect, restrictive or otherwise, whatsoever. Again, the position of this further restriction and provision, coming immediately after and in conjunction with the restriction as to height, pointed, he thought, clearly to such "a scaffolding" as is used of necessity in the construction or repairing of buildings of that, or at all events of considerable, height. He, therefore, found for the respondents upon the second point which they had raised, and he dismissed the application.

**THE COUNTY COUNCIL STAIRCASE.**—An arbitration case of interest to owners of property in the City was heard at the Law-courts on Thursday in last week, when Mr. E. A. Gruning sat as umpire in the case of the London County Council v. the Lewis Trustees. The trustees—Mr. Louis Lewis, Mr. Edwin Spurr, Mr. George Lewis—own a large amount of property in various parts of the Metropolis, and in particular are the owners of 21, Moor-lane, which is let to a number of tenants, whose employés number about one hundred. The proceedings arose out of an order made by the Council under the Factory and Workshops Act requiring the trustees to provide the premises with a fireproof staircase, bridges to adjoining premises, new doorways, and other matters calculated to cost from £500 to £800. The trustees objected to carry out alterations on that extensive scale on the ground that they were unreasonable and not required; but, as a counter proposal, they offered to coat the existing staircase with fire-resisting paint, to provide a means of

access to the roof, to furnish movable "fire-escapes," and to undertake alterations at a cost of about £100. Mr. J. B. Slater, of 46, Berners-street, and Mr. E. Flint, of 80, Coleman-street, had been appointed arbitrators in the case, but, as they were unable to agree, reference to the umpire was necessary. Mr. Daldy, for the County Council, contended that the requirements of the Council were only such as could be reasonably required by the Factory Acts. He argued that for the purposes of the protection of life in the case of fire, old buildings—in other words, buildings erected before the Act of 1891, as were the premises in question—and new buildings were in precisely the same category. The meaning of the section was that owners should take reasonable precautions to protect the workpeople in case of fire, and not that workpeople should take a reasonable amount of risk. The Legislature never intended that the employés in an old building should be exposed to double or treble the risk that employés in a new building were exposed to. Mr. T. Blashill, superintending architect to the Council, gave evidence to the effect that the present staircase was not an adequate means of exit. If the partitions, which were now partly of glass, were filled entirely with wood and painted with a fire-resisting material, he did not think that would be a sufficient alteration, as the staircase was neither light enough nor wide enough, and would rapidly fill with smoke. He estimated the cost of the alterations referred to in the order at between £500 and £600, and would be surprised if it cost £800. Mr. Capon, chief assistant to Mr. Blashill, generally agreed with the testimony of the previous witness. Mr. Atkin, on behalf of the trustees, contended that it could not be "reasonable" to require his clients to practically rebuild their premises, which was what the order, if carried into effect, would amount to. He drew a sharp distinction between old buildings and new, and held that all that the Legislature required in the case of the former was for their owners to provide an adequate supply of what he termed "movable" fire-escapes and appliances. He asked the umpire to find that the County Council's demands were unreasonable. Mr. Richard Pearson, the inventor of several specialities for protection against fire, demonstrated the value of his paint, with which the old staircase, &c., were to be coated, and he also showed an automatic electric fire-alarm, with which the building would be fitted. Professor Vivian B. Lewis, gas inspector of the corporation, spoke of the great value of these contrivances. Mr. Gruning reserved his decision.

**ARBITRATION AS TO WHARVES AT VAUXHALL.**—Mr. Under-Sheriff Burchell and a special jury, at Red Lion-square, Holborn, heard, on Tuesday, the case of "Francis and Co., Ltd. v. the London County Council," a claim for compensation in respect of the leasehold interest in a wharf adjoining the southern end of Vauxhall Bridge, S.W., used as a distributing centre for cement manufactured at Cliffe on the Medway. Sir John Whitaker Ellis (Farebrother, Ellis, Egerton, Breach, Galsworthy, and Co.) stated that the wharf was held for a term of nearly 50 years unexpired at a ground rent of £515 per annum, and that the present rack-rental value of the property was £1,615, showing a profit rental of £1,105, which he capitalised on the 5 per cent. tables, making, with the customary addition of 10 per cent. for compulsory sale, a total for the leasehold interest of about £22,000. He was of opinion that three years' purchase of the net profit, or about £18,000 should be allowed for displacement. Mr. James Green (Weatherall and Green), Mr. Edward Holroyd Bousfield (Fox and Bousfield), and Mr. Stanning gave confirmatory evidence. On behalf of the London County Council, Mr. Edmund Farmer (Debenham, Tewson, Farmer, and Bridge-water) estimated the annual value of the wharf to the claimants as tenants carrying on business at £900 a year, from which he deducted the ground rent, £515, giving a profit rental of £385 per annum, and he capitalised that on the 6 per cent. table, 15½ years' purchase, £6,064, and added the customary 10 per cent. for compulsory sale, making £6,670 for the leasehold interest. He expressed the opinion that a round sum of £5,000 in addition would amply compensate the claimants for the disturbance of their business, and they should also receive an agreed amount of £920 for the fixtures, as valued by Mr. Fuller Smees (Bradshaw Brown and Co.). Mr. Alderman Samuel Green (Green and Sons), Mr. James F. Field (Field and Sons), past president of the Auctioneers' Institute, Mr. Barker, and Mr. Andrew Young (valuer to the London County Council) gave confirmatory valuations. The jury awarded the claimants £13,563 in respect of the leasehold interest (inclusive of the customary allowance of 10 per cent. for compulsory sale), £9,643 for the disturbance of the business, and £920 for the fixtures—a total compensation amounting to £24,126.

Mr. G. W. Willocks, on January 30th, conducted an inquiry at Herne Bay into the application of the urban district council to borrow £17,000 for the purposes of sewerage, &c.



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## Our Illustrations.

ORIGINAL DRAWING FOR A PAINTED WINDOW,  
SWISS WORK, MDXL.

SIR CHARLES ROBINSON has very kindly placed at our disposal a series of original historic drawings of decorative design selected from his exceedingly rich and varied collection, and to-day we have chosen a stained-glass cartoon by an unknown Swiss artist, the date attributed to the design being 1540. The composition is essentially typical in its architectonic character, and from the freedom of the detail it may fairly be assumed that the draughtsman contemplated executing the design himself. It is evident that the best glass must be carried out either in this way by the artist, or, at any rate, by a glass-painter who in artistic capabilities is second only to the designer. The figures in the panel herewith illustrated are both picturesque and dignified, and are drawn with a due regard to the limitations of the material. As an example of the period to which the work belongs it must be judged, and, in fact, herein lies its value. Opinions necessarily will differ as to the good taste or otherwise in the suggested perspective, which makes so conspicuous a feature in this design, while its very freedom we know to some will rank as an objection. Others, again, will question the propriety of grouping figures of differing scale. And yet, after all, it must be admitted that the design is, as a whole, very graceful and cleverly composed—a most interesting performance. Singularly unlike much of the Swiss glass, this cartoon seems to have been intended for a church, though it is just possible that the panel might have found a place in the council chamber of some Swiss town or a guildhall. There existed a happy interchange among the art guilds of the 16th century which led to gifts between friendly corporations, and these sometimes took the form of glass panels of this kind. They were, however, more generally of an heraldic nature, such as some which can be seen at South Kensington Museum, or in the Hôtel Cluny at Paris. The Rathaus at Lucerne is rich in later examples. We shall give some examples of the type just mentioned later on, and feel sure they will be appreciated by our artistic readers.

THE HOP MARKET HOTEL, WORCESTER: SELECTED DESIGN.

THE rebuilding of the Hop Market Hotel is consequent upon the proposed widening of Foregate-street by the corporation of Worcester, the width of this main thoroughfare being at the present time very limited, and with tram and

vehicular traffic is frequently congested. The Hop Market and warehouses at the rear are governed by a board of guardians, consisting of 34 members and 11 representatives of the corporation. The first board appears to have been formed about the year 1703, when a governor, deputy governor, clerk, &c., were appointed, the profits accruing from the Hop Market being divided amongst certain parishes in the city. The premises now occupied as a hop market were first erected as a general workhouse for the poor, and in the year 1712 the market, then held in the Corn Market, was removed to the said workhouse, portion of the same being utilised for the purpose of a warehouse. The hotel was subsequently erected early in the present century on the site of such warehouse. The design and plans illustrated were those selected by the board of guardians in a competition limited to local architects, and were prepared by Messrs. H. Rowe and Son. Owing to the large area of the site required as a courtyard for the transaction of business, the space left for hotel accommodation is limited, and is little more than one room deep, and it has been found necessary to utilise the basement for administrative purposes, billiard-room, stores, &c. The bar, coffee, and commercial rooms have been arranged as conveniently as circumstances would permit. There will be a limited number of private sitting-rooms and about 36 bedrooms.

PRINCESS MARY CONVALESCENT HOME, BOGNOR.

THE Convalescent Home at Bognor, in connection with the East London Hospital for Children at Shadwell, was opened in November last by Lady Maria Hood. The materials used for the walling are red bricks from Tortington, and, as the building is in a very exposed position, all the walls are built hollow, with the exception of the front portions of the upper floors, which face the sea, and which are inclosed with solid brick walls, protected by vertical Broseley tiling fastened to cobbles fixing-blocks built in with the brickwork. The roof is likewise covered with dark brindled Broseley tiles. The home is built to accommodate 20 convalescent children in the two upper dormitories, and there are two small wards on the ground floor containing four beds each for surgical cases. The building was erected by Mr. Arthur Burrell, builder, of Arundel and Littlehampton. The architects were Messrs. Cheston and Perkin, of London.

COTTAGES AT PORT SUNLIGHT.

THE two groups of cottages at Port Sunlight illustrated have been erected from the designs of Messrs. T. M. Lockwood and Sons, architects, of Chester.

CHURCH OF ST. MARY MAGDALEN, ACCRINGTON.

THIS church is in course of erection for a newly-formed parish on the outskirts of the town. In consequence of the rapidly sloping site the vestries are placed under the chancel. In conjunction with the south transept there is a morning chapel, the north passage of the latter providing a return aisle from the chancel for communicants. The external walls are faced on both sides with Halifax wallstone; the external ashlar is from the same neighbourhood, while Storeton Hill ashlar is being used for the inside dressings. It is proposed to cover the roof with thick green slates. The portion to be built in the first instance comprises the chancel, morning chapel, transepts, and two bays of the nave. Mr. James Waddington is the builder employed, not under contract; he will act also as clerk of works up to the completion of the church. The drawing is by Mr. Langham. Mr. Henry Ross is the architect.

HOUSES, PEVENSEY BAY, SUSSEX.

THESE houses are now being erected close to the sea in Pevensy Bay, near Eastbourne, for Mr. Val. C. Prinsep, R.A., who has recently acquired a considerable quantity of land in this bracing and sunny bay. The detached house with studio at back is for Mr. Prinsep's own occupation. All the houses are faced on the ground-floor with red bricks from Tunbridge Wells, and above the ground-floor with hard local stock-bricks, cemented, rough-cast, and whitened. Sea-green Westmoreland slates are to be used for the roofs. All external woodwork is to be finished a strong green. All walls are built hollow. The houses have been designed by Mr. Frank J. Brewer, F.R.I.B.A., of Richmond, Surrey, and Buckingham-street, Adelphi, London, and are being erected by Mr. Mark Hookham, builder, of Eastbourne.

SELECTED DESIGN FOR TOWN HALL, DUKINFELD, CHESHIRE.

THE site for the town hall, Dukinfield, is in King-street; the building will be set back about 80ft. from the street. The elevations are of Accrington bricks, with stone dressings. On the ground floor are the school-board offices, rates and water-works departments, the borough cashier's offices, the surveyor's department, the sanitary inspector's office, and the gas offices. On the first floor there will be the council chamber, 50ft. by 30ft., the chairman's room, the committee and law clerk's offices, the overseer's offices are also on this floor, as well as two large committee rooms. The basement will contain the fire-brigade station, ambulance station, inspector of weights and measures department, the heating chamber, &c. The architects are Messrs. John Eaton, Sons, and Cantrell, of Ashton-under Lyne, whose design was selected in open competition.

## CHIPS.

Three new sub-building inspectors are to be appointed by the Leeds Corporation.

Mr. Pittendrigh Macgillivray, sculptor, to whom a remit was made on the subject, has recommended that the proposed statue of Byron for Aberdeen should be of bronze. The cost of the figure is estimated at £1,600.

A new sessions-house is now being erected at Ely, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

The parish church, Biggin, Derbyshire, has just received an addition in the shape of a tower clock, which has been erected at the cost of Mrs. Wraith, in memory of her father. It has two dials facing north and south, and strikes the hours. Messrs. Smith and Sons, Midland Clock Works, Derby, carried out the work.

The new infectious diseases hospital, Chester, which is nearing completion, is being erected from the plans and under the supervision of Mr. H. Beswick, county architect, Chester, the builder being Mr. W. W. Freeman. The whole of the wards are being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues, Manchester grates, Shorland's patent exhaust roof ventilators and inlets.

At East Float, on the borders of Seacombe and Birkenhead, Messrs. W. Vernon and Sons opened, last week new flour mills, which will find employment for 400 men. The walls are four stories high, and built from designs by Mr. John Clarke, F.R.I.B.A., Castle-street, the milling machinery being supplied by Messrs. Simon, Limited, of Manchester. The engine-room, which is 40ft. by 35ft. and 50ft. in height, has been fitted up by Messrs. Wareing and Gillow, of Bold-street, Liverpool. The floor consists of marble mosaic, and the walls have a dado of bottle-green and teapot-brown tiles, the upper portions being treated with sgraffito in buff and Indian red worked into panels.

Operations will at once be begun in connection with the erection of a new lighthouse at Barn Ness, on the Haddingtonshire coast, near Innerwick, which has for many years been the scene of numerous wrecks. The lighthouse is to stand 100ft. high, the district being a very low-lying one, and accommodation is also to be provided for lighthouse-keepers' houses and stores. The light will be a group, flashing three flashes in quick succession every half-minute. The beam of light of each of the flashes will be 78,000 candle-power. It is also proposed at an early date to erect a lighthouse on the Bass Rock.

The ancient parish church of Kirton, near Boston, has just been restored at a cost of about £4,000. The church, up to the end of last century, was one of the finest fanes in Lincolnshire. In 1800 the parishioners pulled down the grand central tower, and rebuilt a new one at the west end. Under the restoration just completed the ancient parts of the church have been restored, and the chancel improved. Mr. C. Hodgson Fowler, F.S.A., of Durham, was the architect. The church has been reopened by the Bishop of Lincoln.

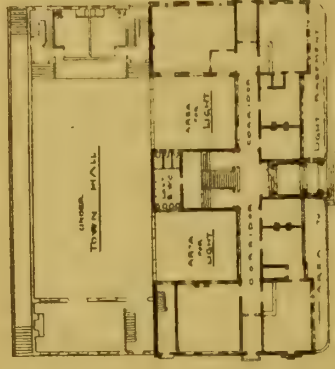
Within a few months the colossal statue of Ferdinand de Lesseps, by Frémier, will be cast. Nearly 22ft. in height, it will stand on a pedestal 36ft. high, decorated with the portraits of the four Khedives who helped the engineer in his great work. This new colossus will be set up at the entrance of the Suez Canal.

The expenditure of the Great Northern Railway Company for the year on proposed new works includes £390,500 for widenings and improvements at Peterborough; £21,000 for widening bridges at Grantham; and £5,300 for a bridge over the River Welland at Deeping.

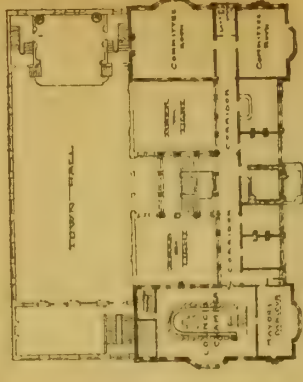


MUNICIPAL OFFICES  
AND  
TOWN HALL  
FOR  
DUKINFIELD  
CHESHIRE

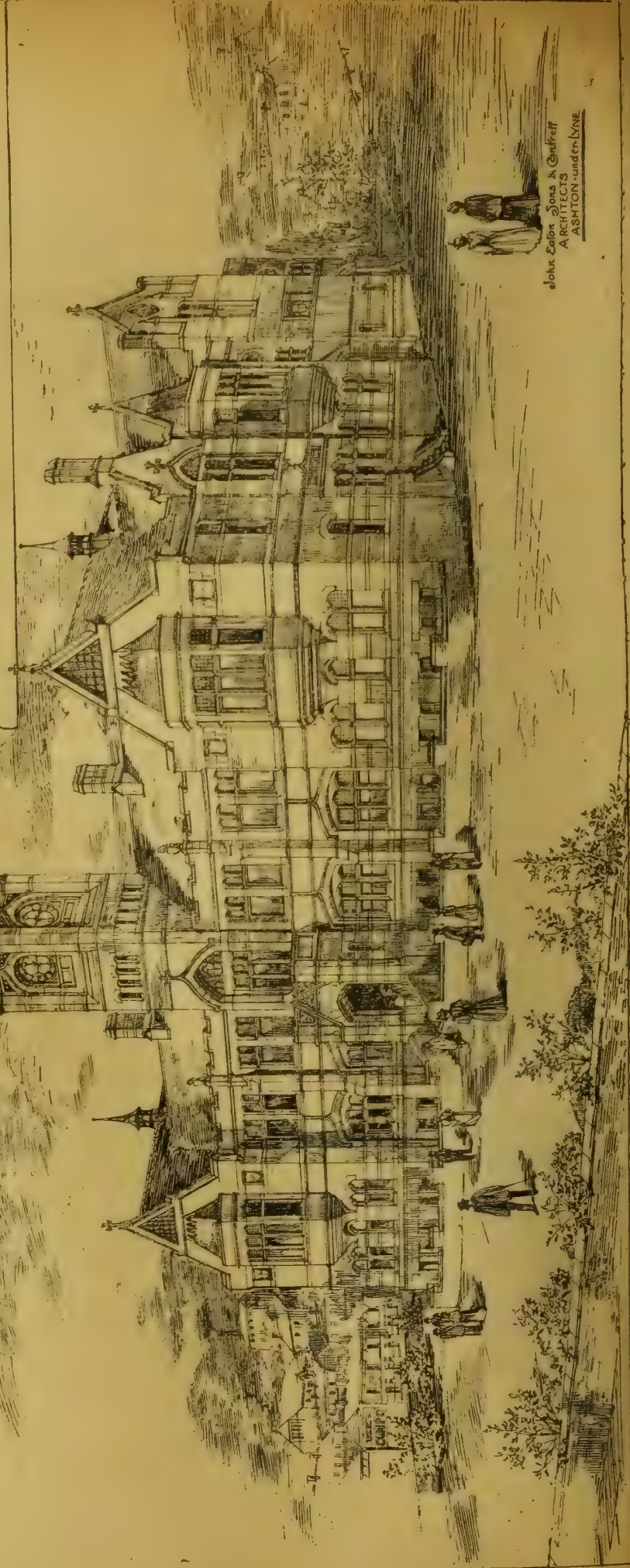
SKETCH PLANS OF THE  
TWO PRINCIPAL FLOORS



GROUND PLAN



UPPER FLOOR PLAN

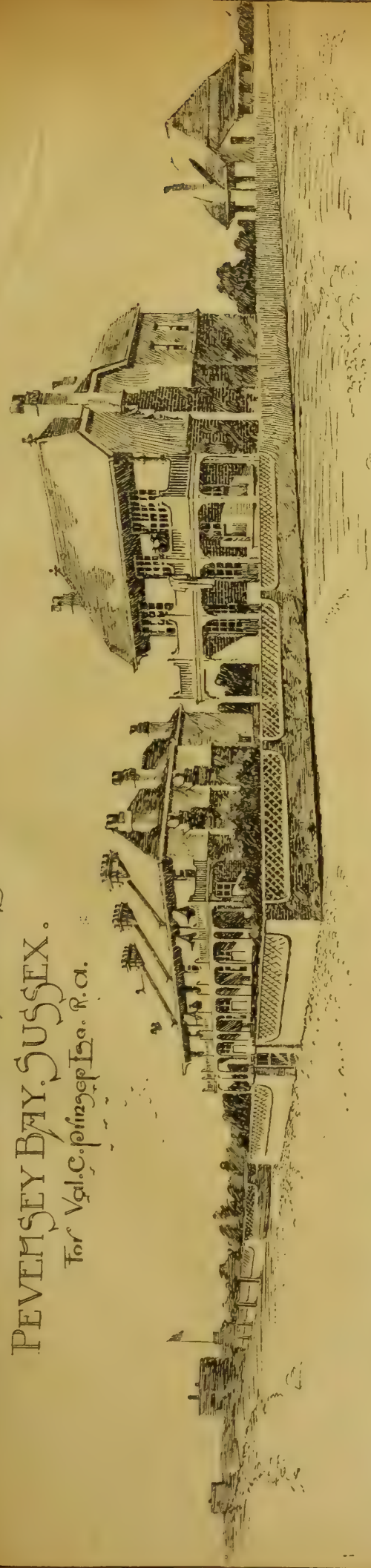


John Eaton, Jones & Gifford  
ARCHITECTS  
ASHTON-UNDER-LYNE

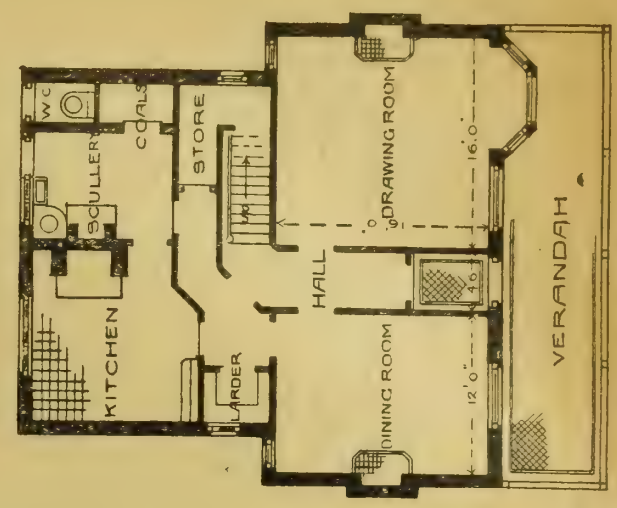
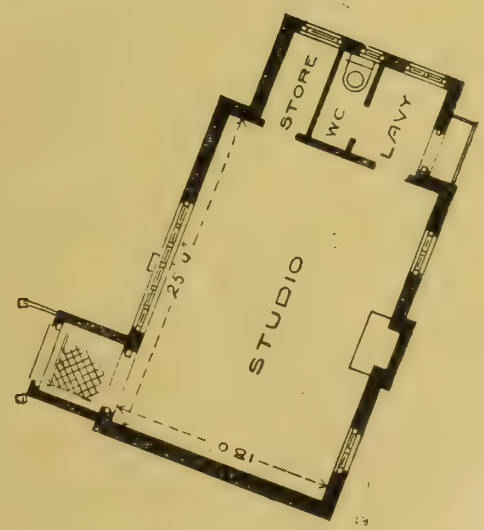
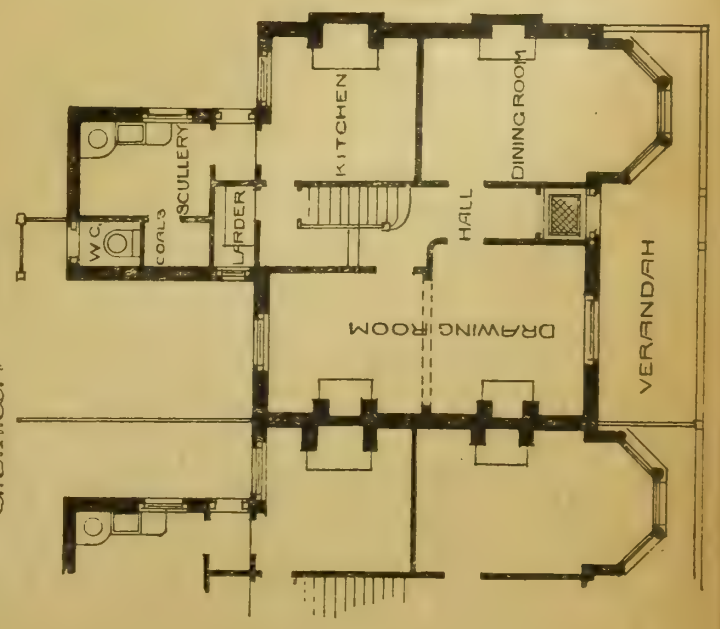


# HOUSE, STUDIO, & BUNGALOWS. PEVENSEY BAY, SUSSEX.

For Val. C. Pinner Esq. R.A.



For K. J. Brewer F.R.B.A.  
Architect.





## PROFESSIONAL AND TRADE SOCIETIES.

**BORDER COUNTIES MASTER PAINTERS' ASSOCIATION.**—The annual apprentices' competition and exhibition under the auspices of the Border Counties Master Painters' Association was held in the Burns Hall, Galashiels, on Saturday. The competition was conducted on entirely new lines, the competitors being put to a thorough test of their merits in the hall under the superintendence of Mr. Brown, Dundee, president of the Master Painters' Association of Scotland, and were divided into three grades, the first being for fifth and sixth year, the second for third and fourth year, and the third for first and second year apprentices. The theoretical test was first applied, after which the practical work was carried through, the tests being oak graining, plain, raised, and shaded letters, two hours being allowed for each subject. The awards for practical work were:—Letters: First Grade—1, Adam Armstrong, Galashiels; 2, E. Vannan, Galashiels. Second Grade—1, J. Hill, Hawick; 2, J. Mackinson, Galashiels. Third Grade—1, Gilbert Tait, Galashiels; 2, Andrew Gardiner, Hawick. Oak Graining: First Grade—1, Adam Armstrong; 2, J. Black; 3, R. Reavely; 4, Ebenezer Vannan, all of Galashiels. Second Grade—1, J. Hill, Hawick; 2, Wallace Anderson, Galashiels; 3, W. Lindsay, Galashiels; 4, A. T. Leslie, Selkirk. The work was on exhibition, together with the "prize panels" awarded at the national competition at Dundee last month, in the Burns Hall during the afternoon and evening. The annual business meeting of the association was held in the Douglas Hotel, Mr. T. C. Russel, Kelso, presiding. Ex-Bailie Laidlaw, Hawick, secretary of the association, read a satisfactory report. Office-bearers were elected for the ensuing year as follows:—President, Mr. H. M. Tait, Galashiels; vice-president, Mr. J. M. Bell, Galashiels; secretary and treasurer, ex-Bailie Laidlaw, Hawick. The next annual meeting and competition was fixed to be held at Galashiels.

**DUNDEE INSTITUTE OF ARCHITECTURE.**—"The Graphic Solutions of Problems in Architectural Dynamics" was the subject of a lecture delivered by Mr. John Y. Gray at this institute last week. Mr. J. J. Henderson presided. Mr. Gray said his purpose was to discuss certain frequently recurring problems of dynamics, and to show the solutions of these problems for architects. There was a feeling amongst young architects that they did not require such knowledge—that questions of mechanics might be left to the engineer. But the architect and the engineer were coming into close contact, so that a wider knowledge of the properties of materials was demanded of all who entered the architect's profession. Ignorance of such fundamental knowledge had in the past led to the erection of many hideous structures, and in many cases strength and stability, which could have been got by a skilful arrangement of the parts, had been supplied by massiveness and a lavish expenditure of material and labour. Every design of the architect was geometrical in its conception, and the structures were geometric forms. They could thus see at a glance how intimate the relations must be between statics and geometry, and geometry and architecture. There was no application of geometry that had proved more useful than its application to the problems of architecture. In all the structures of the engineer and architect the lines of force action might or might not be apparent; but they were in the structure, all the same. It was a problem of statics to show how these various lines of force could be located, and thus to present to the eye of the student a picture of the various forces that were brought to bear on the structure. The power to draw stress diagrams and interpret them might not confer the power of designing structures, but it would give help to those who would otherwise be helpless. It would help them to determine the effect of the slightest modification in the form of any structure, and enable them to compare the relative advantages of any two designs from the dynamical or stress point of view. Mr. Gray exhibited a number of drawings of roofs and bridges, and showed how the stress action could be worked out graphically.

**EDINBURGH ARCHITECTURAL SOCIETY.**—The opening lecture in connection with this society took place on the 1st inst. Mr. A. Lorne Campbell, the president, who occupied the chair, referred to the success of several of the members of the society in the recent competitions of the Royal Institute of British Architects, where no

fewer than four awards fell to the members of the society in open competition. These included the Pugin Scholarship to Mr. J. Hervey Rutherford, the Soane Medallion to Mr. W. A. Mellon, the Owen Jones travelling studentship to Mr. J. T. Stewart, and the third place in the Pugin competition to Mr. Ramsay Traquair. Mr. Forbes then delivered a lecture upon the "Abbeys in the Stewartry of Kirkcudbright," which was profusely illustrated by lime-light views.

**LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.**—A lecture on "British Plaster Work: its Past and Future," was delivered by Mr. G. P. Bankart, of Leicester, before this society on Monday evening. The lecturer said that plaster work was an art-craft of very ancient origin. In the 15th century, after having apparently lapsed, it came into practice again. Lime of best quality was chopped up, beaten with stick again, and subjected to three courses of preparation, ending with an admixture of marble dust to get the hardness and whiteness of the original stucco duro. The application of this was so far successful as to be greatly favoured by the Venetians and Mantuans, from which the practice was handed on, via France, to England, whose monarch (Henry VIII.) imported workmen for the adornment of his house of "Nonsuch," now lost to sight. The Italian art thus introduced into this country soon gave way to a coarser style of work. In the place of figure drawing, an arrangement of panels appeared, with patterns of small area that would repeat with ease. The Fish Room at Audley End was a capital example of this Early English school. Subsequently the size of the subdivisions expanded, until it became the habit to divide ceilings into quarters. This ultimately led to the abandonment of the strict geometrical system. In executing the type of plaster work seen at Holyrood and other places, the design was drawn upon the ceiling, the stems and leaves employed being modelled *in situ*, with the details added as required. A company of gentlemen modellers was formed, who did much to preserve the best traditions of the art, which about the time of the Restoration acquired a new vitality. Later on, the art again declined, texture was lost, and instead of showing individual feeling, plaster craftsmen came to resemble so much machinery made for working purposes. Mr. Bankart's lecture was illustrated by a great variety of photographs and limelight pictures that testified to an early excellence in the art of plaster work that is apparently beyond the reach of to-day.

**SANITARY INSPECTORS' ASSOCIATION.**—The members of this Association held their sixteenth annual dinner at the Holborn Restaurant on Friday night. Sir John Hutton, in proposing the toast of the evening, "The Sanitary Inspectors' Association," said that, as to the status of sanitary inspectors, they had time out of mind recorded the fact that their appointments were of too precarious a nature to give confidence and comfort. At present a sanitary inspector was appointed for a single year only, and if he did his duty it was very likely he would soon be dismissed. There were cases on record in which the want of fixity of tenure had demoralised sanitary inspectors. They must educate the public until they brought about an alteration in that respect. In regard to remuneration, too, an improvement was necessary. It was absurd to think that an inspector could be properly remunerated by a pittance of £75 to £100 a year. A commencing salary of £150, rising by annual increments to £250, would be only a reasonable payment. Sanitary inspectors were the sanitary police, and as such they could not be bribed, and were worthy of their hire. Mr. T. J. Moss Flower, chairman of the council, having responded, the chairman presented, on behalf of the members, an illuminated address and timepiece to Mr. T. E. Dee in recognition of his occupancy of the chairmanship of the council during 1897-98; and an illuminated address and a handsome silver tea and coffee set to Mr. Edward Tidman, hon. secretary.

**YORK ARCHITECTURAL SOCIETY.**—The members of this society held their annual dinner at the White Swan Hotel, Pavement, York, on the night of the 28th ult. The chair was occupied by Mr. George Benson, A.R.I.B.A., President, and the vice-chairs by Mr. J. T. Pegge and Mr. A. W. Turner. Mr. A. B. Burleigh, hon. sec., proposed "The Royal Institute of British Architects and their Allied Centres." Mr. G. B. Bulmer, past president, in acknowledging the toast, alluded to the importance and the utility of the Royal Institute of Architects, and remarked

that those who had learned and studied their work properly should be protected from pirates and poachers. Mr. Councillor T. H. Storey gave "The York Architectural Society." The president, in responding, said the society had never been in such a strong or flourishing condition as it was at the present time, and it had a great future before it. Mr. W. Hepper proposed the concluding toast, "The Corporation of York, and Prosperity to the City." Mr. Councillor Proctor responded.

## CHIPS.

The Manhattan Elevated Railroad Company, New York, has decided to use electricity as its motive power, and to issue 18 million dollars more stock for the purpose.

The King's Norton Board of Guardians have decided to erect tramp wards on the solitary cellular principle, providing accommodation for 24 males and 12 females, at an estimated cost of £4,800, on a site facing Oak Tree-lane, Sally Oak.

In accordance with instructions from the town council, Messrs. Kincaid, Waller, and Manville, electricians, of 29, Great George-street, Westminster, have drawn up a scheme for establishing electric-lighting works in combination with a dust destructor at Maidstone. The scheme is divided into two sections, the first dealing with the system best adapted for the supply of electric energy and the combustion of house refuse, and the second with the financial aspect of the undertaking. The capital outlay is estimated at £36,350.

A two-light stained-glass window has been erected in Park Church, Glasgow, by Messrs. Stephen, Adam, and Son, of that city, as a memorial. The figures represent Abraham and Jacob.

The pecuniary loss by the destruction by fire of St. James's Episcopal Cathedral, Kingston, Ont., at the beginning of the year, is estimated at £15,000, of which only £5,000 is covered by insurance, while there was a debt of £6,000 on the old fabric. The walls can be utilised in the rebuilding, but many interesting historical relics have been destroyed.

The corporation of Croydon agreed, on Monday, to acquire 35 acres of Croyhamurst, at a cost of £1,000, subject to the approbation of the Charity Commissioners. This is about one-half of the estate at the disposal of the Whitgift Governors. In the event of the proposal being agreed to, a further £3,500 will be laid out in fencing, lodge-house, &c., but the acquisition of the whole of the Hurst, as is being advocated, will remain in abeyance.

The London County Council have given their consent to the formation of a new street, 50 ft. wide, and nearly a quarter of a mile long, starting close to St. Paul's Schools at West Kensington, and terminating opposite the house of the late Sir E. Burne-Jones. The street will be known as Fitz-George-avenue, and will be occupied on both sides of its entire length by blocks of residential flats. The contract is being carried out by Mr. Henry Lovatt, from the designs of Mr. Delissa Joseph, F.R.I.B.A.

The thorough restoration of the parish church of Halling, Mid Kent, has just been completed at a cost of £2,500. The work has extended over 11 years, and has been carried out under the direction of Mr. Hubert Bensted, of Maidstone, architect. North and south aisles were added in 1888; in the following year a porch was erected, while in 1892 an organ-chamber and vestry were added. Last year the tower was taken in hand. The north-west buttress has been rebuilt to correspond with that at the south-west angle, as has also the parapet, leaving the steep pyramidal roof rising from within it. A lych-gate is still to be erected, and the dedication of this gift will take place on Easter Sunday.

The city council of Winchester have decided to invite competitive plans from selected architects for public baths, to be built at a cost of £6,000 or £7,000.

On Friday a meeting of the subscribers to the enlargement scheme in connection with St. Andrew's Church, Watford, was held to decide what work should be carried out, the tenders obtained from builders having exceeded the original estimates. Mr. W. Wallis Baldwin, the architect, attended, and submitted revised plans. Canon Beith said that some months ago they advertised for tenders, and received six, four being from local builders—Messrs. Andrews, Brightman, Waterman, and Turner and Son, the other two being from Rugby and Chesham builders respectively. The result was that Mr. Brightman's was the lowest tender; it was for £4,528. The original estimate was for £2,500. The difference was accounted for by the rise in building materials, provision of oak stalls, and additional seats. It was decided to communicate with the subscribers.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of eight words, the first line counting as two, the minimum charge being 5s. for four lines.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LIX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—I. M. O.—T. P.—S. T. G. and Son.—S. W.—W. K. L. (Bromley).—R. N. C. and Co.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Tokio," "Casual," "Arc," "McGalligan," "Espoir," "Angler," "Swan," "Cantab," "Notta," "Butts," "Scruton," "Grip," "Quadrant," "Thistle," "First Attempt," "Pup," "Astragal," "Philomel," "Sphinx," "Quercus," "The Old Firm," "Balbus," "Claude," "Vulcan."

## Correspondence.

## WALSOKEN CHURCH.

To the Editor of the BUILDING NEWS

SIR,—I am afraid my anxiety to represent the quaint character of the Gothic lettering on the Walsoken font only led to the mystifying of the compositors. Perhaps you could find room for the correct inscription, which runs as follows:—

ANNO. DNI. MILL. QUIG. INTE. QUA.  
DEGE. QRTO.

Each word, or portion of a word, occurring between shields on which are the Implements of the Passion. The inscription on the stem when extended reads:—"Remember ye souls of S. Honiter and Margaret his wife, and John Beforth Chaplain."—I am, &c.,

A. NEDHAM WILSON, A.R.I.B.A.

Marlborough, Feb. 4.

## THE KENSINGTON VESTRY AND DISTRICT SURVEYORS.

SIR,—Not having an opportunity on Thursday last at the Surveyors' Institution of speaking to Mr. Weaver's paper, I may perhaps be allowed in the pages of your journal to make one or two observations upon it.

It is generally considered necessary when you propose doing away with a long-established system to first of all show its defects, and secondly to show the merits of that which you propose to substitute. Mr. Weaver, I consider, has done neither.

The offices of district surveyor and parish surveyor exist for the benefit of the public, and not for the benefit of either official. The public do not care twopence whether the changes you propose making "raise the status of the official" or dignify the position of the chairman or the vestry by giving him a gold chain and calling him mayor. They will ask, and rightly ask, Is the work to be better done, and are we going to get more for our money?

Mr. Weaver has endeavoured to show by innuendo and insinuation that district surveyors are not above suspicion. Taking it upon his own ground, what defects and breaches of the law has he shown? None except from his own side of the house when he states that "unauthorised alterations to drains are sometimes made," and these in spite of the whole army of sanitary inspectors under his control. Therefore, what is going to happen when the control of building is under the vestry?

I had the honour to be district surveyor for a portion of the parish of Kensington from 1885 to 1891, and during the whole of that time I may have seen Mr. Weaver half a dozen times, and I venture to say I knew as much about Mr. Weaver's duties as he did about mine, and that was nothing, and yet Mr. Weaver comes forward as the champion of the vestries against district surveyors, of whose duties he must necessarily be ignorant, and suggests that his proposals are in the public interest.

The difference between a district surveyor and parish surveyor, with advantage to the former, is: one acts under orders and the other acts on his own initiative. There is a good deal in the paper about I was ordered by my board to do this and that, and one is tempted to ask the question whether the whole paper is not the result of an order of the board, and judging by the large contingent of Kensington vestrymen who turned up at the paper, and told us their age and how long they had been members, and what a nice place Kensington was, one would almost have thought that it was a small party of Kensington vestrymen having an evening out at the Surveyors' Institution.

This question is one for the building public, and not for vestrymen. Under the present system a builder has to give notice to the district surveyor, and two days afterwards he can start with his work, and the district surveyor keeps a watchful eye upon it to see the building rules are observed.

Under the new system nothing can be done till plans are submitted and approved. This means first going before a committee, where the plans are handed round the table, most of the members looking at them upside down. A report of the surveyor is required, the plans have to go back to the committee, then before the full board, and when they arrive there a particular breezy time may happen over some minor detail of the board, and the whole report may be shunted till the next meeting, causing delay to the builder and building owner, which also means loss of money.

This is a matter in which professional men, architects, and surveyors will want a word. Architects and surveyors in the provinces are groaning under this intolerable system of submitting plans, and desire to be under some such system as prevails in London, and were London to adopt the provincial system it would mean retrogression.

District surveyors have to thank Mr. Weaver for the patronising care he states in his paper he has taken to safeguard their interests in view of the proposed change. I can assure him that while we fully appreciate it, we are quite capable of taking care of ourselves and looking after our own interest, and if he had taken as much pains to have collected a few facts instead of opinions, the paper would never have been written at all.

In conclusion, glorify your parish surveyor into a full-blown borough engineer if you will; glorify your chairman of vestry into a lord mayor with a gold chain; but leave your district surveyors in the position in which Parliament has placed them, and which it has again and again confirmed, that they may carry out their duties in the future as they have done in the past, without fear or favour.—I am, &c.,

244, Camberwell-road, ELLIS MARSLAND.

## MODEL SPECIFICATIONS—COPPER ELECTRO-GLAZING.

SIR,—May we call attention to the "Model Specifications.—L." of Feb. 3, and invite investigation into the merits of copper electro-glazing to supersede leaded glazing for door-panels, casement lights, and leaded lights to shop-fronts?

Sections 4, 7, 8, 9, 10, 12, 13, and 14 can all be supplied with the products of the British Luxfer Prism Syndicate in a manner indisputably acceptable as regards workmanship and efficiency. Copper electro-glazing needs no saddle-bars. Plates thus welded are immensely strong, and will resist even fire. If the upper sashes of office windows are glazed with Luxfer prismatic window glass, and the lower sashes with British plate copper electro-glazed, you will have greatly increased daylight as well as a fireproof window.

May we ask that you correct section 13, mentioning the British Luxfer Prism Syndicate's lights instead of our agents, Hayward Bros. and Eckstein?—We are, &c.,

THE BRITISH LUXFER PRISM SYNDICATE, LTD.

## CHIPS.

The Passmore Edwards Public Library, in Borough-road, Southwark, was opened on Wednesday by Mr. J. Bryce, M.P. Mr. A. Hawkins, the chairman of the Library Commissioners, who presided, mentioned that Mr. J. Passmore Edwards had contributed £5,000 towards the cost. The architects were the late Mr. C. J. Phipps and Mr. A. Blomfield Jackson, of Mecklenburg-square, W.C., and the builders, Messrs. J. Smith and Sons, Norwood Junction. We illustrated the building in our issue of December 3, 1897.

The parochial committee of Chipping Sodbury have asked Mr. W. L. Le Maitre to give his opinion on the bacteria system, to be carried out on the lines suggested by Mr. J. D. B. Trenfield.

Branch Stores, under the control of the Winnington Co-operative Society, were opened at Barnton, near Northwich, on Saturday. The buildings have been erected by Mr. Thomas Leicester, builder, of Witton-street, Northwich, from designs by Mr. Wm. Munford, architect, of 33, Guildhall, Preston, and Mr. W. I. Dalzell, of Winnington, has been clerk of works.

A new Palace of Varieties is to be erected on the site of the existing Theatre Royal, at Kilburn, and the adjoining properties. The building will be without columns, and an uninterrupted view of the stage will be given from all parts of the auditorium, and will accommodate 1,500. The style adopted by the architects, Messrs. Palgrave and Co., Victoria-street, S.W., is a free rendering of French renaissance, while the exterior principal front will be in glazed terracotta faience work, by Burmanofsky, Ltd. The estimated cost is about £30,000, apart from the various properties to be acquired. It is expected the new building will be ready for opening in the late autumn. Messrs. Wyllson and Long are acting as consulting architects.

Mr. Walter A. Ducat, an inspector of the Local Government Board, held an inquiry at Salcombe Regis, on Friday, concerning the application of the rural district council of Honiton for sanction to borrow the sum of £1,300 for works of sewerage at Salcombe Regis, and for the connection of sewers in that parish with the sewers of the urban district council of Sidmouth.

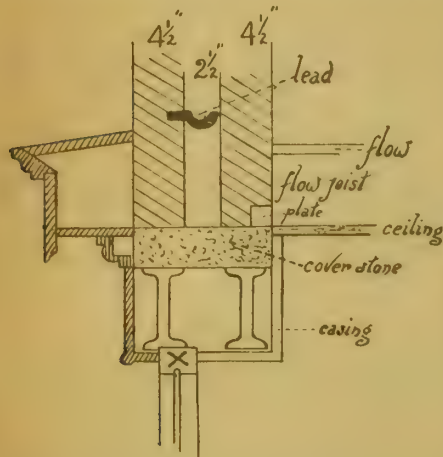
Messrs. Fambrini and Daniels, architectural concrete workers, Lincoln, have just completed jobs in London, Guildford, and Fenton, and have now in hand contracts for their material for the Coach and Horses Hotel, St. John's-square, London; fireproof arcading, comprising upwards of one hundred arches, with perforated spandrels and dados, and modelled and panelled pillars, moulded rails, &c., for Messrs. Walsh's drapery establishment, Sheffield; residences, Ramsey and Grimsby; warehouses for Messrs. Heelas and Co., Ltd., Reading; and the Head Quarters, St. Mary's Butts, also in Reading, from designs by the same architect, Mr. Fred W. Albury, of the same town. The front of the last-mentioned building is entirely in Messrs. Fambrini and Daniels' coloured concrete; the string-courses, cornices, bay windows, &c., being in buff, and the heavily-moulded bases, corbels, and arch in bluish-grey concrete. The pilasters and remainder of the front and chimney-stacks are in red concrete-bonded facing blocks. Some of the pilasters are 2ft. 4in. by 2ft. in solid concrete, and the grey double-moulded arch one solid piece, and weighing, with arched angle irons imbedded, nearly two tons. To cope with their increasing trade, this firm are again extending their works, and are now building shops to enable about 400 superficial feet of additional benches to be laid down, together with improved appliances for lifting heavy weights, by means of flush-rings imbedded without injury to moulded surfaces.



# Intercommunication.

## QUESTIONS.

[12176.]-**Wet Over Shop.**-Can any reader say what is best to be done to stop wet coming in over shop-front under the following circumstances?—The wall above shop-front is 11in. hollow, and the front is constructed as sketch. The wet drives through outer 4in.



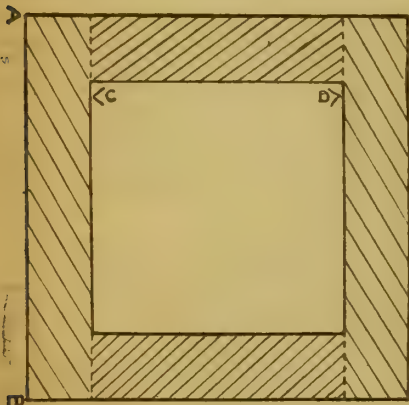
wall, and runs down on the inside of hollow. There is lead put to intercept it in the usual way, but it fails to answer the purpose, as wet drops into the shop in large quantities!—**PUZZLED.**

[12177.]-**Area of Brick Piers.**-Will some reader kindly inform me of a simple rule for calculating the area of brick piers in factories, &c., according to the weight per ton? The bricks to be Leicestershire, laid in mortar.—**J. W. S.**

[12178.]-**Damp.**-Can anyone tell me of an effective and invisible solution for prevention of damp in an old brick wall, and the approximate cost per yard?—**J. W. S.**

[12179.]-**Flooring.**-I notice in a building just erected in this district, that the floors are made of 6in. planks on edge, laid across the main beams without cross supports, and nailed one to another through the sides. The owners of the property state that the insurance premium has been reduced considerably owing to this, as it is practically indestructible by fire. The cost is very little over the ordinary method, and makes a firmer support for the heavy finishing machinery that is used, lessening the vibration, which entails great wear on the running parts. They estimate that the saving, apart from the reduction in premium, will be considerable. Could any of your readers give their opinion on this?—**F. W. SHAW, Hebden Bridge.**

[12180.]-**Brickwork.**-In measuring labour to brickwork, is it not correct to measure two of the outside walls from A to B, and then take the return and cross



walls from C to D? And is not all rough cutting included in the price per rod?—**INQUIRER.**

[12181.]-**Gas-Fires: Are They Healthful?**-Will someone who knows tell me which is the best kind of fire and burner to use? Also, whether a gas-fire is healthful or not? Many people I know have discarded them for the coal-fire. Are those which are made to project in a stove with pipe to carry off the products of combustion or fumes, better than the ordinary grate filled with asbestos? Is there any saving in cost of fuel?—**IN DOUBT.**

[12182.]-**Preserving Wood.**-Which is the best means of preserving wood? And, can it be applied to bond timber wallpapers, wood bricks, joists, &c., without much trouble or cost?—**J. J. S.**

[12183.]-**Painting Plaster Walls.**-The walls of a stuccoed house facing south are continually damp, and the inside papering is spoilt in places. Can any reader recommend an inexpensive cure? Will a coat or two of oil paint be desirable? or, are the walls too damp for painting? Answer will oblige.—**A. B.**

[12184.]-**Foundations.**-Describe the circumstances

under which risks of accidents may arise due to interference with foundations after they have been put in? What manifestations in a building could lead one to infer that such interference was going on? I also wish to know of a good book dealing with the construction of large buildings near the river Thames, and also some particulars as to the soil and tides, with the latest and most general way of dealing with such sites.—**STUDENT.**

## REPLIES.

[12157.]-**Baths.**-In further reply to "Amateur Builder," I am of opinion that neither enamelled copper nor porcelain baths can claim many advantages over the other as regards cleanliness, and I do not think, provided you have a good quality copper bath, that any trouble will be experienced in the enamel chipping off. Of course, this is assuming the bath is subjected to fair wear and tear only.—**TREBLA.**

[12157.]-**Baths.**-Enamelled copper baths are as clean as any, and are cheaper than porcelain ones. The enamel wears off in time, but a good bath should stand a lot of use.—**LOUIS ERWOLD.**

[12167.]-**Monkey-Puzzle Tree.**-The Chili pine or Araucaria imbricata, grown here for its ornamental character. There is one at Dropmore, 70ft. high. It prefers light soil and with plenty of air, but suffers from a temperature of five or more degrees of frost. The wood is hard in its native country, and probably convertible into timber for many purposes; but whether so when grown here has to be proved. Dr. Brown, in the *Forrester* (1894), has two or three pages on it, but leaves its economic use for further data. A timber expert might approximate its value.—**REGENT'S PARK.**

[12167.]-**Monkey-Puzzle Tree.**-The wood can be used for cabinet-making purposes, but its worth can only be told on inspection.—**LOUIS ERWOLD.**

[12168.]-**Vestry Authority.**-Procure a copy of the by-laws relating to buildings, and you will then see how far the vestry have control over your buildings.—**L. E.**

[12168.]-**Vestry Authority.**-Yes; the vestry have power to order you to produce plans as regards drainage. The powers given to the vestries and district boards of London are conferred by the Metropolitan Local Management Act, 1855, and as regards sanitary matters, by the Public Health (London) Act, 1891, &c. These powers enable vestries to inspect and examine, in the case of new houses, &c., as to underground rooms, closets, water supply, to abate nuisances, &c.—**SANITARY.**

[12169.]-**Boundary Fences.**-I have no doubt the owner of the field has a right of ownership over the fence in question. "Indignant" can only protest, but I do not think he can prevent the owner raising his fence. If the posts and rails were on the side of the tenant, it is certain that he was the owner, and he can raise his fence to protect his land.—**G. H. G.**

[12171.]-**Shoring Buildings.**-A chapter on shoring buildings is given in Mr. Mitchell's "Advanced Course of Building Construction"; it is also referred to in your "Notes on Building Construction." There is also a small treatise published by C. H. Stock on "Shoring and Underpinning."—**G. H. G.**

[12171.]-**Shoring Buildings.**- "Shoring and Underpinning," by Stocks, is the best work on the subject. It is published by Batsford, 94, High Holborn.—**L. E.**

[12172.]-**Wood-Block Flooring.**-These are laid on mastic, which securely holds the blocks down. The only preventive against shrinkage is to have thoroughly seasoned wood.—**L. E.**

[12172.]-**Wood-Block Floor.**-In a very extensive experience I have found Ebner's patent hydrofuge system the best, the blocks being securely keyed into the foundation, as well as to each other, by means of iron channels and hard-setting asphalt; there is, therefore, no chance of the blocks springing, warping, or twisting out of a true surface.—**ARCHITECT.**

[12174.]-**Casement Fixing.**-Lugs are generally made in the frames of casement. These are built into the brickwork. For stone mullions and jambs, the frames are screwed to dovetailed blocks of wood.—**ALPHA.**

[12175.]-**Right of Light to Rebuild Premises.**-Particular windows in a dominant tenement, if rebuilt, must be in the same position or place as those of the old building. (See the case of "Tapling v. Jones") If in the rebuilt premises the windows are not in the same place, the servant tenant might raise an obstruction and obscure the light. Clear evidence must be given, if required, of the similarity of position of the old and new windows, hence it is necessary that before an old building with ancient lights is pulled down, the owner should have measured elevations made, showing the position and size of the windows, so that they may be rebuilt in the same position (see "Fowler v. Walker"). Of course it is necessary that "Q. E. D." has an acquired right to the light, and that he rebuilt before the transpiration of twenty years, and the right may be prevented by the owner of servant tenement raising an erection to obstruct light before it has been enjoyed for that period.—**G. H. G.**

A portrait of the Bishop of Exeter, painted by Mr. Cope, A.R.A., has been presented to him by friends. The portrait will hang as an heirloom in the palace, beside that of his predecessor, the present Archbishop of Canterbury. A replica is also to be given to Mrs. Bickersteth.

In the parish church of Coddesham, Suffolk, there has been dedicated a new reredos, carved in oak with panels in high relief. The subjects represented are—on the left the three Marys at the tomb, and on the right the descent of our Blessed Lord from the Cross. Iron cranes with curtains hanging therefrom are fixed on either side. Messrs. Percy Bacon, of Newman-street, W., are the architects.

## STATUES, MEMORIALS, &c.

**FORFAR.**—The statue which has been erected to the memory of Provost Reid in Castle-street, Forfar, was unveiled on Saturday. The statue, which faces Corporation Chambers, stands 13ft. high. The pedestal is of granite, 8ft. in height, and the figure, which shows the late provost seated in a chair, is life and a quarter in size. The sculptor is Mr. George Webster, Edinburgh. The bronze was cast by Messrs. J. W. Singer and Son, Frome. The statue was set up by Mr. James Maclean, builder, of Forfar, under the direction of Mr. Webster.

## WATER SUPPLY AND SANITARY MATTERS.

**TEIGNMOUTH.**—The waterworks were opened on Tuesday, after extensive alterations and improvements. Hitherto the town has been dependant on Mylor Wells without the assistance of an efficient storage reservoir. A scheme has been formulated by the surveyor to the Urban District Council (Mr. Chris. Jones), and has now been completed. The works comprised the covering in of the Hazeldown and Landacre reservoirs, with the reconstruction of the former, and the laying of new mains, &c., with Deacon's waste water system. The most important of these works is that of Hazeldown reservoir, which, not being watertight, has been unused for thirty years. Covering 1/2-acre of ground, this reservoir has been rebuilt and covered at a cost of £6,815, the contractor being Mr. A. H. Slocombe, of Teignmouth, the Landacre reservoir having been covered in by Mr. J. Fisher, of Plymouth, at an expenditure of £782, or a saving of £113. Other contracts are with Mr. W. J. Burden, £525 10s., and Messrs. Hawkins and Best, £140 10s. The new storage reservoirs, capable of containing 2,600,000 gallons, provide for a month's consumption in case of failure at the wells. The water is obtained in the first place by pumping at Mylor Wells. It has to be lifted 400ft. for half a mile to Hazeldown, which supplies the higher levels. In the construction of the reservoirs, bricks are laid on the clay, with concrete above, and concrete walls and roof, supported by fifty iron columns. The wells are supplemented by the Haldon springs and the Coombe brook.

## CHIPS.

We understand that the permanent additions now being made to the Nottingham City Asylum, Mapperley, are being warmed and ventilated on the Ashwell-Nesbit system.

The sales at the Tokenhouse-yard Mart during the past week were unimportant in character and the supply short. Property, however, sold well, and the demand was keen. The properties on offer during the week were only of the ordinary type or small ground-rents, the majority of which found purchasers, the total being £50,587, or over £17,000 increase on the corresponding week in last year, when £33,478 was recorded.

In the case of the application of David Miles, of Bexhill, builder, the order of discharge from bankruptcy has been suspended for one month ended Feb. 9.

The first rod of a new parcels office for Plymouth was cut last week. The site adjoins North-road station, facing St. Michael's terrace, and the building, which will be triangular, will be erected by Messrs. A. R. Lethbridge and Son, of Plymouth, who have taken the contract at about £2,000.

The new block of Admiralty buildings now being erected in Whitehall at a cost of nearly £200,000 will probably be ready for occupation by about the end of the year. There are about 300 men engaged upon it.

At a meeting of the members of the Birmingham Clerks of Works and Builders' Foremen's Association, held at the Midland Institute on Wednesday evening week, Mr. W. H. Whitehouse, A.I.E.E., gave a lecture on "Electrical Work in Connection with Buildings," with diagrams showing the latest methods of fixing the wires for the distribution of electrical power over large areas. There were also on view several cases of appliances used in the work, lent by some of the principal makers in the kingdom.

The death took place on Wednesday week of Mr. Bernard Massey, of the Mona Hotel, at Penmaenmawr, and formerly of Stafford. The deceased was born in 1838 at Newport, Salop, and was educated at the Grammar School. He went to Stafford in his early youth, and afterwards became resident waterworks engineer, having charge of the boring operations at the Common, under the direction of Mr. Dennis, chief engineer. He was captain of the Fire Brigade. In 1880 he was appointed surveyor to the Penmaenmawr Local Authority, and held that post till 1885, when he resigned and was elected a member of the board, continuing in that capacity until March last.



## Our Office Table.

THE Royal Institute of British Architects have done well to award the Royal Gold Medal to so distinguished an architect as Mr. G. F. Bodley, A.R.A. Few, if any, have done more towards the elevation of architecture as a fine art in this country during the latter half of the 19th century than Mr. Bodley. No one familiar with his works can have failed to realise the beauty of their detail and the originality which marks their conception; whether in some obscure country village church or in a great cathedral, they all bear the stamp of a designer whose aim has been concentrated on perfection. We need not attempt to give in this place a list of the works of the new Royal Gold Medallist. As a pupil of Sir Gilbert Scott, his earlier designs were associated with the practice of his master during the hey-day of the original Gothic revival, and not a few of Scott's best designs were worked out in detail by Mr. Bodley—for instance, the spire at Ealing Broadway. The pupil, however, though ever loyal to his leader, soon broke away from the traditions of Spring Gardens, and, like his fellow worker George Edmund Street, sought inspiration from the Early French Mediaevalists. The original church of St. Michael at Brighton, with its plate tracery and banded brickwork, is an instance of Mr. Bodley's design at this time during the sixties. Among the originators of the return to the spirit of the Renaissance in modern architectural design in this country, Mr. Bodley's original offices for the London School Board, erected in the early seventies, need only to be mentioned, for they have found more than one imitator since. Mr. Bodley, however, will best be known for his designs in Ecclesiastical art wrought in the later phases of our National Gothic architecture. In conjunction with Mr. Thomas Garner, he designed the great marble reredos at St. Paul's.

THE Housing of the Working Classes Committee of the London County Council have issued a return showing the receipts and expenditure to the end of the year 1897-98 in respect of all workmen's dwellings and model lodging-houses erected or owned by the Council. The return gives two tables, the first of which shows the financial result up to the end of the year of the dwellings and lodging-houses erected on sites upon which the Council elected to build. In this table eight schemes are dealt with, which involved a capital expenditure up to the end of March last of £309,567. Upon two of the schemes only is any net deficiency shown. In the case of the Goldsmith's-row building (Shoreditch) there has for the last year been a deficiency of £48, absorbing the previous surplus on the buildings, and leaving a net deficiency of about £4. On the Dufferin-street costermongers' dwellings there is a deficiency for the year of £27, which, added to previous losses, makes a net deficiency of £215. On the Boundary-street scheme the total surplus amounts to £1,306. The Brooks Market scheme (Holborn) shows a surplus of £67. Deficiencies are exhibited on the accounts of the schemes at Cable-street (Shadwell) and Shelton-street (Drury-lane); but the deficiencies are more than counterbalanced by previous surpluses. The Parker-street lodging-house again shows a surplus of £149, and the Green-street and Gun-street (Southwark) scheme a surplus of £252. The financial position of the eight schemes at the end of the year gave a surplus of £2,154. The second table deals with schemes upon sites upon which the Council had no option but to build, as no purchasers could be found for the land. This table includes five schemes, two under the Housing of the Working Classes Act, 1890, and the others under the Thames Tunnel (Blackwall) Acts, 1887 and 1888. Each of them exhibits a deficiency, the total loss to the end of the year being £4,965. The largest deficiencies are in the Hughes-street (Deptford) scheme, amounting to £2,232, and on the West-view cottages (East Greenwich), aggregating £1,606.

A LECTURE on "Some Great Mediaeval Churches and their Construction" was delivered at Edinburgh before the East of Scotland Engineering Association on Friday night by Mr. H. F. Kerr, A.R.I.B.A. The lecturer said the great churches of Mediaeval times had been admired both by the practical and the artistic mind. The former had room to ponder the scientific skill with which these early builders covered vast spaces with

great vaults, the whole supported on a minimum of solid piers; the artist revelled in the equally marvellous manner in which every constructional item was treated so as to fully satisfy the imagination, the result being universal admiration and respect. The division of these churches, almost invariably cruciform in plan, into nave and aisles covered with vaults was fully entered into, and the difficulties met with in early vaults of barrel pattern, and the solutions of these were pointed out. The aim of the early builders was to light the nave by windows above the great arcade and beneath the stone ceiling without rendering precarious the stability of the fabric. The development to this end was traced from barrel vault, through groined vault to rib vault and pointed vault. The construction, the features, and the decoration of these buildings were fully indicated by chronological diagrams and views. The buildings illustrated included Durham, Peterborough, Salisbury, Canterbury, and Lincoln Cathedrals, while the foreign examples embraced the Saint Chapelle, Paris, and Amiens Cathedral. The latest development of vaults in England—the fan vault—was exemplified by views and diagrams of the ceiling of Henry VII.'s Chapel, Westminster Abbey, and the cloisters of Gloucester Cathedral.

THE eight London water companies have introduced a Bill this session to facilitate inter-communication between their respective works and mains, with a view of obviating the possibility of a deficiency in times of drought or accident. The Bill provides that the Metropolitan water companies shall, within six months after the passing of the Act, submit a scheme to the Local Government Board for effecting junctions between the works of any two or more of the companies, and the Board may, after considering the scheme, order such works to be executed as they may think fit. In the event of no scheme being submitted by the companies, the Local Government Board are empowered to appoint an arbitrator who shall state to the Board the works he considers necessary to provide for effective inter-communication between the works of the companies. Provision is made in the Bill to enable the Local Government Board to enforce their orders against the companies, and power is also given to the Board to authorise the companies to raise money for the execution of the works, provided that the expenditure shall not exceed the sum of £600,000, without the further authority of Parliament.

A MEMORIAL has been presented to the Government urging them to deal with the registration of plumbers in the ensuing Session in the interests of the public health. It is signed by over sixty members of Parliament, including Mr. J. Aird, Sir Henry Bemrose, Lord Hugh Cecil, Sir W. Hart Dyke, Sir H. S. King, and the Marquis of Lorne. The memorial suggests that statutory provisions should be made to secure the adequate qualification, certification, and registration of plumbers, on whose work the healthiness of a house virtually depends. This requirement is the more urgent in view of the aggregation of town populations rendering the work of the plumber more difficult, and consequently requiring that plumbers should be more efficiently trained in the art of plumbing, and should possess such knowledge of sanitary appliances as to prevent contamination of water and air by emanations from drains and sewers. A separate memorial has been addressed to the Local Government Board signed on behalf of the Parliamentary Bills Committee of the British Medical Association, the Manchester and Salford Sanitary Association, the Royal Institute of British Architects, the National Health Society, and the Royal Institute of Public Health.

THE "Roman Defences of South-East Britain" formed the subject of a lecture delivered at the Royal Institution on Friday by Mr. Victor Horsley. Sir Henry Thompson occupied the chair. The lecturer said that the many camps on the south-east coast which were mentioned in Antonine's itinerary were probably built on the sites of earlier camps. The masonry of the British castra was not like that found at Pompeii. The walls were constructed not of great square blocks of stone, but with irregular masses of tiles at intervals. This structure was especially difficult to destroy. There were no remains showing whether the walls were battlemented at the top, but this was probably the case. It was a curious fact that in so many of the south-eastern camps of Britain one of the walls was apparently missing;

but traces of the missing portion had been found in every case except, until recently, Lympne, and now his excavations had enabled the author to trace the missing portion of that camp. There was nothing to settle definitely the interesting question of how the last relics of Roman empire were extinguished in Britain. Some light was thrown on the point, however, by a 12th-century record of the sack of the Pevensey settlement, by the fact that the remains of Roman villas generally showed traces of fire, and by an interesting discovery which had just been made near Cardiff. Excavations there had exposed the richly tessellated floor of a Roman building, marked with horses' hoofs and heaped with human skeletons. Three shallow graves had been dug in the floor, and in these were found skeletons of a men of a larger build—probably of the invaders.

IN opening the Corporation Art Exhibition at Oldham on Monday, Mr. Alfred Parsons, A.R.A., remarked that one of the most encouraging facts of our time was the more widely diffused love of pictures, of scenery, of flowers. In discussing the progress of landscape painting in England, Mr. Parsons said that poets had always been ahead of painters in expressing, if not in feeling, the charm of light and trees and flowers; but it had been reserved for our own times to try to render with any realism the wayside objects which the poets loved and wrote about two centuries ago, and now we had painters who not only tried to give the beauty of the hedgerow, but also to show that there was nothing on which the light of heaven fell which was altogether hideous. There were two great possibilities in art—to glorify the seen and to suggest the unseen. Realism and Romanticism—these were the two camps into which the art of to-day was divided. Each had its truths and its fallacies, its merits and failings, and they might learn something by comparing the claims of both parties, for though there was no compromise possible between the leaders of the schools, still less for the followers, yet the dispassionate lovers of art might arrive at seeing good in both.

The old house, No. 7, Johnson's-court, Fleet-street, in which Dr. Johnson lived in the year 1766, and for some years afterwards, is shortly to be pulled down to make way for an extension of Anderton's Hotel.

A stained-glass window has been placed in the parish church of Stibington; the subjects are Faith and Hope. The work has been carried out by Messrs. Jones and Willis, of London and Birmingham.

The parish church of Harpenden was reopened last week after the addition of a north aisle and the recasting and rehanging of the bells. Mr. J. R. Brown and Son, of Harpenden, were the architects, and Mr. G. Dunbar, of Luton, was the builder.

On Thursday in last week, Colonel Hepper, a Local Government Board inspector, held an inquiry into the proposal of the Melksham Urban District Council to borrow £1,000 for works of street improvement.

In consequence of a complaint made by Mr. Algernon Ashton in December last about the neglected state of Joanna Baillie's tomb in Hampstead Churchyard, the grave has just been renovated. The inscription on the top of the tomb now indicates in clearly-cut black letters that the famous poetess lies interred with her mother, Dorothea Baillie, and her sister, Agnes Baillie, the last-named lady dying in her 101st year.

Colonel Hepper, Local Government Board inspector, held an inquiry at Bath on Friday to approve or reject a scheme by the authority for erecting 40 artisans' dwellings in the Dolemeads. It was explained that they would be raised above the level of the highest flood recorded, while roadways leading to them would be widened; 12 old houses would be demolished, and 17 others had been pulled down to carry out an improvement on the river side. Dr. W. H. Symons, medical officer of health, approved the site.

The committee of the proposed new Wesleyan chapel in Darlington-street, Wolverhampton, to be erected on the site of the present edifice, have selected the plans of Mr. Arthur Marshall, of Nottingham, who is also the architect for the new workhouse in that town. The sitting accommodation will be kept at 1,250, and the style will be Italian. The total cost is £9,000, of which £6,550 is already promised.

Sanction has been given by the Local Government Board to the electric power and lighting committee of the Liverpool Corporation to borrow £44,000 for the purposes of electric lighting.



## MEETINGS FOR THE ENSUING WEEK.

**MONDAY.**—Clerks of Works Association. Annual Dinner. King's Hall, Holborn Restaurant. 6.30 p.m.

"Carpenters' Hall Free Lectures. "Building an Underground Railway," by Basil Mott. 8 p.m.

Bristol Society of Architects. "Marble Decoration," by Arthur Lee.

**TUESDAY.**—Institution of Civil Engineers. "The Lake Superior Iron Ore Mine," by Jeremiah and Archibald P. Head. 8 p.m.

Auctioneers' Institute. "Ejectment of Tenants Without Legal Process," by Edward J. Vaughan, Barrister. 8 p.m.

Perth Architectural Association. "The Progress of Sanitary Science," by William Watson, of Perth.

**WEDNESDAY.**—Society of Arts. "The Balloon as an Instrument of Scientific Research," by the Rev. John M. Bacon. 8 p.m.

**FRIDAY.**—Architectural Association. "Colour Decoration," by Cole A. Adams, F.R.I.B.A. 7.30 p.m.

Glasgow Architectural Craftsmen's Society. "Notes on Building Materials," by R. W. Horn and Alex. Davie. 8 p.m.

## THE ARCHITECTURAL ASSOCIATION.

**FEBRUARY 17th.**—ORDINARY MEETING. 9, Conduit-street, 7.30 p.m. Mr. COLE A. ADAMS on "COLOUR DECORATION."

**FEBRUARY 18th.**—VISIT TO THE ROMAN CATHOLIC CATHEDRAL, Ashley-gardens, Victoria-street, Westminster. Mr. J. F. Bentley, Architect. Meet at the building at Three p.m.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

## The Society of Architects.

Founded 1884. Incorporated 1893.

The SOCIETY OF ARCHITECTS, St. James's Hall, Piccadilly, W., will hold an EXAMINATION in Architecture and Construction on APRIL 12th, 13th, and 14th, 1899, in the following subjects:

Section I.—ARCHITECTURE. Subject (a), Planning and Design. Subject (b), Architectural History.

Section II.—BUILDING CONSTRUCTION AND MATERIALS. Subject (a), Construction. Subject (b), Materials.

Section III.—PRACTICE. Subject (a), Specifications. Subject (b), Measurements and Valuation. Subject (c), Contracts.

Section IV.—SANITARY SCIENCE.

The latest date for entering for the Examination is March 23rd, 1899. Syllabus free. Copies of the last Examination Papers, one shilling.

To that Candidate who shall pass the Highest Examination, the GOLD MEDAL of the Society will be presented, a SILVER MEDAL to the second in merit, and BRONZE MEDALS for special excellence.

ELLIS MARSLAND Hon. Sec.  
C. MCARTHUR BUTLER, Sec.

On Monday, at North London Police-court, before Mr. E. S. Fordham, four carmen, named Alfred and Edward John Parker and Thomas and Alfred Rose, were charged with stealing bricks, and a contractor and builder named Charles Croome, of Laurel Cottages, Eden-grove, Holloway, was alleged to have feloniously received them. The prisoners were all committed for trial, bail being allowed.

At the Guildhall, Bath, on Friday, Col. A. J. Hepper, R.E., Local Government Board Inspector, held an inquiry concerning the application from the town council for powers with respect to the proposed erection of a hotel, and public improvement in Orange-grove. They applied for a loan of £10,000 to make a roadway from the Grove to Newmarket-row; to be allowed to grant to Mr. Holland a lease for 99 years of the old slaughterhouse site for the construction of the hotel; and for compulsory powers to purchase any property needed to be pulled down.

The memorial to the late Baron Pollock will take the form of a brass in raised letters, placed on the north wall of the church of St. John's, Putney, of which the late judge was warden for over fourteen years. Messrs. Barkentin and Krall, of Regent-street, W., are carrying out the work.

The foundation-stone of the Martin memorial clock tower, to be erected in the market place at Wainfleet, was laid on Thursday in last week.

The Suffolk County Lunatic Asylum, at Melton, near Woodbridge, is about to be enlarged at an estimated cost of over £42,000, from plans by Mr. A. J. Woad, of Surrey-street, Strand.

The first section of new board schools in Harrington-street, Pear Tree, Derby, was opened last week. The block accommodates 420 infants and 500 junior mixed children, and will eventually form part of a school for 1,800 children. It is two stories in height, with heating-chamber in the basement, and is planned with a large hall on each floor in the centre, with classrooms opening directly out of it, being a combination of the central hall and corridor systems. The staircases are of stone, and the floors of fireproof construction. The classroom and central-hall floors are of pitch-pine, secured directly to the concrete, and the corridors and hat places are laid with glass mosaic. Externally, the buildings are of brick with terracotta dressings, and Hopton stone sills and steps. The roofs are covered with slate. The cost has been £12 10s. per head, including offices for the complete school.

## Trade News.

## WAGES MOVEMENTS.

**ABERDEEN.**—The plumbers have made an application to the masters for an increase of 1d. per hour in their wages. The present rate is 7½d., and in some cases 8d. and 8½d. is paid. The masters have resolved not to concede the demand. The employers have, however, resolved to offer the operatives the terms proposed by Lord Provost Fleming as a basis of settlement of the strike—namely, 1d. of an increase on April 1, and another 1d. six months later.

**THE PLASTERERS' STRIKE.**—The result of the ballot of the London branch of the Plasterers' Operative Union on the question whether the resolution compelling managing foremen to become ordinary members of the Union should be rescinded or not is, that by a large majority the men have decided to withdraw the resolution. The men only voted on this question. The other matters of dispute, which the Master Builders' Association have raised, have not yet been placed before the men. It is understood that the masters require an undertaking from the Union that in future they will desist from the practice of blacklisting certain firms, and of refusing to allow their men to work with non-unionists, and further that they will not restrict the number of apprentices which any one firm may employ. In regard to these demands, the leaders of the men state that the Union would certainly not give way on any one of them.

## CHIPS.

The Marchioness of Granby will unveil the panel, "The Fire of London," painted by Mr. Stanhope Forbes, A.R.A., and contributed by the Sun Fire Office, at the Royal Exchange, on Thursday next, the 16th inst.

At Monday's meeting of the Okehampton Town Council a letter was read from Mr. Harry Geen, C.C., notifying that he had decided to sever his official connection with the council as borough surveyor and sanitary inspector. During his 13 years' work for the borough he had always taken pleasure in advancing its best interests, and in doing all in his power to secure every advantage for it. The resignation was accepted with great regret.

With regard to the Coolgardie water-pipe contract, Messrs. W. S. Vellinghausen and Co. have received an order for 32,000 tons of steel plates, which they have placed with four German rolling mills, the total being about £240,000.

The London County Council accepted on Tuesday an offer made by Mr. S. Prout Newcombe of his collection of natural history specimens and literature for exhibition. The collection includes some 21,000 objects, and is valued at £3,000. For the present it will be housed in the great hall of the Aske Schools, and will afterwards be removed to Shoreditch.

The Accrington Town Council have appointed Mr. Richard Diggle, building inspector for the corporation, to the vacant position of borough sanitary inspector at a salary of £150 per year.

Building operations will be shortly commenced upon the site of the Greenwich Workhouse at Grove-park by Mr. Rowbotham, of Birmingham, who holds the contract for the erection of the buildings, at a cost of over £175,000, to the designs of Mr. Thomas Dinwiddy, F.S.I.

It has been decided to commission Mr. W. Goscomb John, A.R.A., one of the four artists recommended to the committee by the President of the Royal Academy through the Duke of Devonshire, to execute a statue of the late Duke of Devonshire, which is to be erected at a cost of 1,000 guineas, probably at the seaward end of Devonshire-place, Eastbourne. The statue, which is to be in bronze, will have a height of 9ft., and will have a granite base.

At length there is a definite prospect of the construction of the Great Northern and City Railway. At the first half-yearly meeting, held on Tuesday, Sir C. Scott, the chairman, stated that a contract for the construction of the railway had been entered into with Messrs. S. Pearson and Son (Limited) to carry out all the works and equipment for the line. The engineers were Sir Douglas Fox and Mr. Francis Fox, who reported on Monday that at the Regent's Canal the contractors were in the possession of all the necessary houses, except one, for the temporary purposes of their yard and for the permanent generating station. The working shaft at that point had been sunk to its full depth—53ft. from the surface, and the heading to give access thence to the railway tunnels was being started. The foundations for the electric-light engine and air compressor were in place, and some of the machinery had been delivered on the ground. The construction of the special shields for driving the tunnels was also in hand.

## LATEST PRICES.

## IRON, &amp;c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0	to £6 10 0
Rolled-Iron Joists, English.....	6 10 0	" 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0
Bar Iron, good Stuffs.....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0
Do., Welsh.....	5 15 0	" 5 17 0
Boiler Plates, Iron—		
South Stuffs.....	7 17 0	" 8 5 0
Best Snedshill.....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £6 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

No. 18 to 20.	No. 22 to 24.
8ft. to 8ft. long, inclusive gauge.....	£10 15 0
Best ditto.....	11 5 0

Per ton.	Per ton.
Cast-Iron Columns.....	£8 5 0
Cast-Iron Stanchions.....	6 5 0
Rolled-Iron Fencing Wire.....	7 5 0
Rolled-Steel Fencing Wire.....	7 5 0
Galvanised.....	10 10 0

Per ton.	Per ton.
Cast-Iron Sash Weights.....	4 2 6
Cut Clasp Nails, 3in. to 6in.....	9 0 0
Cut Floor Brads.....	8 15 0
Wire Nails (Points de Paris)—	

0 to 7.	8 to 9.	10 to 11.	12 to 13.	14 to 15.	16 to 17.	18 to 19.	20 to 21.	B.W.G.
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9 to 10.	10 to 11.	11 to 12.	12 to 13.	13 to 14.	14 to 15.	15 to 16.	16 to 17.	17 to 18.	18 to 19.	19 to 20.	Per cwt.
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Per ton.	Per ton.
Cast-Iron Socket Pipes—	

3in. diameter	4in. to 6in.	7in. to 24in. (all sizes)
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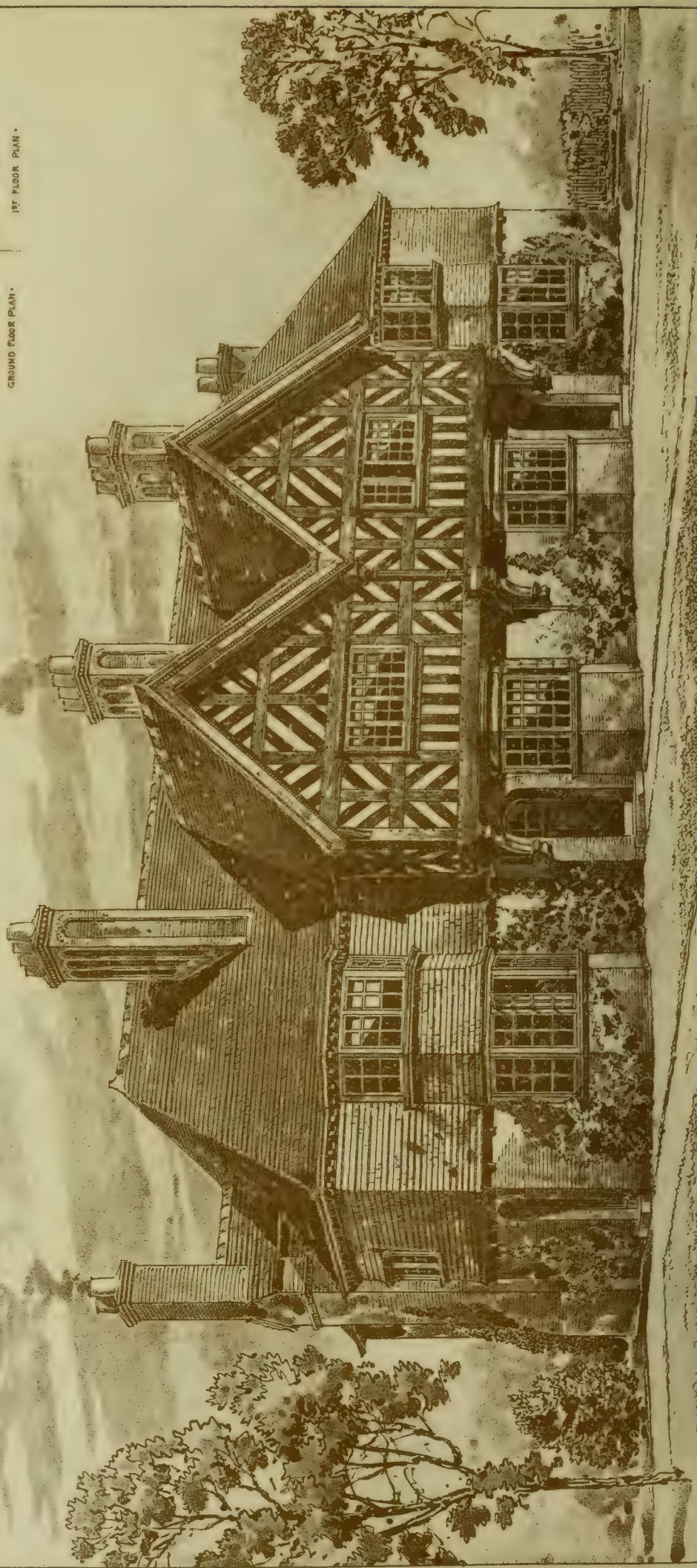
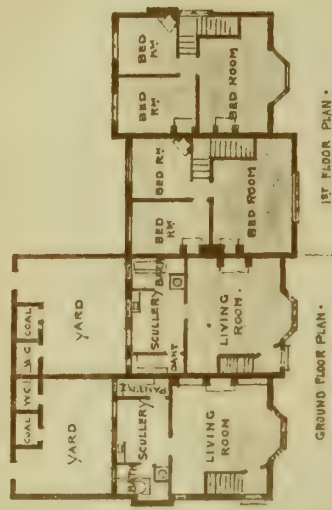
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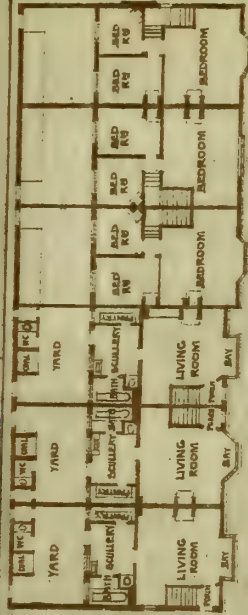


FOUR COTTAGES AT.  
PORT SUNLIGHT.  
FOR MESSRS LEVER BROS.  
T.M. LOCKWOOD AND SONS.  
ARCHITECTS CHESTER.





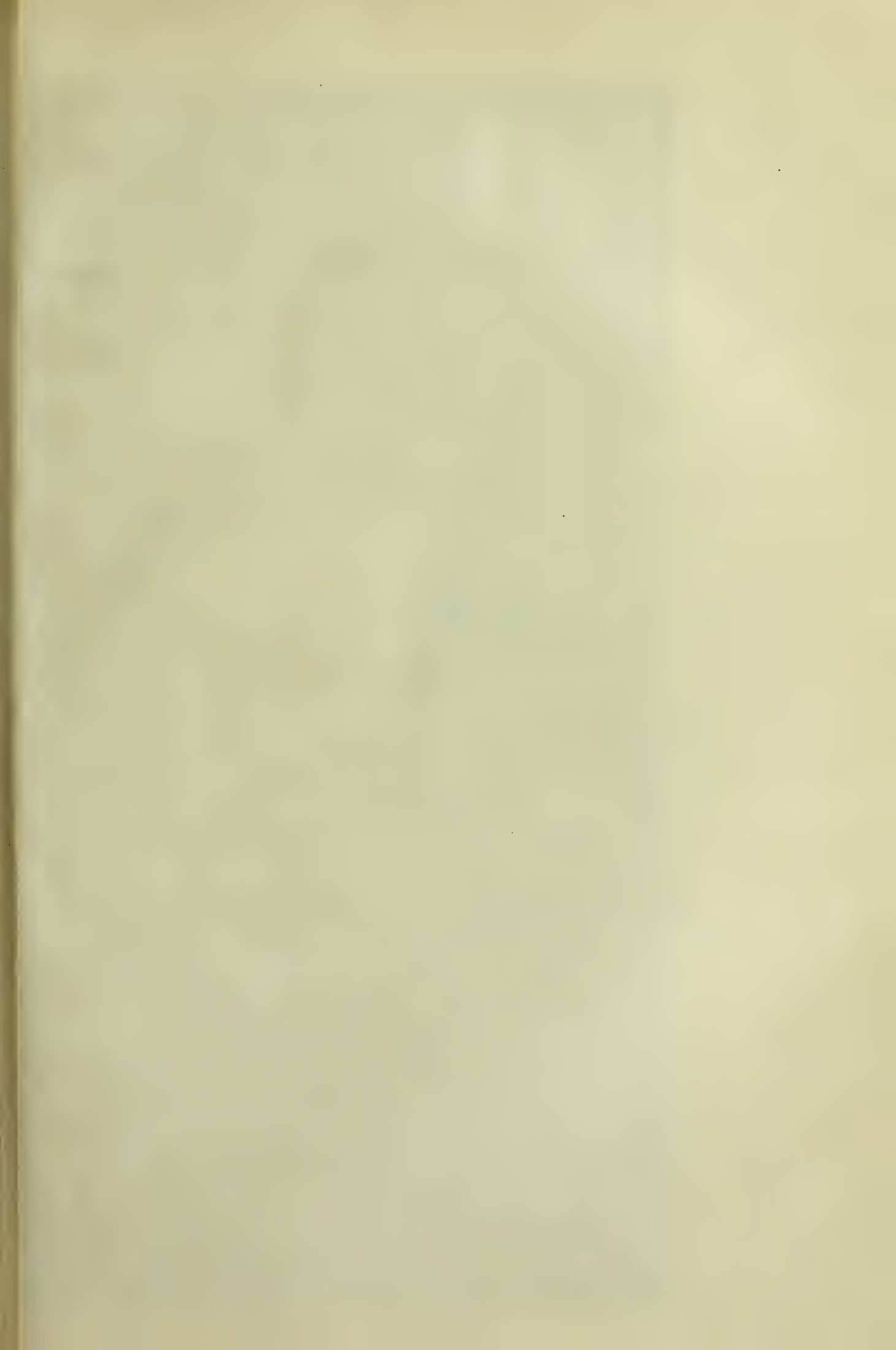
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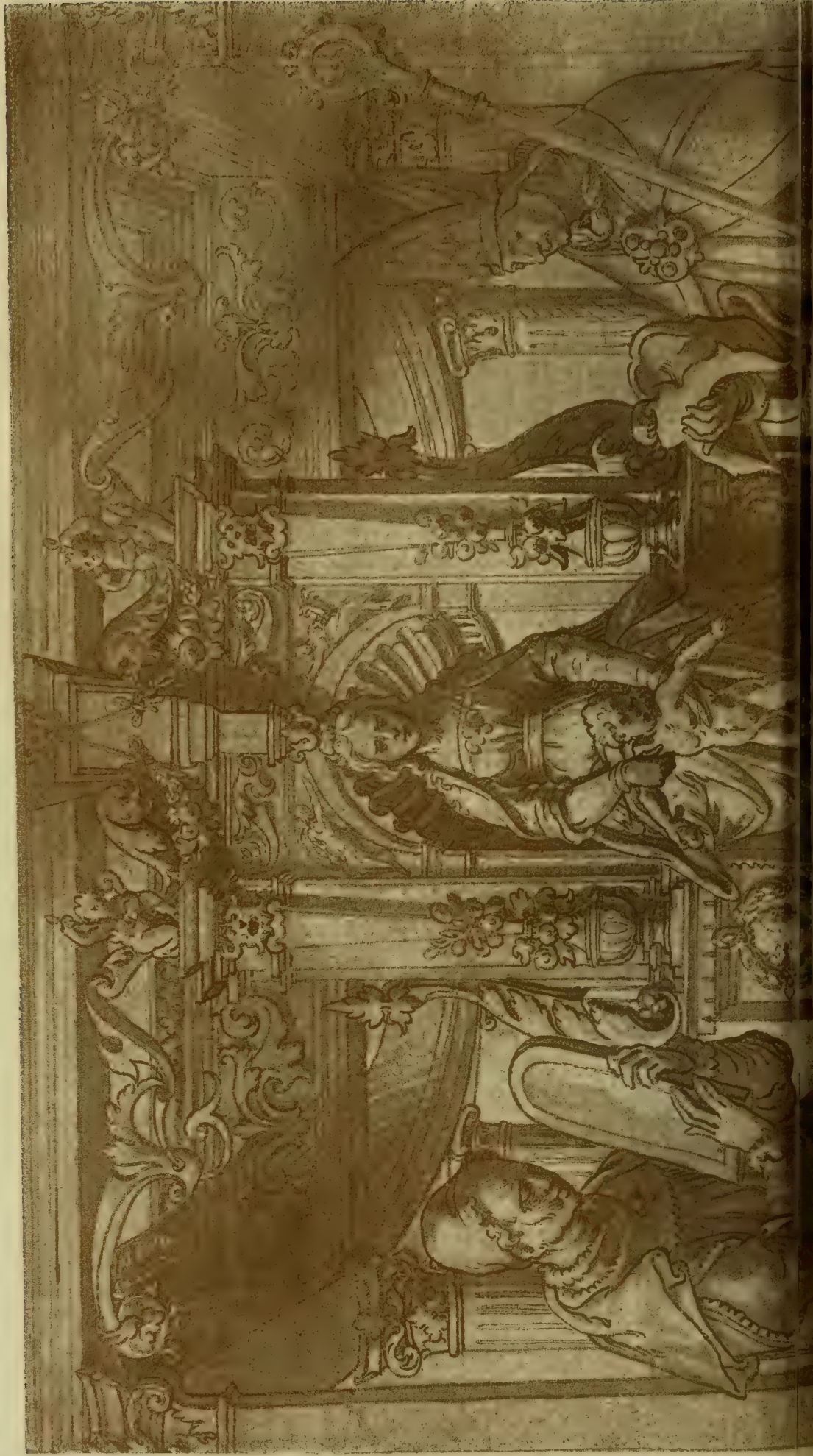








THE BUILDING NEWS FEB. 10, 1899.



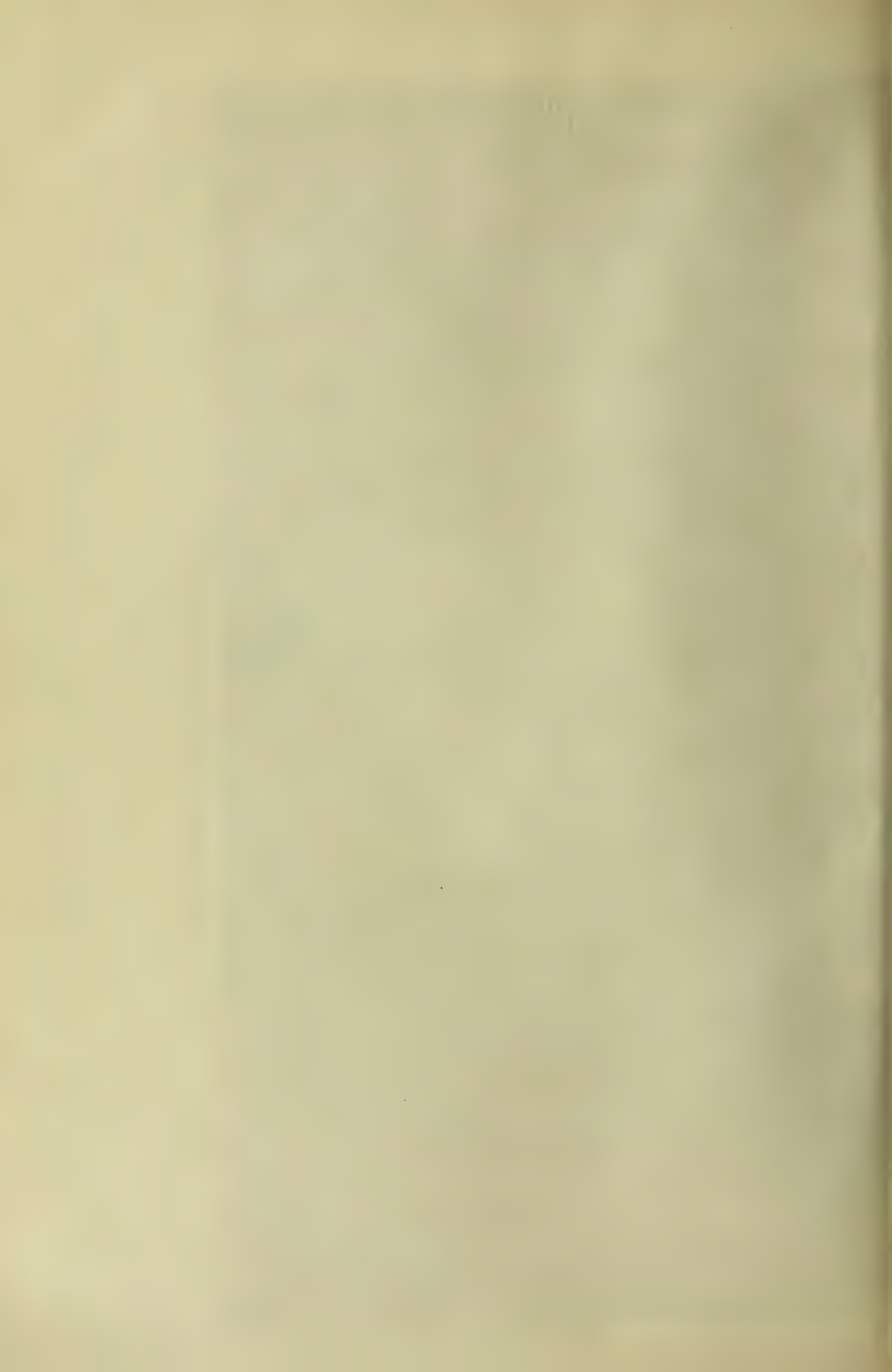




ORIGINAL DRAWING for a PAINTED WINDOW SWISS WORK 1840

"PHOTO-TINT," by James Acliman & Co. "Queen's Square," London W.







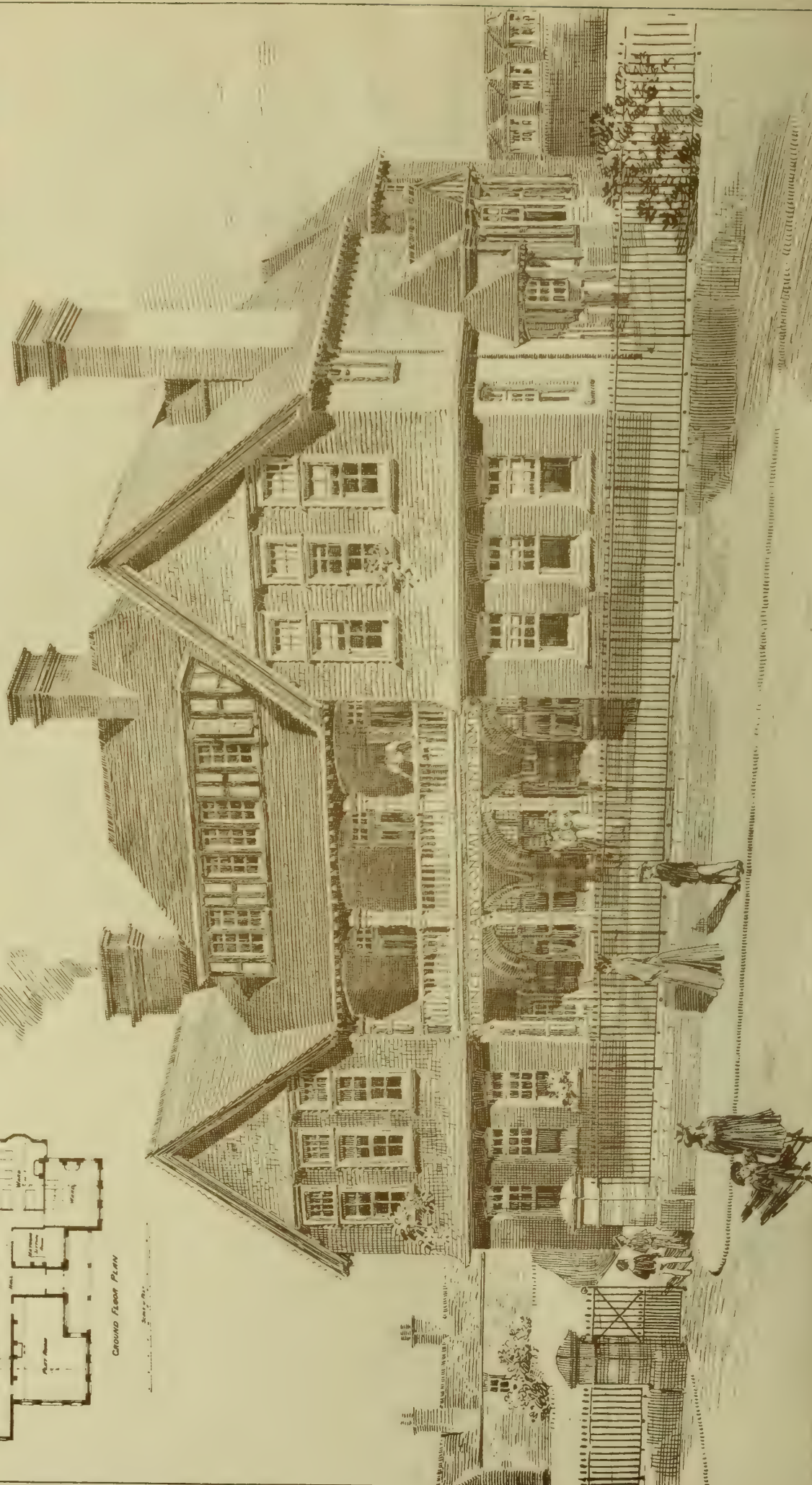




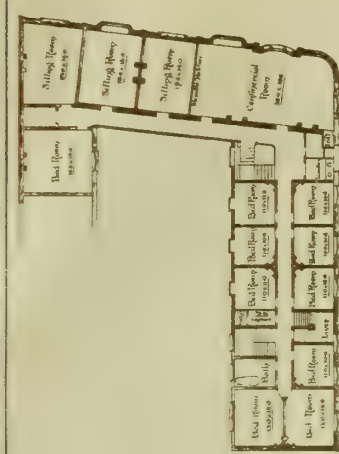
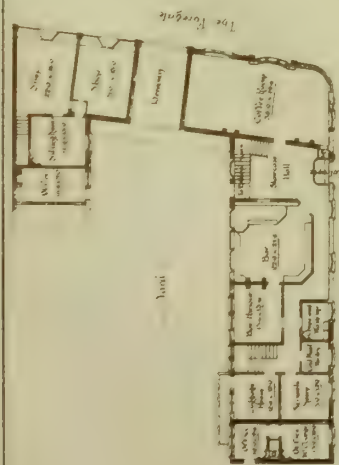
PRINCESS MARY CONVALESCENT HOME, BOGNOR.  
FOR THE EAST LONDON HOSPITAL FOR CHILDREN.  
CHESTON & PERKIN ARCHT'S



GROUND FLOOR PLAN

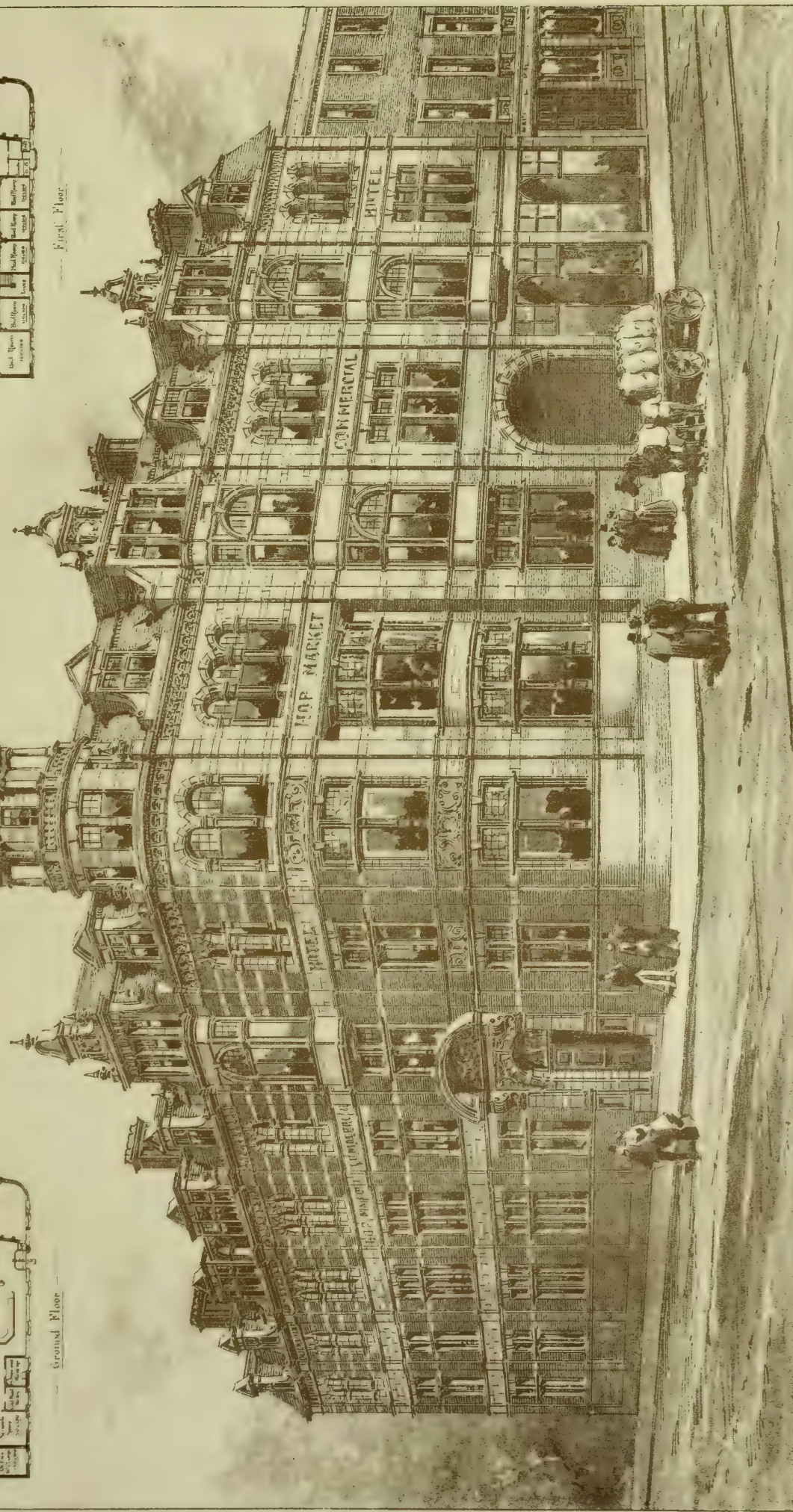






Ground Floor

First Floor



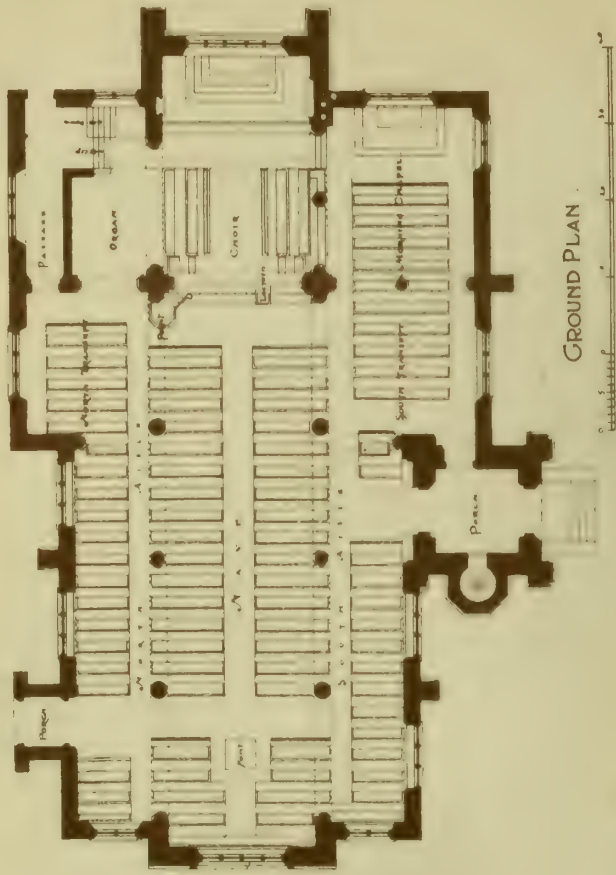




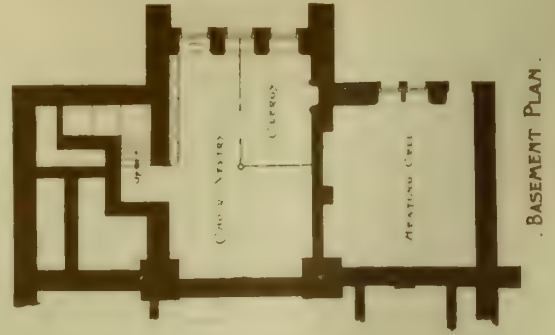




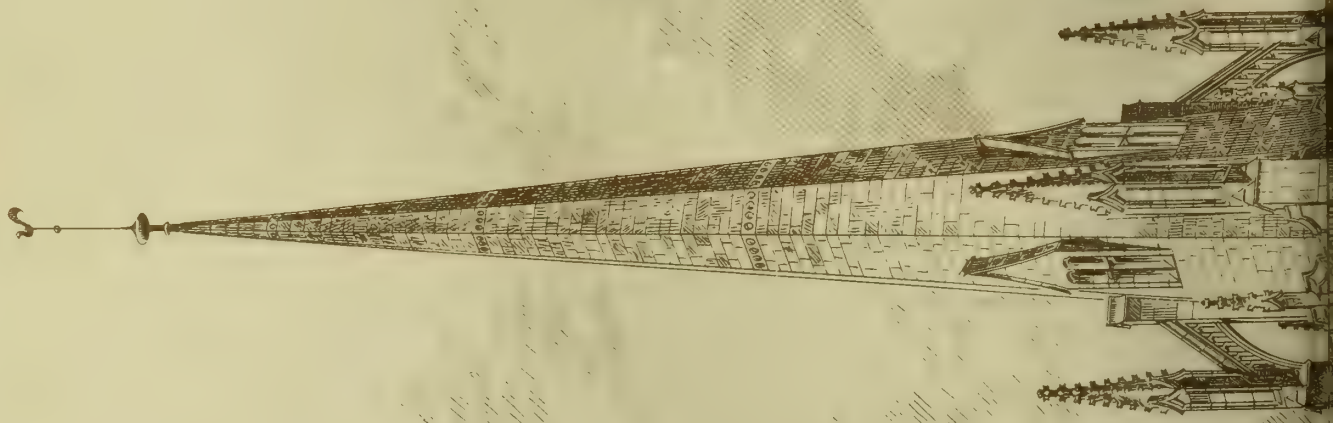




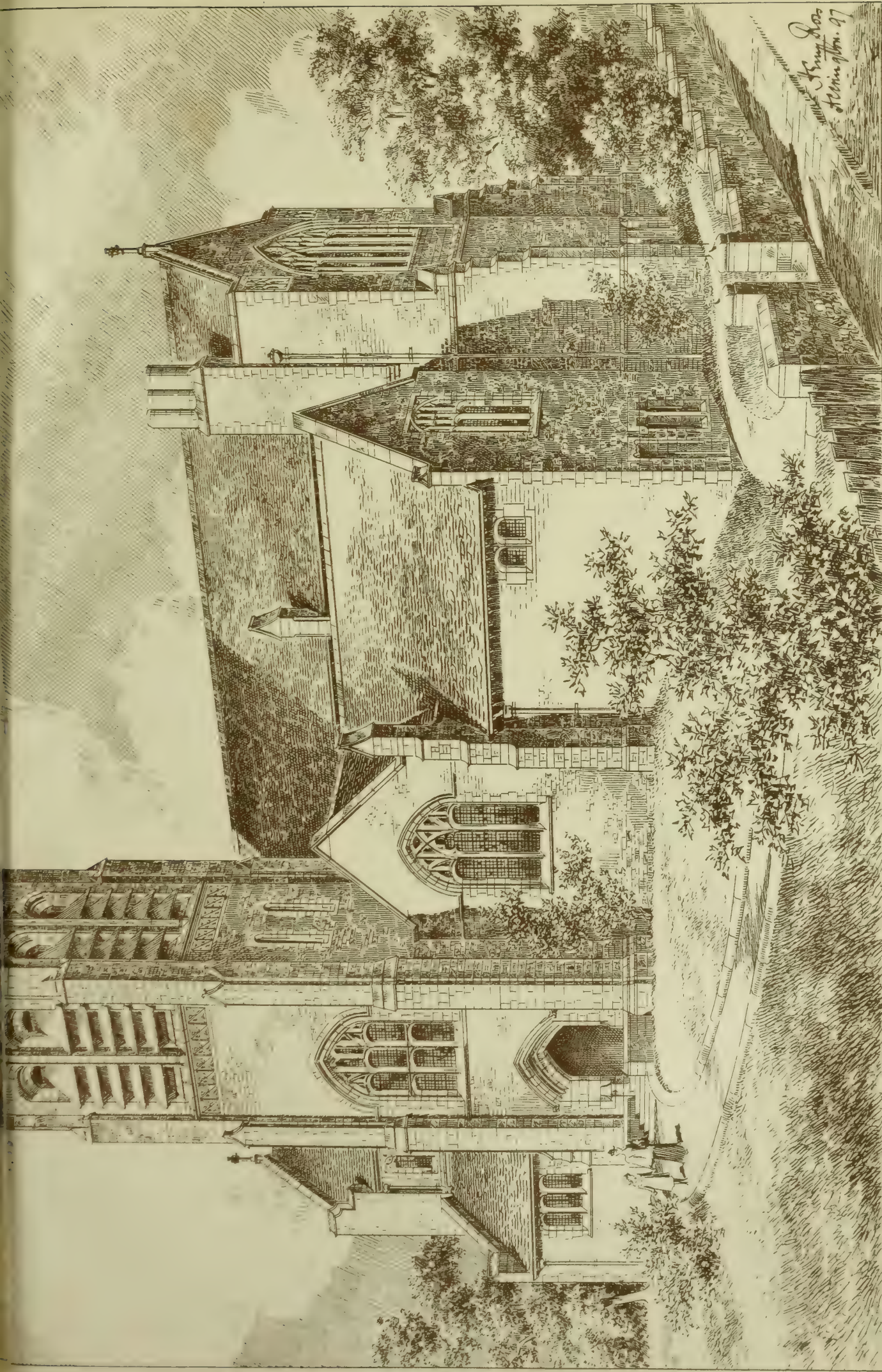
GROUND PLAN



BASEMENT PLAN







HENRY ROSS ARCHT

NEW CHURCH OF S MARY MAGDALEN ACCRINGTON

Henry Ross  
Accrington. 97

Printed and Published by James Apperly, at the 'Lancashire Post Office' in Accrington.







# THE BUILDING NEWS AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2302.

FRIDAY, FEBRUARY 17, 1899.

## EXPERT PRACTICE.

**T**WO very different kinds of practice fall to the lot of the profession. The ordinary class of practice is of a general or "all-round" character, embracing within its range a large proportion of house and commercial buildings, the development of new estates, agricultural erections, certain legal and surveying branches which relate to easements, rights of light and support, valuation of property, dilapidations, &c. Sometimes the erection of churches, schools, workhouses, free libraries, baths, and municipal buildings helps to vary the routine of the provincial and general architect, though these are gradually passing beyond the grasp of the local practitioner and becoming competition prizes. We have, in the second place, the special class of practice carried on by men who devote themselves to particular buildings. These are often successful competing architects, who have won premiums for church or school buildings, municipal offices, baths, libraries, union workhouses, or other erections of a special kind. Having paid particular attention to one or other of these buildings, they have assumed the rôle of ecclesiastical, collegiate, technical school or bath and washhouse designers, and, by dint of study and hard work, become authorities in these several classes of building. Others blossom into theatre architects, experts in hospitals and unions, model dwellings, and the like. The rapid development of "specialism" in trades and professions has favoured this class of designer, though, it will be allowed, at a certain sacrifice of architectural taste in some cases, those especially where plan and administration preponderate over the artistic requirements. For example, few will be inclined to award much praise for architectural skill to any of our leading hospital or model-dwelling builders. The study and attention bestowed on administrative planning and details of such buildings give little opportunity for art—we do not mean mere architectural display. On the contrary, we believe that the development of good and definite planning is often likely to lead to the exercise of the art function. Already there are signs of this. A logical and well-studied plan honestly developed is a truer piece of architecture than a weak, purposeless arrangement clothed in the habiliments of a past style. So long as it is honest in its arrangements, and the external elevations are simple and true to it, the result is architecture; and it is only when an attempt is made to disguise the plan, or to put upon it a false expression, that failure accrues. According to this reasoning, we conclude that those engaged in a special class of work are in a better position to advance architecture as an art than men who carry on a varied practice without any very careful study of any building that falls to their hands. These are based on common models. The man who has made, say, technical schools, or baths and washhouses, a special study is not satisfied with what has been done before him. He investigates his own facts; finds out what the conditions and requirements of these buildings are; he classifies and arranges his building according to certain rules and statutory enactments; he studies their administration, and seeks to embody his conclusions in new plans of his own. Naturally he fences round what he has examined and investigated for himself, and is not inclined to give away

what he has so hardly learned; he is manifestly indisposed to share with others the results of his studies and experience, and therefore his speciality is more or less a secret to himself. This very habit of safeguarding his own acquirement encourages him to further investigation and study, and to the attainment of a higher standard; as the more expert he becomes, the higher the rate his services command. As a natural result, there is a desire to clothe these special buildings in a manner worthy of their skilful adaptation. What has cost so much in thought is worthy of artistic expression, and we find those who are experts in polytechnics, municipal buildings, schools, and the like are induced to give more attention to the architecture. To take only two examples, in the buildings designed and erected by men like Mr. E. W. Mountford, or Mr. J. M. Brydon, a true sense of architectural design is observed. These buildings are in most cases a natural outcome of the plans, without any attempt to make them appear other than they are. Even in buildings like our public baths and washhouses—so essentially utilitarian that they appear to be beyond the scope of architecture—some advance has been made, and we may point with commendation to one at least of the later public baths and washhouses—that erected by Mr. A. Hessel Tiltman in Kennington Park-road—as a satisfactory red-brick and terracotta exterior, well grouped and dignified, externally expressing the large men's swimming-bath, which runs parallel to the road, with its gable end on the return side. We have given an illustration of this building. Very often the sites chosen for large central bathing establishments are irregular, and with but small frontages, and the architect is therefore restricted, and is obliged to place his large swimming-baths and blocks of slipper-baths in positions and at various angles that make it impossible to produce effective exteriors. As, however, these large baths are now often adopted for public entertainments during the winter, the larger swimming-bath ought, if possible, to abut on two streets, so as to allow ample means of exit. The disposal of the main blocks very often can be made to tell in the architectural ensemble of even the plainest buildings, and such arrangements in buildings, like hospitals, baths, schools, can be made effective.

A comparatively small number of the profession have become experts in the design and construction of public baths and washhouses, a subject about which Mr. A. Hessel Tiltman, F.R.I.B.A., has contributed an able paper read at the Institute, and briefly reported in our last issue. The author is a master of the subject, and what he has to say on the planning and design of these buildings is worthy of attention. The plans exhibited by the author, Continental and English, were of value, as showing the possibilities of design in buildings of this description. One feature that has been turned to good account, both as a point of administration and of design, is the quadrangle entrance, such as is seen in the Tibberton-square Baths in the Essex-road. The specialist also has this further advantage, in being able to bring to his study a larger and wider view of his particular cult. He is not content, as a rule, with the examples found in his own country, but extends his studies and investigations to buildings of the same type in France, Italy, Germany, Switzerland, Austria, and other Continental countries. Whether it be the planning and design of technical schools, of hospitals, baths, and washhouses, theatres and buildings of entertainment, the expert has a far-reaching eye for the acquisition of new or improved ideas, or of technical details. We know how much our modern schools, elementary and technical, have derived from the superior classification and instruction found in Germany and Switzerland;

in fact, model school-planning is based largely on the Continental types. In hospital planning and construction, the French have taught something; in theatre design and construction the playhouses of Paris, Brussels, Vienna, and Berlin have shown our many shortcomings, and in baths and washhouses we may learn something about the distribution of these establishments in cities like Berlin and Hamburg and Vienna, where small establishments fitted up, as Mr. Tiltman has shown, with the "rain douche," serve for the majority of the poor. In the housing of the large population of the working classes also the specialist has been able to compare notes with other countries. Concentration of thought and resources is no less favoured by special designing. A practice divided between house-building, estate management, calculations and surveys of property scarcely conduces to a very favourable condition for architectural design. The expert has the advantage of concentrating his powers on one branch, and in this way perfecting it in many details that would escape the attention of the ordinary practitioner. In course of time he finds how the commonest detail of his work can be made to serve its purpose with the greatest nicety. He alters, modifies, and amends it till nothing better can be reached, and in this way the expert is distinguished for precision—a quality which is at the very root of good architecture. The specialist-architect's work becomes less laborious by this direction of his faculties to achieve certain objects, the work of design is easier to him because he has everything at his finger's ends. No doubt also this predilection for one class of work indisposes him for other kinds of work, and we seldom hear of a designer of hospitals or baths or model dwellings becoming successful as an architect of church or domestic work of a superior class. We believe our architecture and its kindred arts will become fuller and deeper if those who are leaders in each special branch will make known their experiences by means of books, lectures, and examples—a course of proceeding which many, for the reason we have given, are not inclined to take. The more we think of the possibilities and limits of each class of building, the better able we shall be to make an advance all along the line, and to see how possible it is to develop a distinct architecture for each type, instead of to flounder about in a kind of chaos of forms that are indiscriminately applied to schools and hospitals and baths and town-halls, just as our fancy dictates.

## MODEL SPECIFICATIONS.—LII.

PAINTER, DECORATOR, ETC.

**P**AINTING new plaster ought to be done only after it is quite dry. Plaster of Paris can be painted a few days after being put on, but Parian and Keene's cement may be painted a few hours after they are laid. In painting walls specify to stop up cracks and holes with Parian or Keene's cement; after the stopping is dry, it should be rubbed down, the surface dusted, and the first coat put on. This should be rather thin, so as to penetrate the pores of the plaster; after a day for drying, the second coat (a little thicker) may be put on with a little more oil, and its colour should approach that of the finishing colour, but lighter. If unevenness, dents, or irregularities appear or show up by the gloss of the paint, the surface must be faced up with putty or stopping after it has dried, and after the stopping is hard glasspaper down and dust surface. The third coat may now be put on similar to the last, but with more oil. The next coat, if there are to be four, may be "flatted," and this is the best finish for walls, and it should be put on immediately the under coat is dry enough. If the walls have much wear, a



little copal varnish should be added to the turpentine to harden it. Old uneven walls show up less with a dead flat finish than if they are glossy.

For rough stuccoed walls the first coats should have more oil and less turpentine, and rubbing down will not be required. Cracks should be stopped with Roman cement or oil mastic. Portland cement takes some time before it can be painted over.

For outside parget or half-timbered work, specify a first coat of thin colour and boiled oil, unless the paint is white, then raw oil can be used in the finishing coats. The exposed sides of stuccoed houses should have a first coat of boiled oil and red-lead.

For damp and exposed walls and for stone and brickwork we should recommend the application of three coats of Szezelmey's "stone liquid," which waterproofs stone, brick, and plaster. (Apply to the manufacturers for particulars.)

Sometimes stone-dust is thrown on the wet oily coat of paint; but the imitation is not advisable. For treatment of stone, the Bath Stone Firm's Ltd. solution, "Fluate," is the better way of checking absorption of moisture.

When brick and plaster walls are to be coloured, "Duresco" is to be preferred to paint, which renders the bricks impervious. It is a sort of washable distemper, consisting of barytes, oil, glue, &c.

Distemper is largely used upon inside surfaces; it is made from pigment mixed with water, to which some adhesive substance like size is added. For large surfaces and decoration distemper is a valuable substitute for paint: it admits of delicacy of tints, and can be worked rapidly. It is well adapted for interior decorations like ceilings and friezes when moisture is absent. The wall should have a porous surface to give a "key," and a finish of sharp sand is better than lime putty. Many ancient buildings attest its durability. Previous to distempering walls they may be lined and clearcoiled. Clearcole is a solution of thin size and whiting with a little alum, and is used to render the plaster non-absorbent.

Hard woods are now so much used for ornamental joinery, that staining has been increasingly employed. The Canadian red Kauri, and other woods have a beautiful grain, which transparent staining reveals. There are several kinds of staining—water-staining, oil-staining, spirit-staining, &c. Water-staining is a body colour ground in water, as ochre and umber, to which size is added; oil-staining is done with oil colours, more or less transparent, like sienna, vandyke brown, aniline lakes; and varnish-staining uses varnish with the oil, and prepares the surface for varnishing or polishing. Oil stains are most durable, but water stains allow the grain to be seen the best. Water-staining should be done on new woodwork, as it has left the plane. Glass-papering is undesirable. Before the varnishing coat is put on, the work is sometimes sized.

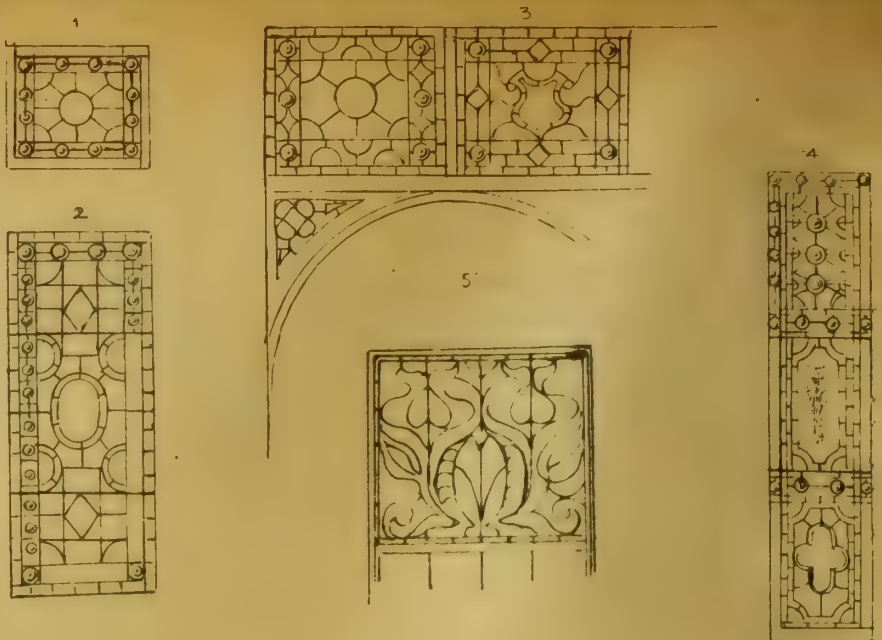
Decorative effects are sometimes produced by staining so as to resemble inlay work. Patterns cut out of paper of ornamental designs or borders are pasted on the panel or woodwork, sized, and the whole panel oil-stained; when the staining is dry the paper pattern is removed, and the pattern remains. White wood and pine make good grounds for decoration.

#### GLAZING.

25. *Ornamental Fret Glazing.*—The door and window panels (or panes) marked on elevation to be filled with ornamental fretwork to design, the glazing being of tinted, muffled, cathedral, or other glass approved by architect, with ornamental borders and floral or other centres.

26. *Rolled Figured Glass.*—The panels of front above transom and those of screens to be glazed with rolled figured glass on leaded lights, in tints approved by architect. Or—

The panels of screens or interior partitions to



be glazed with figured, rolled (or cathedral, muffled), and coloured glass; describe patterns in Nicholls and Clarke's catalogue; bedded in wash-leather and with screwed beads.

#### PAINTING (continued).

9. *External Woodwork.*—Knot, prime, stop, and paint in four oils all the external woodwork usually painted.

*Internal.*—Knot, prime, stop, and paint in three (or four) oils all the internal woodwork usually painted.

10. *Drawing-Room.*—The drawing-room and best bedrooms to be finished, a flat mixed with varnish in party colours, the panel mouldings, architraves, &c., being picked out in a separate tint approved. (Or finish a flat white mixed with varnish, or French oil varnish.)

11. *First-Class Work.*—Face down woodwork, stop with hard stopping paint three (or more) coats in oil-colour, and finish one coat flat white mixed with varnish, and one coat of best French oil varnish or white enamel.

12. *Imitation.*—Finish the dining-room woodwork with imitation wood (maple, walnut, &c.), grain-ing and overgraining, and varnish three times in copal, and felt down between coats, and hand polish. (Three or four coats of paint as a preparation are required.)

13. *Ironwork.*—Scrape, prepare, and paint all iron-work externally four coats (two coats of oxide before fixing). The eaves guttering inside and out, and all ironwork internally two coats. Or—

All external ironwork to be scraped, and all rust and scales removed and painted two coats of oxide paint (or of red-lead and linseed-oil) before fixing, and two coats after fixing. All steel or iron joists exposed to view, and all internal iron-work are to have three coats of oil paint.

Scrape, prepare, and paint two coats with red-lead and boiled oil all castings while still warm, and the last two coats to be mixed with varnish.

14. *Plaster Cornices.*—Paint the enriched cornices of ceilings, &c., with four coats of oil colour, finished flat. Also paint the cement-work, moulded angles, skirtings, and architraves with four coats. State if finished in enamel paint.

(Portland cement should be thoroughly dry, and five or six coats are necessary. Walls to be painted should be plastered with Parian or Keene's.)

15. *On Plaster.*—Face down, stop, and prepare plasterwork of walls to smooth surface, paint one coat in oil, fill up with distemper filling, face down, oil in, paint three or more coats, and finish one coat stippled in flat colour mixed with varnish in tints.

16. *Distemper Ceiling and Walls.*—Rub down with glass paper and stop all cracks with plaster of Paris (Keene's or Parian cement). Cut out all cracks and holes to form proper "key" for stopping, and remove all loose plaster. Clearcole the ceiling with weak jelly size mixed with a little alum, and distemper to tints. Or—

Fill up cracks with Parian cement, prepare ceilings and walls, line with lining paper, lap joints, clearcole and distemper to the required tint with Hall's sanitary washable distemper.

17. *Decorative Painting.*—Face down, stop and

prepare plaster walls of hall or lecture-room to a smooth surface, paint first coat in oil, fill up with distemper filling, and face down, and paint three or more coats in oil colour, and stipple in flat colour mixed with varnish, and pick out in tints (describe) the mouldings of cornice and frieze, ceiling ribs, panels, centre flowers, &c.

18. *Staining.*—The woodwork to be stained, stopped, twice-sized, and twice varnished in copal (or to be stained with Stephens' stain, the tint to be approved; sized, and twice varnished.)

Clean floors and remove all stains of ink, &c., and stain floor with oil (or water stain) of approved colour, freely laid on and allowed to soak into the wood. (Sizing and stopping previous to staining is not recommended by some authorities, as it does not wear well.) Or—

Clean woodwork, remove all ink stains, &c., and stain with Stephens' or Manders' prepared stains, selected by architect (or specify Stephens' vandyke brown, or raw and burnt sienna or umber in water).

19. *Oak Graining.*—Finish the kitchen, hall (or other part) with oak graining (combed), and twice varnish in opal. Or—

Grain and overgrain, varnish three times in copal, felt down between coats, and hand polish.

20. *Oiling and Polishing.*—Twice oil all the teak, maple, and other ornamental woods before polishing, and well rub up after each oiling.

French polish in the best manner all the wainscot and mahogany, &c., and protect the same till completion of work.

Touch up painting, &c., at completion, and leave perfect to the architect's satisfaction.

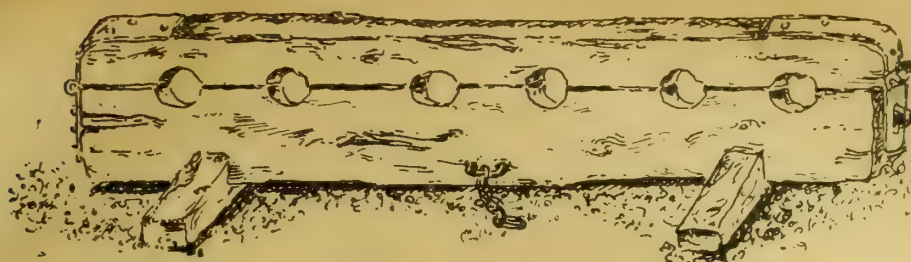
21. *Oil Gilding.*—The raised or relief ornament to doorways (or all enriched members) to be oil-gilded.

22. *Leaf Gilding.*—Gild the enriched mouldings of architraves and cornices, panels and skirtings in drawing-room (or saloon) in single (or double) gold leaf. The gilding to be burnished (or left dead) and sized. Or—

Oil gold size the mouldings of panels, architraves, cornices, and skirtings for gilding, or size with jappanners' gold size, and gild with the best gold leaf; or specify water gold size for papier-mâché plaster or composition enrichment; or burnish or matt gold size, and gild with gold leaf, giving lin. lap, and leave perfect. (Gold size must be laid evenly and sparsely, and for wear oil gold size is best. The size should be just "tacky" enough to hold the gold leaf, nor should the size be too wet. Burnish and matt gilding are both used in enriched ornamentation. The work is brought up to a good surface in size or whiting, and then coated with five coats of size burnish or matt size, each coat glasspapered. When the ground is well prepared in this way, the gold is laid wetted with water. As the moisture dries, the gold adheres to the size coat. The burnished part is polished by an agate burnisher, and must not be sized. Oil gilding is richer, and more durable than water size.)

Under the Decorator's trade may be introduced clauses for various kinds of applied decorations, like the "United Asbestos Patent," "Salamander" decorations (see "Plasterer"); or the "Anaglypta" decora-





LENGTH 5' 9". HEIGHT 1' 0".



## SOME DEVONSHIRE STOCKS.

tions (W. Woollams and Co). These are cheap and effective decorations for ceilings, friezes, panellings, dadoes, and are produced in low and bold relief. Particulars, prices, and patterns can be obtained on application to the makers or firms mentioned.

## SOME DEVONSHIRE STOCKS.

SINCE the great sale of old carved oak work at Dulford House, near Cullompton, in East Devon, in September, 1878, there has been no collection of such magnitude disposed of in this county until last month, when those of the late Right Hon. Sir Francis Clare Ford, G.C.B., G.C.M.G., &c., for many years Ambassador at Rome, and of Heavitree House, near Exeter, were brought under the hammer. Since this recent sale, illustrations of some of the antique furniture have appeared in these pages. Heavitree (in Domesday *Hevetrove*, a hive-tree), is practically a suburb of the "ever faithful" city, and the western tower of its parish church (dedicated to St. Michael) is almost within the shadow of Heavitree House. The late Sir Clare was a native of the village, having first seen the light there in 1828. In the collection recently sold were the parish stocks. How they got originally into his possession there is now no record. One would have imagined that, at the auction, the parson, churchwardens, or, at least, some one official, or one in position in the parish, would have secured so interesting a relic of former local punishment for preservation for posterity. This, however, was not the case. The things were viewed with apathy by those present, and so, to "save their lives," I purchased them myself, and they are now added to my somewhat large collection of ancient Devonshire woodwork. Here is an illustration of them. They are of oak, of massive construction, and in excellent workable preservation. It will be noticed that at one end is shown a cannonball, weighing 16lb., into which is let an iron tube, having a slot cut into it. This upright bar is attached, by a well-worn chain, to a sort of rivet-headed bolt. There are also a couple of headed iron pins, or spikes, as shown. These accessories were sold as part and parcel of the stocks, and they appear to be of the same date; but what their original use was puzzles me. I have consulted several authorities, inclusive of Mr. William Andrews, F.R.H.S., author of "Punishments in the Olden Time"; but no satisfactory explanation has yet been received. Stocks occur in several of Hogarth's pictures; but that famous artist evidently thought stocks were items of mere detail quite beneath his notice, as he invariably drew them straight up and down, just as the merest schoolboy might have been expected to do.

HARRY HEMS.

## LONDON AND PROVINCIAL BUILDERS' FOREMEN'S ASSOCIATION ANNUAL DINNER.

THE annual dinner of this association was held on Saturday last, Feb. 11, at Anderson's Hotel, when upwards of 170 gentlemen connected with the building and kindred trades dined together, under the presidency of Mr. G. J. Elphick, of Messrs. Treasure and Son, supported by Messrs. Treasure, Collinson, Wimpey, Carmichael, Butler, Wilson, Mills, Bloore, Sammings, Todd, Rudall, Minter, Woodward,

Croggon, and many others. The chairman, in proposing "Success to the London and Provincial Builders' Foremen's Association," spoke of the benefit this association was to those engaged in the carrying on of work by spreading uniformity of ideas, and hoped the association would meet with the success and support it deserved both from builders and foremen. Mr. Knowles, the president of the association, in returning thanks, took occasion to invite those gentlemen present who happened to be builders' foremen to become members, at the same time explaining the objects of the association, which he summarised as being chiefly educational, coupled with benevolence and assistance to its members in obtaining fresh engagements. The toast of "The Chairman" was given by Mr. Cook and received with musical honours, and the chairman, in replying, expressed the great pleasure it had given him to preside on this occasion. Mr. Isaac Young, Assoc. San. Inst., proposed "Success to the Building Trades" and the toast having been duly responded to by Mr. Mills, the proceedings terminated by singing "Auld Lang Syne."

## THE SUPERVISION AND REGULATION OF BUILDING OPERATIONS IN EDINBURGH.\*

(Concluded from p. 191.)

I THINK you are now fully informed as to the requirements of the statute, and also as to the kind of legal objections which may be raised against a petition, and I may now complete my account of

## THE PROCEDURE IN THE COURT.

First we shall assume a case in which no respondent is appearing. If the court, on consideration of the burgh engineer's report and examination of the plans, finds that these are deficient in any respect, they will indicate this to the petitioner, and there and then allow him an opportunity of amending the plans. If he comply, warrant will be granted. If he will not comply, and asks the court to deal with the plans as they stand, the court will refuse warrant, stating, of course the ground of refusal. This judgment is written on the petition and signed, as all deliverances of the court are, by the Dean of Guild. I may say that it had been decided that the Dean of Guild Court may not refuse a warrant without stating clearly the grounds of refusal. Next we shall assume a case in which the court is satisfied, but in which the corporation appears as respondent, and takes the objection that in some respect the petitioner has failed in his obligations to the city authorities, such as that his building is higher than he may erect it without the consent of the corporation; then the court will continue the case until the consent of the corporation be obtained. In the event of a refusal to do this, or to modify the plans, warrant will be refused. Lastly, we shall assume a case in which the court and the corporation are both satisfied, but in which a neighbouring proprietor appears and states a legal objection. In this event also the court may adjourn the case to allow the petitioner an opportunity of amending his plans or of coming to terms with his neighbour; but, failing this, written pleadings have to be prepared on both sides, and titles lodged. When

the parties have completed their pleadings and adjusted the issues, as it is called, that is, made a complete record of the arguments on both sides, the case is remitted to the legal assessor of the court. A date is fixed for a debate before him by the lawyers representing the parties, and having heard them and examined the titles, he writes an opinion on the case, in accordance with which the court issues judgment. The court does not review or in any way interfere with this advising by its legal assessor; it simply accepts it, and issues judgment accordingly. Of course, if there appears to be a competition of title, the assessor will advise the court to delay the case until the parties have in a competent court decided the question of the rights of property in the subjects under consideration. When that has been done, if the petitioner has succeeded in vindicating his title, the Dean of Guild Court will naturally, other matters being adjusted, grant warrant. If the petitioner has failed, he will not proceed further with his petition.

## NO EXAMINATION OF WITNESSES.

Before leaving this part of my subject, I ought to say that in the Dean of Guild Court there is practically never a proof or examination of witnesses. That it is competent there is no doubt; but in my 26 years' experience of the court I have only known of one case in which a proof was allowed, and then it was not taken advantage of by the party applying for it. But it is usual if either of the parties desire it, or if the court deems it expedient, for the court to visit and inspect buildings proposed to be altered, in order to better understand the effect of the proposed alterations. It will be obvious to you that in dealing with practical questions no extraneous evidence is necessary when the men of skill composing this court, possessed of every qualification to form a sound judgment on such matters, personally visit a property and satisfy themselves as to the state of the building, and the bearing of the petitioner's proposals on it and on the surrounding properties. At these visits all parties interested may attend. That, then, is a general account of the mode of procedure in the court. If, however, any petitioner or respondent is dissatisfied with a decision of the court he has the right to appeal, and the Court of Appeal is the Court of Session, our highest legal court, there being no Special Court of Appeal for Dean of Guild Court cases. As I have indicated, it is rather

## A FORLORN HOPE TO APPEAL

to the superior court on a purely practical point, because the Supreme Court is a court of law, and will not interfere with the judgment of practical men on practical questions. But, as you have seen, the court has many statutory powers, and the construction of an Act of Parliament is always open to argument, so that the petitioner, in the case of the refusal of a warrant by the court, may consider that its interpretation of the law is wrong, or that the law does not confer on it the power which it has exercised, or in a case where purely legal objections have been taken, either party may hold that the advising by the legal assessor is wrong in law. In any case the appeal is to the Court of Session, and as that is a purely legal tribunal, I need not deal with the procedure there further than to say that when they find that the Dean of Guild Court has gone wrong, which I am pleased to say in the case of Edinburgh has been very seldom, they recall the judgment of the Dean of Guild Court; and remit back the case to that court for further procedure, as

\* Abstract of a paper read before the Society of Architects on Thursday, Jan. 26, 1893, by DAVID LYON, Clerk to the Edinburgh Dean of Guild Court.



it is called, on the lines indicated by the decision of the superior court. The judgment of the superior court itself, however, is in these cases, as in all others, subject to appeal to the House of Lords, and some of our cases have actually gone that length; but I am sure you will be glad to hear that at this point the possibilities of litigation have reached their limit, and the decision of the House of Lords is final. I shall now deal with

#### THE SUPERVISION OF BUILDINGS

in course of erection or alteration after warrant has been granted. The duration of a warrant is by law limited to three years from the date of granting, with the proviso that in an exceptional case the court, at the time of granting, may extend the time of endurance to a period not exceeding five years from the date of the warrant, and also that the period of endurance of any warrant may, in the discretion of the Dean of Guild or his court, be renewed for a period not exceeding three years from the date of renewal; also that the person by whom, or under whose orders, any house or building is being erected or altered, or any work done, if other than the petitioner in whose favour the warrant of the Dean of Guild Court has been granted, shall be liable for the due observance of the terms of such warrant. This is necessary, because in some cases the person who obtains the warrant disposes of the ground on which he proposed to build, or of the building which he proposed to alter, and hands on his warrant to the purchaser. Before any building operations are commenced the petitioner must intimate his intention of beginning to the clerk of court, who passes on this intimation to the master of works, along with the plans, conformity to which warrant has been granted. It is now the duty of the Master of Works to inspect the building from time to time, and satisfy himself that it is being erected in conformity with the plans, and also with the building rules, which must be observed in all cases, and a copy of which is attached to the warrant, when it is issued to the petitioner. Then within a month after any new house or building or alteration is completed, and before it is occupied, the owner or the builder must intimate that the building is ready for inspection before being occupied, and the master of works, if satisfied after survey that it is fit for occupation, and is in accordance with the provisions and requirements of the law, grants a certificate to that effect, and any owner or builder failing to give such notice, or permitting such building to be occupied before obtaining this certificate, is liable to be punished. The master of works, as I have already said, has a large staff of assistants engaged in this work of inspection, most of whom are men who have been trained in some branch of the building trade, and the supervision of buildings in course of erection and of the materials used is thus in the hands of men who well understand the work with which they are intrusted. The court has further

#### THE POWER TO PUNISH PERSONS

breaking its laws. The Act says:—"Every person who shall erect or begin to erect any house or building, or alter the structure of any existing house or building, or use for human habitation any building not previously so used, or alter the mode of occupancy of any existing house in such a manner as will increase the number of separate houses or occupiers without a warrant, or otherwise than in conformity with a warrant of the Dean of Guild Court, and every person who shall, in the erection or alteration of any house or building, the erection or alteration of which has been sanctioned by the Dean of Guild Court, deviate from the plan or plans, and section or sections, elevation or elevations, and detail drawings, so sanctioned, or shall, in the erection or alteration of any house or building, in any way contravene the building rules of this Act, shall be liable to a penalty not exceeding £25, besides being bound, if and in so far as required by the Dean of Guild Court, to take down and remove the said house or building, or to restore it to the state it was in previous to the alterations thereon, or to alter it in such way as the Dean of Guild Court shall direct, so as to make it in conformity with the warrant of the Dean of Guild Court; and the Dean of Guild Court may grant an interdict for the prevention of any such erection, or alteration, or deviation being proceeded with until the extracted warrant of the court shall be obtained for the same." And this brings us to the functions of the procurator fiscal, for it is he who

institutes proceedings against the offender, and it is with him that any information is laid either by the master of works or by a private individual in the event of a contravention of the law. If the procurator fiscal is satisfied that an offence has been committed—and I must tell you that he has a discretion on this point—he presents a petition to the court stating his grounds of complaint, and the offender is summoned to the bar of the court. In the case of a person building or altering property without a warrant, the court will first ordain him to apply for warrant in the ordinary way, and will then impose a penalty for proceeding without a warrant. In the case of deviation from plans already approved of, the court will either ordain him to alter his building in conformity with the plans, or, in the event of the deviation being such a one as the court would have sanctioned had its authority been asked, the offender is ordered to lodge a plan showing the deviation; but after approval he will be fined for his breach of warrant. The court is always ready informally to consider and approve of such small deviations in, say, the internal arrangements of a house in course of construction, and the plan of the deviation is filed along with the original plans. What is aimed at is to secure that an exact record may be kept of all building operations, and the existence of this record is being found so valuable to architects and builders, and, indeed, to all persons interested and dealing in property, that great readiness is being shown to comply with the wishes of the court in this respect.

#### DEALINGS WITH DANGEROUS STRUCTURES.

Proceedings are also taken by the procurator fiscal in all cases where a building is reported by the burgh engineer to be ruinous or insecure, and where the proprietors have failed in compliance with his intimation, to repair, take down or secure such building. Many of the buildings, especially in the older portions of Edinburgh, are large stone tenements of dwelling houses or shops, and dwelling houses where probably each house and shop is owned by a different proprietor. Consequently, when the burgh engineer serves his notices on the owners of such a tenement which has become insecure, there is usually such a difficulty among them in deciding what should be done that nothing is done at all. The burgh engineer, therefore, reports the matter to the procurator fiscal, who proceeds by a petition to the court directed against all the proprietors. He does not stop at this point to inquire into the amount of liability falling on each; he brings them all into court. What is urgent is that the safety of the public be secured, and the court visits the building, at once decides on the operations necessary to secure it, and there and then issues an order on the proprietors to carry out these operations. Failing their commencing to do so forthwith and completing the same within a specified time, the procurator fiscal is authorised to employ proper persons to do the work at the expense of the proprietors. When the work comes to be paid for, the court will then adjudicate as to the liability of each proprietor and fix the proportion which he must pay. If an owner cannot be found, as has happened, the court may dispose of the property, pay for the work out of the proceeds of the sale, and deposit the remainder, if any, in bank subject to its further order. Finally, the court will, on the application of the Procurator Fiscal, visit and inspect any building used as a place of public entertainment, and may, after hearing the persons interested, direct such means to be taken for the proper ventilation, or for providing proper accesses and exits for such building, and for protection from fire and other dangers to the public as the court think fit. Lest I, as an official, should be biased in my opinion, I have, since I received your invitation to read this paper, elicited the opinion of a large number of professional men, lawyers, and architects, and also of builders, as to

#### THE MERITS OF THE DEAN OF GUILD COURT

as a tribunal for dealing with building questions, and practically it has amounted to this: that while the jurisdiction and procedure of the court might be improved in detail, it is, so far, especially in large cities where men of skill and standing are readily available for election to the court, the best institution for its particular work which has yet been devised. It has the advantage of providing an independent medium to adjudicate between the petitioner and that much-

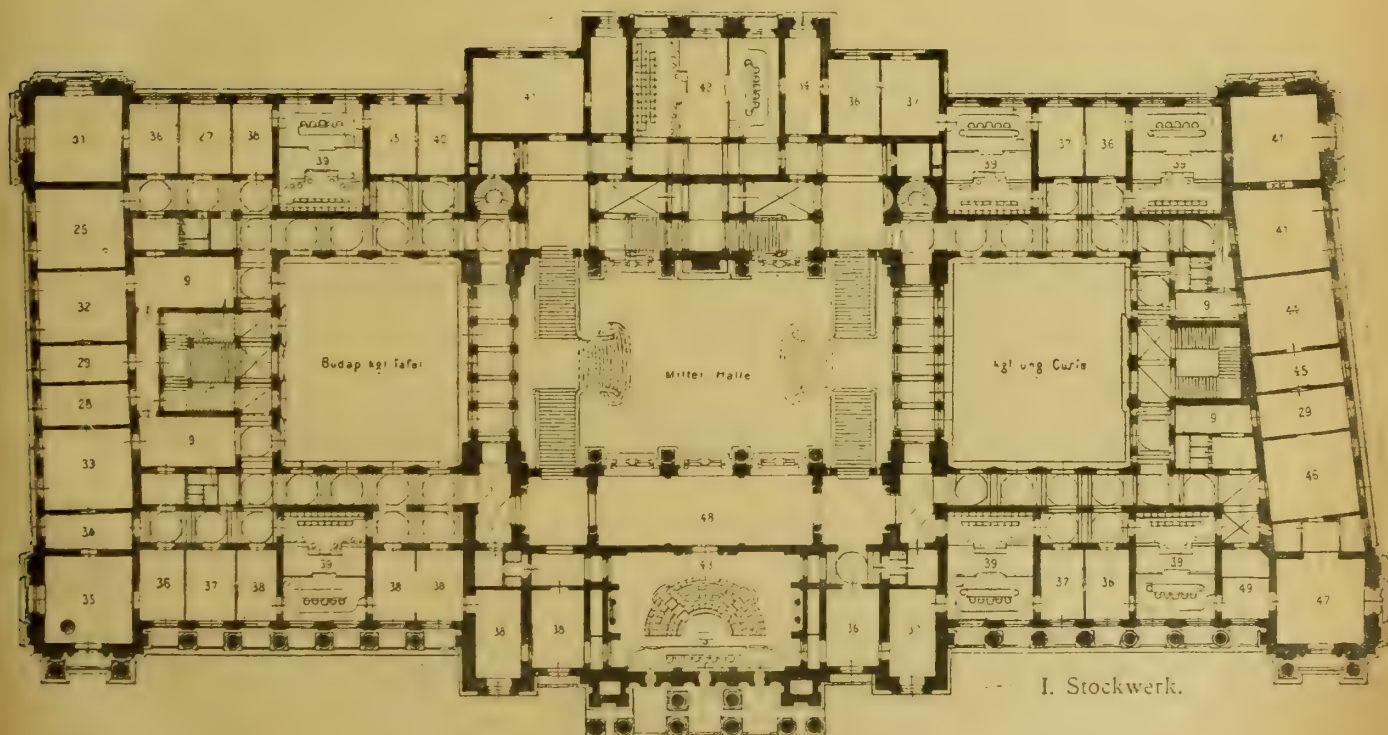
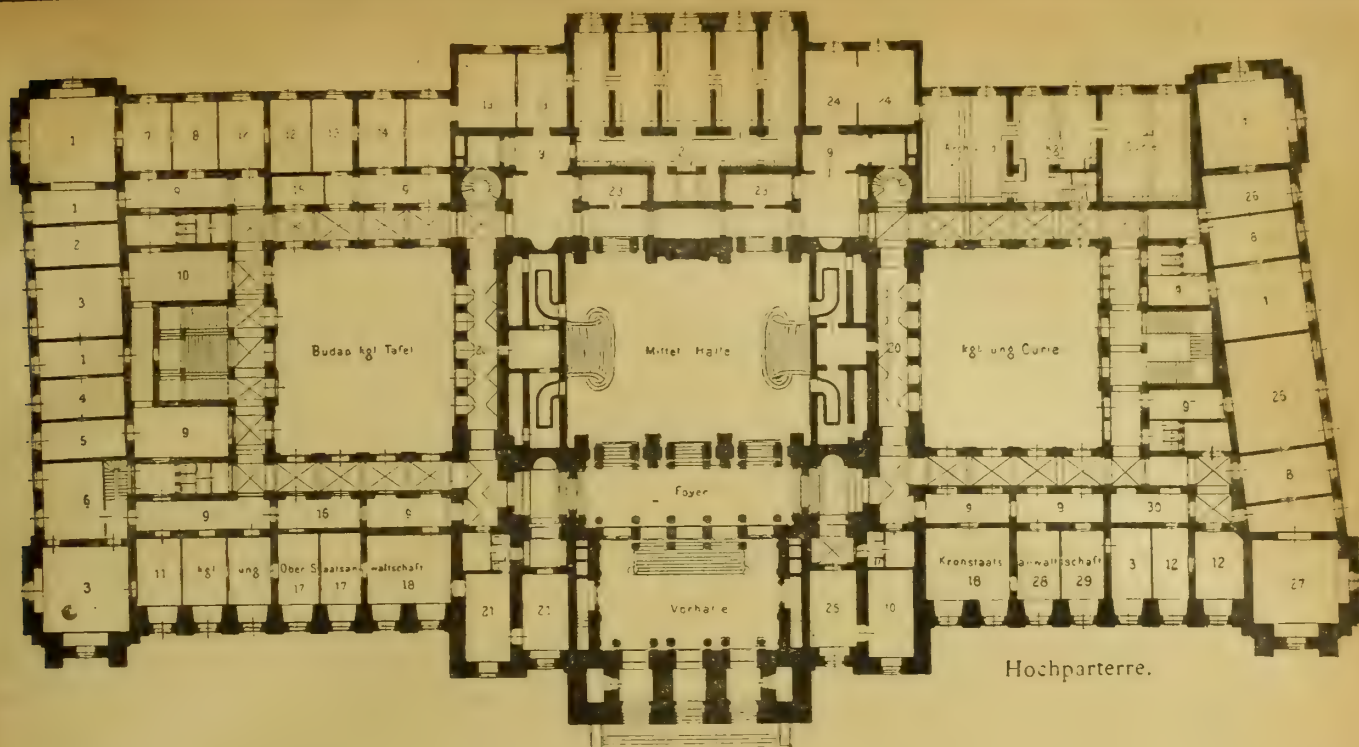
abused person the permanent official, and between between party and party. All proposals and objections are filtered through the minds of a body of practical men guided in the legal aspect of cases by a legal assessor, and restrained by the fact that their business must be conducted in a fair and judicial manner, and that all their proceedings are subject to review by an extremely critical legal court. The procedure is summary; by which I mean that it is to be conducted with reasonable despatch, and the expense incurred in obtaining a warrant is small—in the majority of our cases probably not exceeding 20s. It has the further advantage of securing a uniformity of procedure in all cases, as of course such a court is bound by its own decisions and by precedent. Above all, its business is conducted in open court, and all its procedure is public, and that is, in my opinion, one of the best guarantees that onerous public duties like these discharged by a body of unpaid judges shall be dealt with justly and equitably without fear, favour, or ill-will. Finally, I may say that the court in Edinburgh, both from its constitution and the manner and spirit in which its business has been conducted, possesses, I believe, the perfect confidence of the public whose interests it safeguards, and of the parties and the practitioners who come before it.

#### THE PALACE OF JUSTICE, BUDA-PESTH.

[WITH PHOTO-LITHOGRAPHIC ILLUSTRATIONS.]

THE two photographic plates which we give to-day are reproduced by the courtesy of Mr. Ernest Wasmuth, the enterprising publisher of Berlin, whose "Architektur der Gegenwart," with descriptions by Mr. Hugo Licht, has now reached its eighteenth part. The work illustrates a vast number of highly instructive modern buildings, including churches, palaces, theatres, and public undertakings, well worthy of study. The Palace of Justice at Buda-Pesth may be taken as a notable example. This great building is the seat of the Supreme Court of Judicature for the kingdom of Hungary. It comprises the Royal Ecclesiastical Courts and the Courts of the Second Instance, as also the Royal Appellate Court. For the ordinary courts ten halls are set apart, six halls being used by the Court of Appeal. There are in addition two state rooms for entertainments and receptions. The buildings contain the quarters of the Royal State Attorneys' Department. The façades, which are very monumental in their design, are executed in Söskut sandstone, the base being of granite. The central portion of the main front is flanked by two towers, and is surmounted by a group of three horses, executed by Mr. Karl Sennyel, the eminent Hungarian sculptor. The pediment is sculptured by Mr. Georg Zala. The whole extent of the façade is given in the smaller view above the detailed photograph of this central feature. Inside, the buildings are equally rich and dignified in their treatment, the chief feature being, of course, the great hall, round which the courts are grouped. The loungers' lobby and visitors' hall, and also the grand staircase, are elaborated in costly materials and polished Hungarian marbles, the whole scheme being conceived in a lofty scale with boldly-proportioned features. The centre of the vaulted ceiling of the Great Hall has been decorated by a painting by Prof. Karl Lotz, and it is described as one of his most splendid conceptions. At the head of the grand staircase is a statue of "Justice," seated under the central bay of the arcade and dominating the hall. This is the masterful work of Mr. Alajos Ströbl. The architect was Prof. Alois Hauszmann, hon. corresponding member R.I.B.A. The cost of the building amounted to about £295,000, and the site cost nearly £50,000. The plans given with the text show the arrangement of the buildings, and the following index gives the references to the numbers figured on the plans:—1, Works office; 2, manager's department; 3, chancellor's department; 4, comptroller; 5, treasurer; 6, manager's room; 7, inquiry office; 8, chief officer's room; 9, anteroom; 10, records office; 11, head officer, chancellery; 12, chief manager; 13, files of criminal proceedings; 14, files of civil proceedings; 15, barristers' room; 16, anteroom and attendants' room; 17, draftsmen's study; 18, reception-room; 19, keeper of the records, Royal Appellate Court; 20, lobby for notices; 21, deputy public prosecutor; 22, records, Royal Appellate Court; 23, lumber-room; 24, keeper of the records, Royal Eccle-





THE PALACE OF JUSTICE, BUDA-PESTH.

siastical Court; 25, assistant's office; 26, registration of judgments office; 27, despatch of business office; 28, workroom; 29, secretary's office; 30, stores-room; 31, paying-office; 32, secretary's assistants; 33, president's reception-room; 34, room; 35, conference-room; 36, judges; 37, president; 38, writers; 39, civil court; 40, witnesses; 41, library and reading-room; 42, sessions room, Appellate Court; 43, state room, Royal Ecclesiastical Court; 44, president's chancellory; 45, president's record-room; 46, president's study; 47, president's reception-room; 48, visitors' hall; 49, waiting-room.

The interior restoration scheme at St. Mark's Church, East Hull, has just reached its completion in the opening and dedication of a new organ, built by Messrs. Abbot and Smith, of Leeds.

#### WINCHESTER CATHEDRAL NAVE ROOF.

A HIGHLY interesting account has been published by the Dean and Chapter of Winchester Cathedral,\* placing on record the process of reparation now carried out by the architect to the cathedral, Mr. T. B. Colson, F.R.I.B.A. (senior partner of the firm of Colson, Farrow, and Nisbett, of Winchester and London), who has just lately renewed and strengthened the historic roof over the nave. The work became necessary in consequence of the defective state of the external covering, together with the general disorganisation of the timber framing. The conditions were such as to render the ordinary patching and repairing quite futile, and to make it necessary

\* Messrs. Warren and Son, High-street, Winchester.

for works to be undertaken on a much larger and broader scale. It is admitted that these works were not put in hand any too soon. The roof itself originally was the extent intended by the operations authorised by the Chapter, and it was not till this work was nearing completion that it was decided to make use of the scaffolding and plant in treating other parts of the fabric. Thus, in addition to that of the nave, the roofs of the chancel, of the north transept, of the eastern and western aisles of the north transept, and a portion of that of the south presbytery aisle, also the nave vaulting and the belfry floor, have undergone a work of repair intended to insure their immediate and, as far as practicable, their future preservation. The roof of the nave south aisle is still in a bad condition, and requires treatment similar to that applied to the roofs mentioned.



Mr. Colson has placed two sections at our disposal for the purpose of illustrating the old roof and the work which has now been completed. The photographs show the original roof before the reparation was commenced. The one represents the south side of the nave roof, and the other illustrates the north side. This roof undoubtedly consisted of the rafters extending from the apex of the roof to the outer wall plate, the collars or horizontal pieces extending from north to south with their braces, and the ashlar connecting the rafters with the inner wall-plate, together with the tie-beams extending from wall to wall north to south. There was some difference of opinion as to the age and date of this erection. All the uprights—from the beams, the horizontal timbers extending east and west, the multitudinous struttings, bracings, scarfings, and other supports apparent under the collars—are entirely foreign to the original structure. There is no record as to when these were inserted, and their date was therefore merely a matter of conjecture. Mr. Ewan Christian, in a report to the Dean and Chapter in 1873, mentioned the roof as "without doubt Wykeham's work." Others, however, have asserted it to be the original Norman roof, with later work and reparations of or about Wykeham's time. There is much evidence to prove that the latter opinion is more likely to be correct; but whether the reparations were effected prior to, or subsequent to, Wykeham's time is still a vexed question, and one not easily determined. The tie-beams undoubtedly existed prior to the vaulting, as the former were bedded in the latter, the vaulting having been built up round them, and therefore point to an earlier period than that of Wykeham. The portion of the original rafters and timbers remaining were coeval with the ties, and similar in dimensions and character to those in the south transept roof, which is unquestionably part of the original Norman structure. It may therefore be fairly assumed that the older timbers in the nave were also of Norman date; but the extraordinary mutilations that they had undergone tended to deceive the eye and to give the appearance of a structure erected at a much later date. The various scarfings were no doubt the result of this extraordinary pressure being on the tie-beams, and have probably been made subsequently to Wykeham's restoration of the roof. This master's boldness in casing, strengthening, and increasing the thickness of the original Norman walls no doubt averted much mischief that the condition of the roof would otherwise have produced; but it never was intended that the grand and graceful vaulting and groining of the nave should in any way be subject to the weight that had become imposed upon it. Unless the same had been removed, some serious mischief must have ensued, and that it had actually begun was apparent from the fact that several extensive fissures were found existing in the vaulting.

The ribs of the vaulting had in some cases been bolted up to the timbers, supported near the end of the tie-beams; but as these tie-beams were themselves supported by the vaulting, which was hung up to them, the effect, instead of being remedial, was only mischievous.

The main rafters were in nearly every instance disconnected at the apex, and the whole series of bracings and strutting had become so dislocated as to leave the roof with little inherent strength. From the similarity of the scarfings of the tie-beams they all appeared to have been executed about the same period, and it was in a great measure due to their unskilful construction that the timbers of the roof had sunk, and were lying a dead weight on the vaulting. Natural decay of the timbers, especially at their weakest parts—viz., at the tenons and mortises of the framings—had also added to the general disintegration and disorganisation of the whole structure. Mr. Colson's first section shows the pitch of the Norman roof. A, A indicate the Norman timbers reframed by Wykeham (1367-1404); B, B, the new timbers he inserted; and C, C, the subsequent scarfings. The second section illustrates how the renewal of the roof has been carried out, D, D, D being Mr. Colson's work. Note that in the former drawing the ties rest on the crown of the vaulting, while in the other diagram they stand some 6in. clear above it.

Considerable mystery was attached to the fact of the old rafters being supported upon plates and sills raised off the walls, as shown by section No. 1. It was surmised that the feet of the rafters had become defective, and

so were cut off, and that this method of support was adopted instead of renewing the whole rafter or splicing the ends of the timbers in order to obtain the required length. The Norman roof, as indicated by the string-course on the tower, was of a flatter pitch, and the length of this projecting string exactly coincided with the rafter on the north side of Wykeham's roof. It thus is concluded that Wykeham reconstructed the roof with the original Norman timbers as far as they were serviceable, thus retaining the general Norman appearance of the structure, the increased "pitch" in conformity with Edington's gable at the west end being obtained by raising the rafter-feet off the walls and supporting them as described. It was this arrangement of various lengths of rafters with sills at different levels and no direct tie that caused the mischief. Lifting trusses have now been introduced very cleverly on each side of the tie-beams, which by these means have been raised, and the vaulting is thus relieved of enormous pressure. Owing to the difficulty of obtaining English oak of the length and size (each 45ft. long, 12in. wide, and 20in. deep), it was found necessary to resort to the use of oak from Stettin. A false sill piece has been inserted at the back of the rafters on the north side at a corresponding level to that of the sill on the south side, and these sills have been securely tied together from north to south with stout iron bolts. With the exception of new battening and covering with recast lead, the five westernmost bays of the roof have needed no repair. The timbers had greatly decayed by the action of the worm, which necessitated as much as two-thirds of the structure being replaced with new oak. The insect causing this sad havoc is known as the "Sirex gigas." In its grub state it does the mischief, eating away the timbers till these were literally honeycombed. We cannot follow Mr. Colson in the description of the repairs he has so well done to the "lierne" vaulting of the nave. The travelling-bridge platform resting on cantilevers, used as a scaffold inside the church, was alone a most ingenious erection. We are told that the Society for the Protection of Ancient Buildings has approved of the plans adopted by the architect, and the manner in which the work has been carried out. An appeal is issued for funds, as nearly £6,000 is required to pay for what has been done. The cost has been £11,918 10s. 11d. Messrs. Thompson, of Peterborough, were the builders, and Mr. Russell was the foreman. Sir J. Wolfe Barry, K.C.B., was consulted by the Dean and Chapter, and he thoroughly agreed with the scheme now carried out by Mr. Colson, its author. The photographs given were taken by Mr. Rider, of Winchester.

#### SEWER VENTILATION.

THERE is perhaps no branch of sanitary science that is attracting so much attention at the present time as the ventilation of sewers. The system illustrated on the opposite page seems, from the reports received, to effectually accomplish this. It has the great advantage of being self-acting, and, therefore, cannot get out of order, nor, when once fixed, does it necessitate any attention or after-cost to keep it in operation. With this system a double power is obtained—viz., the aspirating force of the "air-pump" ventilator, which is always in action even when there is no perceptible movement of the air, and the downward air-propelling action of the down-cast ventilator; the principle being a combination of extraction and impulsion by the utilisation of natural forces.

The sewer is divided into sections by means of valves of a special construction, an up-cast-shaft being fixed at one end of the section, and a down-cast-shaft at the other end; the air continuously passing through the sewer in a given direction.

The illustration shows the air being admitted at the lower end of the section, and extracted at the upper end; but this arrangement may be reversed, it being as yet an unsettled question amongst sanitary engineers whether the air-supply should pass up the sewer or down the sewer to secure the best results.

With this system, which is known as the "Boyle System of Ventilation for Sewers," it is claimed that all smells and noxious gases arising from the sewers being ejected above the house-tops, and the air-supply being taken from there,

they cannot prove either a source of annoyance or a danger to health, as is notoriously the case where street ventilators alone are employed.

#### THE REMUNERATION OF CLERKS OF WORKS.

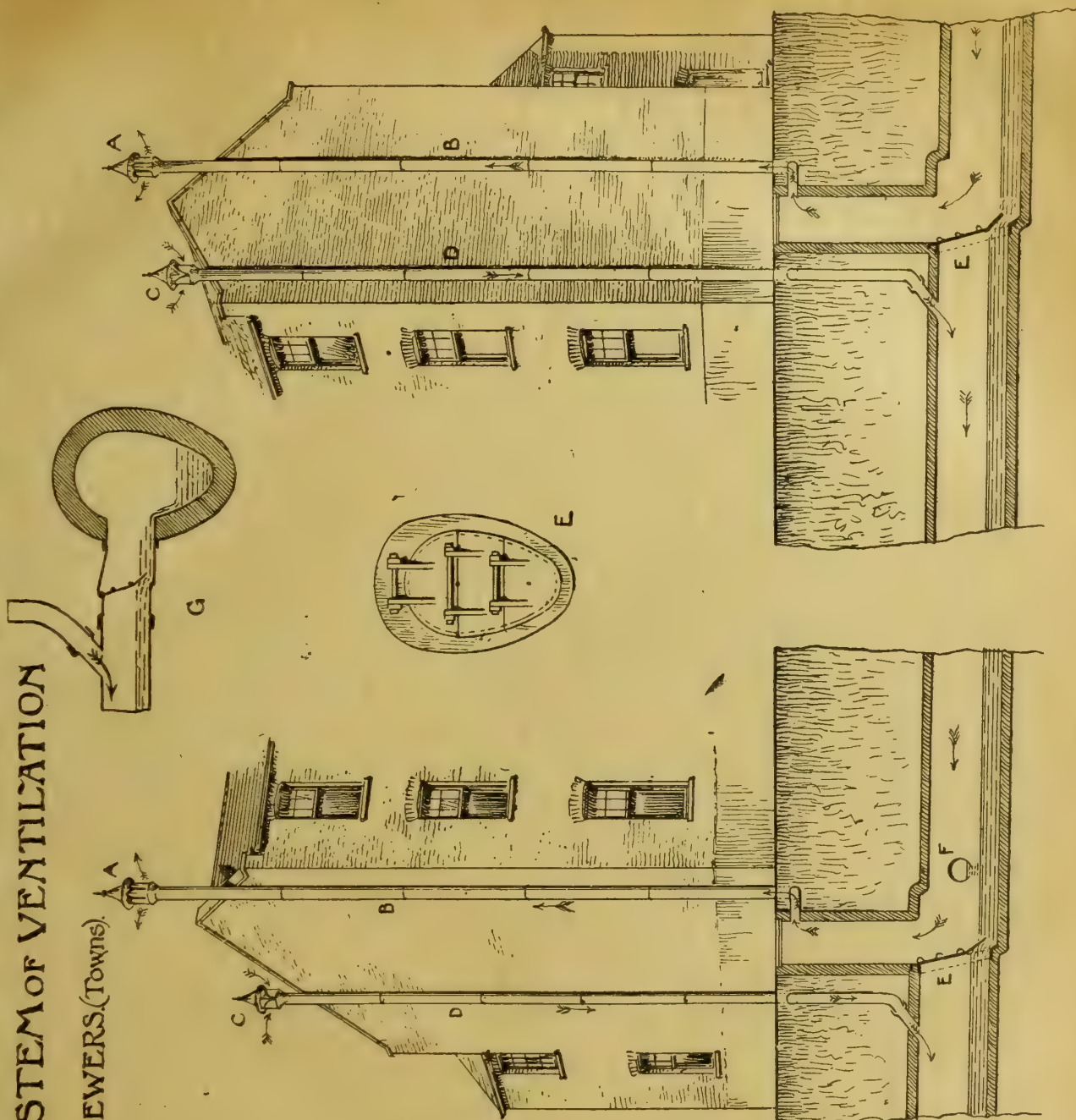
THE sixteenth annual dinner of the Clerks of Works Association of Great Britain was held on Monday evening at the Holborn Restaurant, when a numerous company assembled. Mr. E. W. Mountford, F.R.I.B.A., had been announced to take the chair; but, in consequence of the illness of his wife, he was unable to be present, and his place was occupied by his former fellow pupil, Mr. W. H. Seth-Smith, F.R.I.B.A. The toast of "The Navy, Army, and Reserve Forces," was given from the chair, and acknowledged by Mr. J. Aitchison. Mr. F. Dashwood, secretary of the association, proposed the health of "The Architects and Surveyors" in a drily humorous speech interspersed with anecdotes. Nowhere, he thought, would that toast be more heartily received than by clerks of works, for, but for the architectural profession, their association would have had no opportunities for existence; it was certain that, unless advised by his architect, the building owner would not realise the advantage and desirability of employing a clerk of works on his undertaking. He would ask architects to do their utmost to obtain for the members an advance of salary commensurate with the general rise in wages in the building trades. During the past thirty years the wages of all building operatives had advanced from 25 to 30 per cent.; but there had been no corresponding improvement in the position of the clerk of works. They were told in ancient writ that the labourer was worthy of his hire, and at the present day other people thought he not only got it, but also a surplusage. Indeed, it had been asserted that with shorter hours and enhanced wages the British workman did less work than before; but upon this point he could say nothing except that he had been making exhaustive inquiries at all the Metropolitan hospitals, and had not been able to find a single record of the treatment of an in- or out-patient belonging to the building trades suffering from overwork. Seriously, he would suggest that the remuneration of clerks of works, if not uniformly fixed at a guinea a day—that might come in time—ought to be at least four guineas a week on any job up to a cost of £5,000, five guineas per week for works costing from £5,000 to £100,000, six guineas a week from £100,000 to £150,000, and a guinea per week for every additional £50,000 outlay. This would only be fair pay for the onerousness of the work entailed by watching the progress of works of such magnitude. As to the title of the association, it would be noticed that in the proposed new building contract the name "inspector" was substituted for the term "clerk of works" given in the present building contract, and so long and honourably borne by their members; the new document stipulated that the inspector should "have power to inspect and report to the architect." He protested against these attempted changes in the status and duties of clerks of works. Of late years the duties of a clerk of works had become more onerous and complicated, and he was required to be master of many additional trades, and it was a simple act of justice that improved remuneration should accompany the extension of duties.

Mr. H. V. Lanchester, A.R.I.B.A., in responding, said the position of inspector was not, in his opinion, derogatory to the clerk of works; but when the latter made himself the representative of the architect, his troubles commenced. He could not agree that the clerk of works should be paid by commission on the outlay for the building on which he acted; but thought a more equitable plan would be to proportion the salary to the ability of the man. Mr. J. E. Drower, who also replied in an amusing speech, said architects and clerks of works seemed to take a delight in their work, and they were gregarious animals, as shown by the annual dinners they arranged; but the unfortunate quantity surveyor was only too glad to put his papers out of sight when his task was ended, and was a solitary creature. In no country except the United States had there been such a breaking away from old traditions, and such a display of freshness, originality, and ingenuity as among the architects of England, and in carrying these ideas into execution they had been ably supported by their clerks of works.



# THE "BOYLE" SYSTEM OF VENTILATION

As applied to SEWERS (Towns).



AA. Boyle's Patent "Air Pump" Ventilator. (Upcast).

B.B. Upcast Shaft connected with top of Man-hole or Sewer, carried up against highest adjacent building.

CC. Boyle's Patent Downcast Ventilator, for catching the wind from every quarter and driving it down the Shaft into the Sewer, which is divided into sections, each about 300 feet in length, by Boyle's Triple Flight Flap valves E.E.

Each section is ventilated separately.

The sizes of the ventilators and diameters of pipes are determined by the size of the Sewer.

F. Connection of Branch Sewer with Main Sewer.

G. Section of Branch Sewer connected with Main Sewer.

He could not understand how and where clerks of works were trained, except it was in preparation for the examinations of that association, and he certainly thought Mr. Dashwood had made out a good case for improved remuneration for his members.

Mr. J. Brady, editor of the *Clerks of Works' Journal*, proposed "The Worshipful Company of Carpenters," remarking that the company provided them with a home in their hall, and also invited the president and secretary to take a

practical part in these examinations. The toast was acknowledged by Mr. H. Phillips Fletcher, A.R.I.B.A., who eulogised the efforts of the company to promote technical education and the progress of the craft, and emphasised the necessity for compulsory registration for architects.

In proposing the toast of the evening, "The Clerks of Works Association," the chairman said he fully concurred in Mr. Dashwood's desire to raise the salary and status of his members, and thought the proposal to remunerate the clerk of

works by a progressive scale, according to the cost of a building, a very fair one. Those who lived in glass houses should not throw stones, and he could not understand Mr. Lanchester, as a member of a profession paid by commission on outlay, objecting to a like method of payment being applied to clerks of works. He thought the proposal in the new building contract to alter the title "clerk of works" to "inspector" quite unneeded. With the toast he coupled the name of the president of the Association, Mr. W.



Baker, who briefly responded. Other toasts were: "The Visitors," given by Mr. J. Spooner, vice-president, and acknowledged by Mr. Howard J. Colls; "The Press," proposed by Mr. E. Woodthorpe, F.R.I.B.A., and replied to by Mr. W. T. Plume; "The Hon. Treasurer, Mr. John Oldrid Scott," given by Mr. S. Green, and acknowledged, in the absence of Mr. Scott, by Mr. King; and "The Chairman," proposed by Mr. B. E. Nightingale, and to which Mr. Seth-Smith replied.

#### OBITUARY.

We regret to notice the death, on the 5th inst., at Baron House, Mitcham, Surrey, of Mr. JOSEPH HURST BOOBYER, of that address, and 14, Stanhope-street, London, in his 79th year. Mr. Boobyer was the head of the well-known firm of builders' ironmongers, the name of which has for more than two hundred years been familiar to our readers and their forbears; and the sterling reputation of which for integrity and enterprise has been so ably maintained by him and his survivors.

#### CHIPS.

During the gale on Sunday night a massive portion of the old castle at Neath, Glam., 30ft. high, and weighing about 100 tons, fell into the street. Fortunately, no one was near at the time.

The annual dinner of the Bath Master Builders' Association was held on Tuesday week, and was very numerously attended. The president, Mr. Councillor J. Harvard, occupied the chair.

It has been decided to instal the electric light in St. Paul's Cathedral. The necessary sum, which will not amount to less than £5,000, has already been raised.

The Board of Trade has appointed Mr. J. Arthur Wallington, of Basingstoke, as surveyor and umpire to their railway department.

A faculty has been issued for the erection of a stained-glass window in the parish church of East Malling. The artists are Messrs. Heaton, Butler, and Bayne, of Garrick-street, W.C.

The demand for investments at Tokenhouse-yard Mart was maintained last week, and good prices predominated. The most important lot submitted during the week comprised an area of 18,000ft., close by Farringdon-street Station, which, however, failed to reach the reserve of £185,000 placed upon it. The returns for the week altogether amounted to £218,949, exceeding the corresponding week in last year by over £170,000, but of this amount £163,000 is attributable to gas stock.

Col. W. R. Slacke, R.E., Local Government inspector, conducted an inquiry at Bristol on Friday with reference to an application by the corporation for a provisional order to empower them to acquire lands in White Ladies-road, St. Luke's-road (Bedminster), Ashley Grove-road, and Woolam-street (Easton), for purposes of street improvements.

A thousand pounds a foot was offered and refused at the Auction Mart, Tokenhouse-yard, last week for a freehold property adjacent to the City, situated in Cowcross-street, with an area of 18,000ft. A portion of the property is covered with buildings bringing in a rental of £1,160 per annum. The biddings commenced at £100,000, and after reaching £181,000, it was announced that the property was not sold.

The arbitration proceedings in connection with the compulsory acquirement of the Yeovil Gas Works by the corporation of that town took place last week, at the Westminster Palace Hotel, London, concluding on Thursday evening. Sir George Bruce, C.E., acted as umpire, the arbitrators being, for the company, Mr. A. W. M. Valon, C.E., and for the corporation, Mr. H. Stevenson, C.E. After hearing counsel's speeches, the umpire said he hoped to make his award by the 31st of March.

Mr. J. E. Willcox, C.E., Birmingham, at a meeting of the rural district council on Saturday, submitted plans, &c., for a supply of water to the village of Guiting Power. The cost was over £1,000. Members pointed out that only some eighteen cottages were affected, their centric worth being little more than the estimated outlay on the supply, but eventually the plans were adopted, subject to the approval of the Local Government Board.

Mrs. Holl, widow of the late Francis Holl, A.R.A., engraver, and mother of the late Frank Holl, R.A., died on Friday at 8, Cadogan-gardens, S.W., aged 78 years. Mrs. Holl was a younger daughter of the late Commander Dixon, R.N., who served on board her Majesty's ship *Victory* at the battle of Trafalgar.

## Building Intelligence.

**BATTERSEA.**—A new hall which has been added to the Polytechnic at Battersea, from the design of its architect, Mr. E. W. Mountford, F.R.I.B.A., was recently opened by Mr. Balfour. The hall occupies a space at the east end of the Polytechnic ground left vacant for it in erecting the main buildings, with the style of which it is in harmony, though somewhat more severe in character. It is built of red brick and Bath stone. Internally the hall is 85ft. long and 56ft. wide, while the crown of the arched ceiling is 43ft. above the floor. Behind the platform are three rooms which, when not required for purposes connected with the hall, will be used for music classes, and underneath are two workshops for masons' and plasterers' work. The gallery extends across the end of the hall opposite the stage, and will accommodate 180 people according to the County Council regulations, the body of the hall accommodating 780, thus giving a total seating capacity with the platform of about 1,020. The hall is to be used for examination purposes, for meetings of students, and for the holding of popular concerts and entertainments and exhibitions. Mr. Henry Holloway was the builder.

**DRUMMOND CASTLE.**—At present a large staff of workmen are engaged rebuilding the west wing of Drummond Castle, the residence of the Earl and Countess of Ancaster. The portion of the castle extends from the front turret entrance door in the courtyard south towards the famous gardens. In this wing were formerly situated the staircase and dining-room, with eight or ten bedrooms, which have all been removed. A new block of three stories in height is being erected in its place, which also occupies a part of what was the courtyard near the garden entrance. The greater portion of the ground floor of this new wing is to be occupied by a large dining-room and a new staircase, with windows looking into the gardens and courtyard. A new library is to be placed on the drawing-room floor above the dining-room, also looking on to the gardens; while the whole of the remainder of this floor and the top floor will be taken up with bedrooms. A new billiard-room has also been formed on the ground floor. The new wing has been designed in the same style as the present castle, and has corbelled turrets on the south angle overlooking the gardens. The buildings adjoin the ancient Castle of Drummond, which dates from the 15th century.

**IPSWICH.**—The corporation of this town, at their meeting on Wednesday week, decided to carry out a number of improvements at an estimated expenditure of nearly £20,000. These include the widening of the eastern section of the narrow part of the ancient main thoroughfare known as the Butter Market, at a cost of £5,500; the widening of St. Peter's-street, leading to Stoke Bridge, to 26ft., at a further outlay of £6,150; to extend the museum and free library in High-street over land recently acquired at the rear of the premises, with entrance from St. George's-street, at a cost of £3,000. They also approved, in principle, of the purchase of the tramways, with a view of working them by electric traction, and of the erection of a public abattoir, appointing a committee to report on the probable outlay on the latter, the sum spoken of being between £5,000 and £6,000.

**NORWICH.**—The improvements to the Sessions Court at the Guildhall, set on foot last year, are approaching completion. The old stone flagged floor has been replaced with one of wooden blocks. The flags were found to have been laid on thin lime concrete on beams which were quite rotten. A new floor of steel girders on concrete covered with wood blocks was accordingly put in. Double windows have been fitted on the north side of the court, and a dingy old curtain at the back of the gallery has been replaced by a panelled screen. The cleaning and painting of the court has been carried out thoroughly. The canopy above the seat of justice has been renovated, the ironwork of the galleries has been touched up with gold, and the panel in the centre of the west wall has been cleansed from a dozen coats of varnish and dirt, revealing a well-painted achievement, one of which any court might be proud, of the Royal Arms of the reign of George II. This restoration was due to Mr. Dimmock, of London-street. New fittings, including dock, witness-stand, and

reporters' tables, have been provided, and seats constructed for the general public. At each entrance oak screens have been provided. The work has been carried out under the direction of Mr. Arthur E. Collins, the city engineer, by the sole contractors, Messrs. Downing and Sons, of Victoria-street, Norwich.

**PETERBOROUGH.**—The process of taking down the south-west gable of Peterborough Cathedral front has just been completed down to the main string-course. The various stones are now lying on the inclosed green sward of the Precincts, with the exception of the wheel window, which has been retained upon the scaffold. The stones are much larger than were those of the north gable, and in far better preservation. It appears that very little new stone will have to be used. St. Andrew is now in closer company with his stony companions, for they are all in congregation at the base of the west front. Viewed so nearly, the statues are very grim and worn; but many are excellent carvings. The whole of the figures will be immersed in a solution of lime, and after a visit has been paid by Mr. G. F. Bodley, A.R.A. (the architect), the work of re-erection will immediately commence. On its completion the central gable will have expended upon it the slight restorative work suggested by Mr. Pearson and his successor, and, this done, the façade will once again be in every respect sound.

**PETERMARITZBURG.**—Numerous and costly Government buildings are just finished, in progress, and about to be proceeded with in Maritzburg. Col. Hime, the Minister of Lands and Works, has purchased about four acres of the College Grounds just beyond Alexandra Bridge, upon which will be erected the new Native High Court. The specifications for the new Drill Hall are almost ready, and the work will soon be put in hand, and tenders are invited for the Legislative Council buildings. Large railway workshops are to be erected near the Zwartkop-road. At the Natal Government Asylum extensive additions are in progress. These consist of a new dining-hall, laundry, recreation-room, and other offices, besides the installation of the electric light. In addition to those works, the Colonial Armoury has just been increased by the erection of a new hall and quarters for the armourer, and Maritzburg College is being increased by a new and elegant hall. The Colonial Offices are to have a third story added to them. Altogether the new works just mentioned will mean the expenditure locally of £75,000.

The draft scheme and order of the Charity Commissioners for the foundation of endowed schools by the Haberdashers' Company, under Aske's Charity, just published, provide that amongst other schools one school shall be established at West Hampstead for about 300 boys, to be called the Haberdashers' Aske's Hampstead Boys' School, and that the cost of the site and buildings for the school are not to exceed £32,000.

Emmanuel Church, Exeter, has been placed in the hands of John King, Limited, engineers, Liverpool, for the entire warming and ventilation by their latest improved hot-water apparatus and patent tubular exhaust ventilators.

A deputation from residents in New Wortley waited upon the sanitary committee of the Leeds Corporation on Friday, and complained of the state of things connected with half a dozen cottages owned by Alderman Knowles. They stated that the tenants of the property, in order to reach the closets, had to go sixty yards along a public thoroughfare, and thence through a dark passage only 25in. wide. It was further complained that the accommodation was insufficient, there being only two closets for eight houses—the six belonging to Mr. Knowles, and two to another owner. The committee passed a resolution ordering a notice to be served upon the alderman, requiring him without further delay to remedy the present unsatisfactory condition of affairs.

At Partick Dean of Guild Court on Friday linings were granted for the erection of tenements aggregating in cost about £50,000.

Mr. E. Sandford Fawcett, A.M.I.C.E., an inspector of the Local Government Board, held an inquiry on Feb. 9 at Clayton-le-Moors into the application of the urban district council for sanction to borrow the sum of £5,075 for purposes of paving and other improvements on portions of the main roads within the district. Mr. A. Dodgeon, surveyor to the council, explained the details of the scheme, after which the inspector viewed the sites of the respective works.



## PROFESSIONAL AND TRADE SOCIETIES.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—At the last meeting of this body, held in the Royal Institution, Edinburgh, Mr. Thomas Ross, president, in the chair, a paper was read by Mr. Thomas A. Croal, entitled "Some Words about Edinburgh Architecture." Dealing with the placing of buildings, and the exits from public places, Mr. Croal took for his starting-point Mr. Waterhouse's comments on the site ultimately selected for the Usher Hall. Mr. Waterhouse had remarked, on the general question, that a site for a public building should be more or less surrounded by lawns and trees, as nothing, in his judgment, so much enhanced the enjoyment of fine architecture as the softening influence of neighbouring vegetation. Proceeding on the lines thus indicated, Mr. Croal reviewed the position of many public buildings in Edinburgh, first noting the beauty to the eye presented by the Register House, and suggesting that the determination of Edinburgh to preserve the north side of Charlotte-square—by the same architect—lay in the charm of its combination of a sunny frontage and the "softening influence of neighbouring vegetation." Mr. Croal indicated the Scott Monument as a prominent illustration of a building badly placed, in respect that its worst aspect was on its own proper front. The university was so placed that the best front view was obtained inside, and the Museum of Science and Art had heavy cornices to keep off the sun, and an open glass front to the cold north. Fettes College was so grandly placed that the plainness of its rear view did not offend; but many buildings existed whose back parts, although on the sunny side, were so bald as to show only deformity. Princes-street, although Glasgow folk called it "a street wi' ae side," seemed the perfection of condition for prominent town architecture. Referring to the fact announced by the Lord Provost that the new buildings in the Castle were condemned by the Commander-in-Chief and the War Secretary, Mr. Croal showed how they came as an ugly breach in what was formerly a lovely and perfect contour, and then commented on the curious fact stated at Dundee by the Marquis of Lothian that the War Office had raised the question of carving the English quarterings on the Castle. The second part of the paper pointed out the dangers of exit from a number of public halls in Edinburgh, and counselled architects to keep this point well in mind. The members of the Association made their first visit for the present session on Saturday afternoon. Tolleross cable-power station was thrown open for inspection, and members were met at the depot by Mr. W. N. Colam and Mr. Cooper, the engineers for the corporation. The chimney is 180ft. high. The front of the building has been treated in terracotta and stone in a Victorian Gothic style, and the sides are of terracotta brick. The total cost will be approximately £44,000. Members then paid a visit to the Industrial Brigade Home in Fountainbridge, over which they were shown by Mr. Frank W. Simon.

**THE EXETER DIOCESAN ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.**—The annual meeting of this society was held in the College Hall, South-street, Exeter, on Friday, the chair being occupied by the Rev. F. B. Dickenson. A satisfactory report was presented, and a balance in hand of £45 19s. 10d. was reported. The offices and committee were re-elected, with the addition to the latter of Mr. A. J. Mackay, Mr. Harbottle Reed, and the Rev. J. O. Reichel. The Rev. C. J. V. French, Mr. W. B. Harberden, and the Rev. E. Gill were elected new members. The Rev. R. Medley Fulford read a memoir of the late Rev. J. L. Fulford. Mr. Harbottle Reed read a paper on Tintagel and Boscastle Churches.

**NOTTINGHAM MASTER BUILDERS' ASSOCIATION.**—The annual dinner of this association took place at the Albert Hotel on Friday last. In the absence, owing to illness, of the President, Mr. James Wright, Mr. Enoch Hind, a former president, occupied the chair, and was supported by Mr. W. Edgar (in the vice-chair), Ald. John Bowen, J.P., Birmingham (president of the Midland Federation), Mr. Ernest Jardine (president of the Nottingham Engineer Employers' Association), Ald. Pyatt, County Councillor W. Lewin, Messrs. J. Sulley, Chambers (president of the Leicester Master Builders' Association), Fox, Barker, J. J. Adams, T. Barlow, A. G. Bell, J. Cooper, T. Cuthbert, Crane, Eliot, Attewell, G. Fish, A. H. Gell, Gabbittass,

Goodband, J. Greenwood, Green, F. Hodson, W. J. Barton (secretary of the Association), Heighton (secretary Master Plumbers' Association), R. Morley, Maule, J. T. Norris, G. A. Pillatt, J. F. Price, W. Savage, J. Shaw, A. Vickers, J. Carr, J. H. Williamson, J. H. Spencer (solicitor to the association), J. Wright, W. Hall J. Hickinbottom, Buttler, G. Hind, J. R. Rudd, W. Appleby, T. Long, H. Haines, J. W. Shaw, J. Burton, L. Pask, T. Thorpe, Adkins, T. Woolston, T. Day, W. Hobson, J. Hotching, R. Simpson, T. Flewitt, A. Wright, J. Bryan, Walter Danks, T. Greenall, L. Lloyd, T. Salisbury, W. Watson, and others. Mr. Lewin submitted "The Mayor and Corporation of Nottingham," coupling with the toast the name of Ald. Pyatt, who suitably responded. Mr. Vickers gave "The Architects," observing that he was sorry to have to utter a discordant note, but he was bound to say they were somewhat behind other large towns in the matter of architecture. During the last few years, however, there had been great improvement in this direction, and he sincerely trusted it would continue. In proposing "Success to the Master Builders' Association," the Chairman said the association had been formed for only two or three years, but during the past year their membership had increased by 31, and the members on the books were now 99. They were all aware that they had had some differences with the architects and with the men during the year. At its beginning there was a strike with the labourers, and the bricklayers were in sympathy with them. The association had to give way because work was good; but he was sure that so long as they remained banded together they would go on progressing. The Chairman referred to the decease of two old friends of the association, Mr. Fred Messom and Mr. Enoch Kent. Mr. George Fish responded. Mr. Thomas Greenwood submitted the "National Federation and Kindred Associations," and referred to the advisability of unity in consideration of the action being taken in respect to the limitation of apprentices. The names of Ald. Bowen, J.P., and Mr. Ernest Jardine being associated with the toast. The health of "The Chairman" closed the list.

**SOUTH WALES ARCHITECTS.**—The annual dinner of the Cardiff and South Wales and Monmouthshire Architects' Society was held at the Royal Hotel, Cardiff, on Saturday evening. Mr. C. B. Fowler, F.R.I.B.A., president of the society, occupied the chair, supported by the Deputy Mayor of Cardiff (Alderman Trounce), Mr. H. L. Florence (vice-president of the R.I.B.A.), the Mayor of Newport (Councillor T. H. Howell), Mr. Lewis Williams, Mr. E. W. M. Corbett, Mr. D. T. Alexander, Messrs. J. Coates Carter, D. Morgan, M.S.A., Edwin Seward, B. Lawrence, and Mr. W. H. Dashwood Caple (secretary). Mr. W. Cooke proposed the toast of "The Royal Institute of British Architects and the Cardiff, South Wales, and Monmouthshire Architects' Society." Mr. H. L. Florence (vice-president R.I.B.A.), in responding, remarked that he had that afternoon visited Cardiff Castle, and there he saw the spirit of an artist who had produced the forms of the 13th century, and had infused into them the life and spirit of the 19th. That should be the end and aim of the architect. They were, he had found, about to put up a new series of magnificent municipal buildings in Cardiff, for which there was no parallel in the town in time past. He had called upon Mr. Lanchester and had seen the plans, and he was surprised and delighted to see how convenience and admirable arrangement in the interior had been blended with beauty and proportion in the exterior. The President also responded in felicitous terms, and expressed the opinion that young architects should, instead of settling down at once in the town, go about and get eight or ten years' experience in different parts of the country. In this way would local architecture be raised to the highest standard. He referred to the work in connection with the local society done by their indefatigable secretary, Mr. W. H. Dashwood Caple. The President closed by moving a resolution of hearty congratulation to Mr. Goscombe John on the occasion of his achieving membership with the Royal Academy. Mr. E. W. M. Corbett seconded, and the resolution was adopted with acclamation. Mr. J. Coates Carter (president-elect) proposed the local government bodies. The Deputy-Mayor (Alderman Trounce), the Mayor of Newport, and Mr. Lewis Williams responded. Other toasts were "The Master Builders" and "The Visitors."

During the evening a programme of orchestral music was given, which had been designed by the president. The wording of the menu bore the heading "Specification," and the courses were happily named, "Setting Out," "Foundations," "Damp Course," "Joinery," "Walling," "Roof," "Certificates," "On Account," and "Final Certificate."

A church is about to be built for the Felstead School Mission in Royal-road, Victoria Dock, E., from plans by Messrs. G. A. T. Middleton and R. W. Carden, A.A.R.I.B.A., of 19, Craven-street, Strand, W.C. The building will be of inexpensive character, and will be seated for 460 persons. It will consist of a nave 86ft. by 30ft. without clerestory, and only 20ft. in height to roof-plates, transepts 28ft. broad and 14ft. deep, and apsidal chancel 22ft. depth, with vestries to north. The facing materials are Brown's red bricks and brown Ancaster stone for dressings.

At the Surrey County Council meeting on Tuesday, it was resolved to approve the recommendation of the joint committee of Surrey and Middlesex to increase the width of the projected new bridge over the Thames at Kew from 45ft. to 55ft. The consent of Middlesex has already been given.

Lord Russell of Killowen opened, on Saturday, new technical and art school which has just been built in Kingston-on-Thames, at a cost of nearly £10,000. The late Mr. Thomas Lainson, of Brighton, was the architect.

St. Peter's Church, Oldham, which was consecrated on June 2, 1768, was used for public worship for the last time on Sunday, and its demolition will be at once commenced. The church is to be rebuilt on the same site, but the new edifice, which is to be of stone, will be a larger one than the old. The estimated cost is £12,000.

In the case of the application on behalf of George Carter, of Great Grimby, builder, an order of discharge from bankruptcy has been refused.

New casual wards are now being erected at Bolton, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

The generous offer of Mr. Willett, a member of the Brighton Corporation, to redecorate the interior of the Royal Pavilion has created considerable interest in that borough. The Royal Pavilion belongs to the corporation, and was purchased for £60,000, and is used for entertainments, &c.

A Local Government Board inquiry was held at Morecambe on Friday by Colonel Darnford, R.E., into an application by the district council to borrow £2,900 for widening Marine-road, opposite the Midland Hotel. An application to borrow £1,200 for private street improvements was also dealt with.

Lieut.-Colonel C. A. Smith, R.E., one of the Local Government Board's inspectors, held an inquiry in Bradford on Friday into the application of the City Council for power to borrow £20,000 for the purposes of electric lighting extensions. Details of the proposed expenditure were given, and afterwards the inspector visited the electrical works of the city.

The foundation-stone of the great dam across the Nile at Assouan was formally laid on Sunday by the Duke of Connaught. The engineering works are being carried out by Messrs. Aird and Sons, of Belvedere-road, S.E., and Mr. Blue is the local manager and representative of the firm. The dam will be a mile and a quarter long, 80ft. wide at the base, and 80ft. high. It will raise the level of the Nile for a distance of 140 miles.

The city council and the docks committee of Bristol have decided to offer as a starting salary for the docks engineer, in succession to the late Mr. J. M. McCarrick, £1,000, to be advanced by annual increments of £100 to a maximum of £1,500.

Queen Anne Street U.P. Church, Danfermline was reopened on Sunday after restoration and internal construction, including refooring and new roof and seats. The total outlay, including erection of organ by Messrs. Ingram and Co., of Edinburgh and London, has been about £3,600.

At Tuesday's meeting of the London County Council the tender of Messrs. J. Cochrane and Sons of £109,500 for the construction of a footway tunnel under the Thames at Greenwich was accepted. A motion by Dr. Cooper for the relaxation of the standing order relating to the erection of workmen's dwellings, by the omission of the provision that the erection of such dwellings shall entail no charge on the county rate, was, after discussion, referred to the General Purposes Committee. To the same committee was referred a proposal to erect in the portion of the Strand to be widened by the removal of the Holywell-street block statues of Chaucer and Milton.



## Engineering Notes.

**NOTTINGHAM.**—The Corporation of Nottingham is constructing a new road on the north side of the River Trent, between Trent Bridge and Welford Bridge, on the site of part of the "Meadows," now nearly built over. The river-side road and promenade will be from 180ft. to 210ft. wide, and about a mile and a quarter long. The foot of the bank is protected by strong piling, from which rise seven concrete steps, which in themselves will provide a safe and dry promenade, except in flood times, when they will be submerged. The promenade and road are to be above flood level, and between these and the concrete steps is a grass slope. The carriage drive is 36ft. wide; on each side there are two footpaths and a grass verge, and altogether three rows of trees. For the purpose of raising the road above flood level about 182,000 cubic yards of material will be required, all of which is being dredged from the river. The council have also acquired a piece of land of an area of about 25 acres abutting upon the new road, which will be laid out as a cricket and football ground. Another important work which the corporation have on hand is the extension of their sewage farm at Stoke Bardolph. At present the area is about 900 acres, and a provisional order was obtained last session for the acquisition of nearly 1,000 acres of additional land. The land lies contiguous to the river below Colwick, within six miles of the city, and is suitable for this purpose. The system adopted is that of broad irrigation combined with intermittent downward filtration; the whole of the land except that used as permanent pasture is underdrained. An important work has just been completed in the construction of an intercepting sewer for the drainage of the property now being so rapidly built on the Meadow Lands. This has involved the construction of about 1,220 yards of 5ft. 6in. diameter sewer and 1,430 yards of 4ft. 6in. diameter sewer; there is a siphon under the Tinker's Leen, and another under the canal. A new pumping station has been built, which is to take the place of the old one, which is now out of date and at too high a level. The new pumping station contains two boilers, 26ft. by 7ft., and two 24in. centrifugal pumping engines by Messrs. J. and H. Gwynne, Limited. A new sewer is also being constructed on the Lenton Boulevard. The Leen Valley sewer, constructed 25 years ago, is now much too small for its purpose. The new sewer for a length of about a mile is 9ft. wide by 7ft. 5in. Beyond Lenton this sewer is continued for about 2,150 yards, but is 7ft. diameter. This work has only recently been commenced, and the first portion will be completed in about twelve months. The contract for the second portion is not yet let. Nottingham has other improvements on the way, including a tramway extension scheme, the erection of a new electricity supply station, and other works. The constructive work of the electrical department is undertaken by Mr. Arthur Brown, M.I.C.E., the borough engineer, and the whole of the electrical work is in the hands of Mr. H. Talbot, the electrical engineer. Mr. Brown is also responsible for the riverside improvement, and has prepared the plans for the tramway extensions and all other works in progress.

The memorial to the late Sir J. E. Millais, P.R.A., will take the form of a statue to be erected in the Tate Gallery of British Art at Millbank. Towards the £2,000 required, about £730 has already been promised.

During excavations in the Forum at Rome eight large blocks of marble belonging to a cornice of the Temple of Julius Cæsar have been discovered. The blocks are deeply imbedded in the earth in a position which they must have occupied since their fall from the edifice.

The Estate Governors of Dulwich College have granted a site for a new Congregational church at Herne Hill.

Dr. F. St. George Mivart, an Inspector from the Local Government Board, held an inquiry at Scarborough on the 3rd inst. with reference to the application of the corporation for power to borrow £15,000 for the erection of a new infectious diseases hospital. The medical officer of health (Dr. Littlejohn) and the borough engineer (Mr. H. W. Smith) gave particulars as to the hospital. It will contain thirty-two beds, and provision is made for the reception of cases of scarlet fever, enteric fever, diphtheria, measles, &c.

## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXIV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LIII., LVIII., LIX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., and LXXIII., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—P. S. M. and Co.—W. Allen.—H. F. G.—T. Moore.—W. Collins.

NOTE. (We do not think you can prevent him; but it is impossible to give an opinion as to ancient lights without personal inspection, and you had better take advice from a competent surveyor. It is impossible for us to advise on questions of this kind.)

## Correspondence.

### RIGHTS OF LIGHT AND AIR AND THE NEW MUNICIPALITIES BILL FOR LONDON.

To the Editor of the BUILDING NEWS.

SIR,—The present state of the law with regard to matters of light and air in building operations is one of great uncertainty and productive of much waste of time and money, and frequently seriously impedes the building enterprises of those wishing to improve or rebuild their premises, and it is very often a question whether it is not worth while to pay a sum of money as blackmail rather than have the progress of the work stopped by an injunction, and risk the heavy expenses incurred in fighting an action often based on trivial or imaginary rights.

How to deal with this question so as not to interfere with vested interests and rights, and yet at the same time facilitate building operations, may be a difficult problem; but it is not by any means an impossible one.

In Scotland these matters are dealt with by the Courts of the Deans of Guild, and it ought to be possible to adopt some similar means here. It has been suggested that a technical court should be established, and every building owner, where any question of light, air, or other easement arises, should be able to appeal to this court and cite before it all respondents who may be interested. Plans could be deposited to which all interested parties could have access, and the court would then proceed to hear the objectors and the

building owner, and decide the limit to which the building could be carried without interfering with the lights and easements of the objectors; by this means no injury would be done to the rights of either party, and the decision obtained before the building owner is pledged to his contract with the builder, would most certainly prove of invaluable service to those contemplating building, and prevent blackmailing or useless actions.

The technical court would be composed of professional men who would not require expensive expert evidence to be brought before them to determine the issue, and who would visit the premises and see for themselves. The nucleus of such a court is to be found in the Tribunal of Appeal under the London Building Act of 1894. Its numbers could be increased and additional powers given to it to charge the necessary fees for maintenance, and the whole cost of deciding between the parties would be a mere fraction of the present unsatisfactory and wasteful course of fighting a light and air action. There could, of course, be an appeal to the Divisional Court, if thought necessary, and also the building owner, if he exceeded the limits laid down by the court without first settling with his neighbours, would be proceeded against by the court, who should have the power of enforcing their own decision.

To this end the Society of Architects in November last approached the Lord Chancellor with a petition, praying that a Parliamentary committee might be appointed to inquire into the present law with regard to ancient lights, with a view to saving the large amount of moneys being expended in determining the rights of owners with regard to same, when his lordship intimated that he would give the matter his careful attention.

It is hoped that the hearty co-operation of the leaders of the professions, both architects, surveyors, and lawyers, will be given to obtaining an Act of Parliament to deal with this subject, and thus enable us, at least, to be on an equal footing with Scotland and the present new Municipal Government Bill should give a good opportunity for forming the necessary court under the central authority, the London County Council.—I am, &c.

C. McARTHUR BUTLER,

Secretary of the Society of Architects.

St. James' Hall, Piccadilly, W.

### LEEDS MARKET HALL COMPETITION.

SIR,—It may interest some of your readers to know a new requirement in competition. The conditions ask for four perspective drawings. I have written pointing out the unnecessary number; but the city engineer, in answer to my letter, says: "I think both the number of the perspective drawings and the scale to which the drawings are to be made are quite necessary."

I may say,  $\frac{1}{4}$ in. scale drawings are required, and, the site being very large, they would be great drawings. I wrote asking for  $\frac{1}{8}$ in. scale drawings, and it is needless to say I shall not send in a design now.—I am, &c.,

SIDNEY SMITH.

14, York-buildings, Adelphi, W.C.

### IRON AND STEEL.

SIR,—In an elementary lecture on iron and steel I made the following statement—viz., "The fracture of good wrought-iron when broken under a tensional strain gradually applied should be fibrous"; and with regard to steel, whenever rupture occurs slowly, a silky fibrous fracture is invariably the result.

This statement was questioned, and the questioner wrote to an authority in the North who has made a special study of metals with the microscope. He replied as follows:—"The term fibrous when applied to steel, seems to take a lot of killing. As a matter of fact, steel is not fibrous. It is a homogeneous material, crystalline in its ultimate structure, and gives a granular fracture. Wrought iron is also often spoken of as giving a fibrous fracture. All that can be said is that it gives a fibrous appearance in the fracture; but wrought iron is also a crystalline substance, and is no more fibrous than any other crystalline substance known to chemists."

I should like very much to know the views of others who have made a special study of this subject, for one is so accustomed to look upon wrought iron as a fibrous material, and so many books state that it is so.—I am, &c.,

SIDNEY HARRIS.

St. Giles's-square, Northampton, Feb. 13.



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## Our Illustrations.

THE PALACE OF JUSTICE, BUDA-PESTH.

(For description and further sketches, see p. 226.)

THE EASTMAN PHOTOGRAPHIC MATERIALS COMPANY, LIMITED: NEW PREMISES, REGENT-STREET, LONDON, W.

THE constructional alterations, decorations, and furniture at these premises were designed by Mr. George Walton, of Bayswater, W. The finishings, such as the decorations, furniture, glass, metal work, and fittings were executed at the works of Messrs. George Walton and Co., Limited, in Glasgow, from his designs and under his personal directions. These photographs are exhibited at the exhibition just opened in Glasgow at the Royal Glasgow Institute of the Fine Arts. The hoarding in Regent-street for the Eastman Co., when the work was in progress, was designed by Mr. George Walton, and consisted of a series of upright posts tapered on front side to top and painted white. The filling of common flooring boards stained a bright emerald green, the lettering being simply the plain wood without stain. The figure at end was in stencil of white, with touches of purple, pink, and black. There was some difficulty in connecting the effect of shop front between windows and doors, owing to heavily pilastered front. This, to some extent, was overcome by movable cases, carrying a cornice round top of them in connection with cornice at spring of window arch. The front and window stalls in oak and metal work; the leaded lattice work is rich in material and colour; entrance, white marble step and white marble mosaic; interior ceilings are strap-moulded and painted white; the frieze, white ground, decorated in bright colours—blues, purples, and touches of pink; lower wall panelled about 6ft. 6in., and white enamelled floors; counters, and furniture are in oak. The grate and fireplace in the centre of the room are not new, but were originally there. The furniture is in oak, covered in green leather; screen is in oak with lower panels in leather, with diaper in metal. The rugs are bright in colour, and were designed by Mr. Robert Paterson, one of Mr. George Walton's assistants in Glasgow, who was successful in gaining one of the eight National Gold Medals last year at South Kensington for that design.

PASSMORE EDWARDS LIBRARY, EDMONTON: MEDALLIONS OF JOHN KEATS AND CHARLES LAMB.

THESE two charming tablets have been executed by Mr. George Frampton, A.R.A., and are the gift of the donor of the building, Mr. J. Passmore Edwards. The medallions are executed in bronze, and will be placed on Sienna marble slabs, framed by a green marble moulding on a red

brick background, and they will be affixed to the vestibule of the library. The portrait of Keats has been executed from the mask taken after death, and from the portrait painted in Rome in 1821 by his friend Joseph Severn. The likeness of Charles Lamb was modelled from the painting done at the age of 23, in 1718, by Robert Hancock, and also suggestions were obtained from the portrait by William Hazlett. Every care has consequently been taken by the sculptor to render these memorials truthful records of these two distinguished Englishmen, whose lives were intimately associated with Edmonton, where they lived. Charles Lamb died there. Mrs. Humphry Ward, on the occasion of the laying of the foundation-stone, gave a most interesting account of their history and work, and her *résumé* was gracefully supplemented by no less an authority than Dr. Garnett, the librarian of the British Museum, when he opened the buildings on the 10th of April, 1897, to the public. We published a view, with plans, of the library in the BUILDING NEWS for April 9, 1897. Mr. Maurice B. Adams, F.R.I.B.A., was the architect.

WINCHESTER CATHEDRAL NAVE ROOF.

For description see page 227.

CHAIR FROM THE BISHOP'S PALACE, ST. ANDREW'S, MDCXII.

THIS chair is in oak, of a very dark-brown colour. The turning, mouldings, and carving have been softened down by age and wear, which gives the chair a beautifully soft appearance, and is in very good condition. The seat is of pine, which may have replaced the original. The chair is now in the Edinburgh Industrial Museum.

J. DOUGLAS TRAIL.

## CHIPS.

Mr. Dennet H. Barry, F.S.I., has been appointed by the Benchers as surveyor to the Honourable Society of Lincoln's Inn.

A new window recently placed in the north wall of the chancel of St. Chad's Church, Slindon, was dedicated last week. The window is by Mr. C. E. Kempe, and consists of two lights, in which are figures of St. Paul and St. Thomas.

The parish church of Colbury, in the New Forest, is about to be underpinned and provided with buttresses, the drought of last summer, acting on insufficient foundations laid in a clay soil, having rendered the structure almost unsafe for use. Mr. Cancellor, of Winchester, is the architect for the works of repair.

The Electricity Committee of the Corporation of Glasgow agreed, by a majority, to recommend that the corporation offer £30,000 for the buildings, plant, and rights of the Kelvin-side Electricity Company. The agents of that undertaking have stated £48,000 as the price at which they are willing to sell.

At Burmarsh Church, Kent, the tower and bells have been reopened after restoration and addition. A new tenor and treble have been added to the three 14th-century bells, and the work has been carried out by Messrs. Mears and Stainbank, of White-chapel.

The urban district council of Newtown, Mont., have adopted plans for a free library, prepared by Mr. Edward Powell, architect. The building, which will cost about £1,500, will occupy the site of the King's Head Inn in the centre of the town.

A chancel screen of open carved oak work, which has been designed by Mr. A. Scrivener, of Hanley, and executed by Messrs. Overfield, of Leek, was dedicated at St. Luke's parish church, Leek, on Sunday week. The screen consists of an open central arch, surmounted by a vine, and terminating upwards in the cross. On either side stand two angels, two facing west and the other two east. The western angels have trumpets, the eastern a harp and cymbals respectively. There are two bays on either side the central arch, and the vine is carved in the headwork of the screen. On the lower part of the screen are two inscriptions, one facing east and the other west.

A new board school in the Ashley Down district, Bristol, was opened last week. It is situated in Tortworth and Olveston-roads, and accommodates 690 scholars in three departments. The central hall system had been adopted. The materials are local bricks, Bath stone dressings, and Bridgewater angular roof tiles, the whole of the floors being of wood blocks. The general contract was in the hands of Mr. E. Walters, of Montpellier. Messrs. W. S. Paul and James, and Mr. G. C. Laurence were the joint architects for the buildings, and Mr. S. White acted as clerk of work. The cost has been £8,500, or £9 a head.

## COMPETITIONS.

BRISTOL.—An unexpected difficulty has arisen in regard to the plans for the new public library for Bristol North. Sanction having been given by the council for the purchase of a site in Cheltenham-road, nearly opposite the Colston School for Girls, the libraries committee gave instructions that Bristol architects be invited to send in designs for the new building. Communications were forwarded to the architects whose names appeared in the Bristol Directory; but, to the surprise of the committee, replies came back from a great many that no plans could be submitted unless an assessor was appointed to judge them. The committee saw no necessity for such a departure; and members felt that, not being without experience in judging whether plans were such as they wanted, there was no justification for the responsibility being taken out of their hands. A sub-committee waited upon the representatives of the local Society of Architects, who will in due course report to their society. A meeting of the libraries committee has been held, and this body approved of the action the sub-committee had taken.

PETERBOROUGH.—At the last meeting of the city council, the town clerk reported having despatched a cheque for £20, the amount of the first premium for the Guildhall improvement designs submitted by Mr. A. E. McKewan, of Birmingham, together with a communication stating that, in view of the municipal purchase of the Broadway property, and its suggested adaptability as a site for corporation buildings, there was a possibility that Mr. McKewan's accepted plans would not now be carried out. Mr. McKewan had at once replied that this intimation much surprised him. Had he been informed of the possibility of such a development, he would not have entered the competition. In view of the acceptance of his premiated designs, he should expect to be retained as architect for the erection of any municipal buildings in Peterborough. Such a communication had clearly not been anticipated by the town council, add various opinions were expressed as to Mr. McKewan's professional claim upon the council in respect of any building operations which might in the future be instituted. Ultimately the question was deferred for a week.

The memorial erected on the site of the burial-place of Archbishop Benson, in Canterbury Cathedral, will be formally unveiled on Saturday, July 8.

The Blackman Ventilating Company have sent us an admirable little pocket notebook they are issuing, which contains an excellent memorandum book, some useful information about the company's well-known system of ventilation, and a policy of insurance good till March 1900 for the person carrying the pocket-book about him.

The Winchester Cathedral reredos is, after a long interval, again about to receive the central figure—viz., the crucified Saviour. Messrs. Brindley and Farmer are carrying out the work, and the whole will be complete on Easter Day. West's picture of the "Raising of Lazarus" has been removed from the position it has occupied since 1781. The great panel over the holy table, which it covered, will be filled with a piece of sculpture representing the Holy Family.

Two of the properties to be rebuilt under the improvement scheme just adopted by the Ipswich Corporation for the widening of the eastern end of the Butter Market are to be reconstructed from plans by Mr. E. Fearnley Bishopp, of that town. The style selected for the façades is the Later English Renaissance, to be carried out in red brick. The site will be divided up into six shops, and on the first floor will be some suites of offices. The length of the Butter Market front will be nearly 150ft.

An inquest was held at Birmingham, on Friday, touching the death of the two men, Stokes and Peaton, in the employ of Messrs. Benton, through a fall of roof timbers at Christ Church, built in 1820, and now in process of demolition. It was shown that the huge beam which gave way, precipitating the deceased and one other man to the ground, had been reduced to a state of decay by dry rot. This, however, was not perceptible on the outside, and Mr. William Hale, architect, of Birmingham, the expert called in by the coroner, would not go further than to say that the method followed in the removal of the timbers was imprudent. The jury returned a verdict of "Accidental death," and recommended that the city authorities take cognizance of the demolition of old buildings, with a view to the minimising of danger.



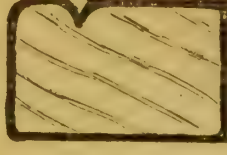
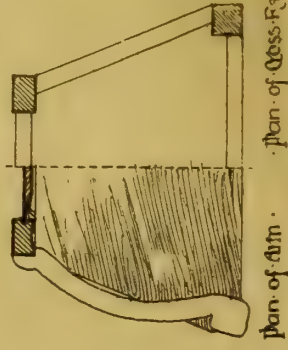
CHAIR FROM BISHOP'S PALACE

St. Andrews Date 1612

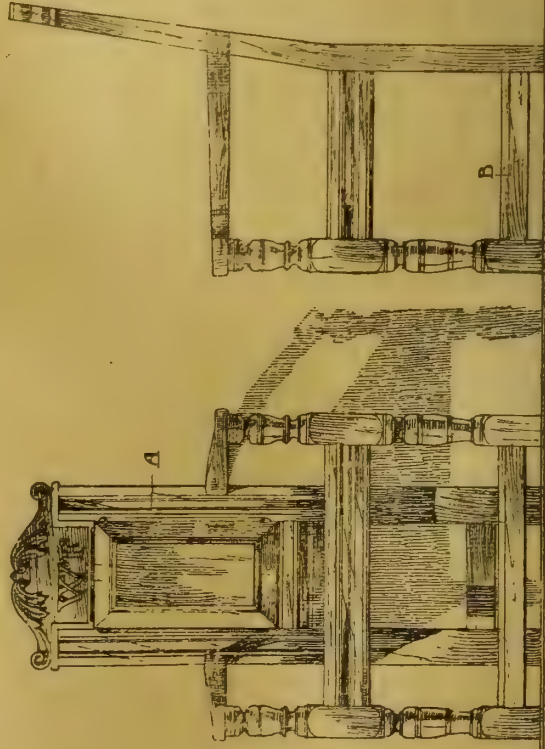
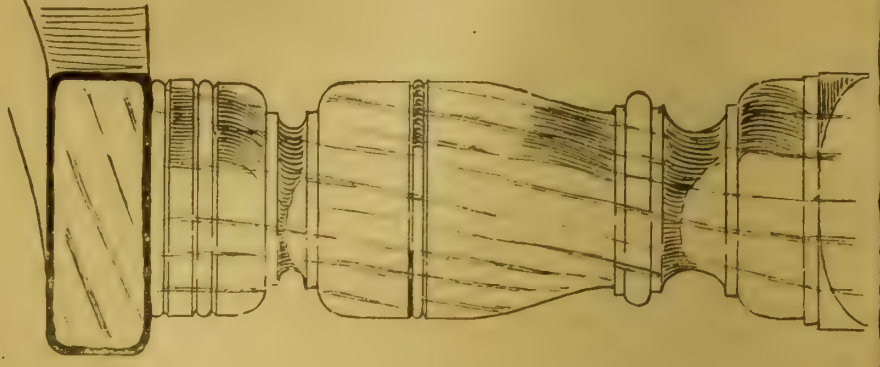
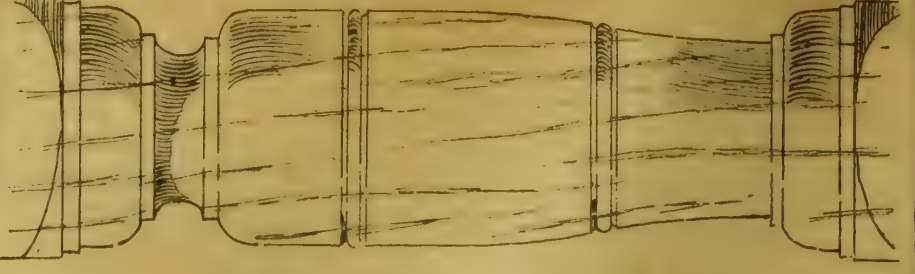
Measured and Drawn

BY

J. Douglas Tait



All Details Drawn Full Size



FACE

SIDE

Scale of Feet



# Winchester Cathedral.

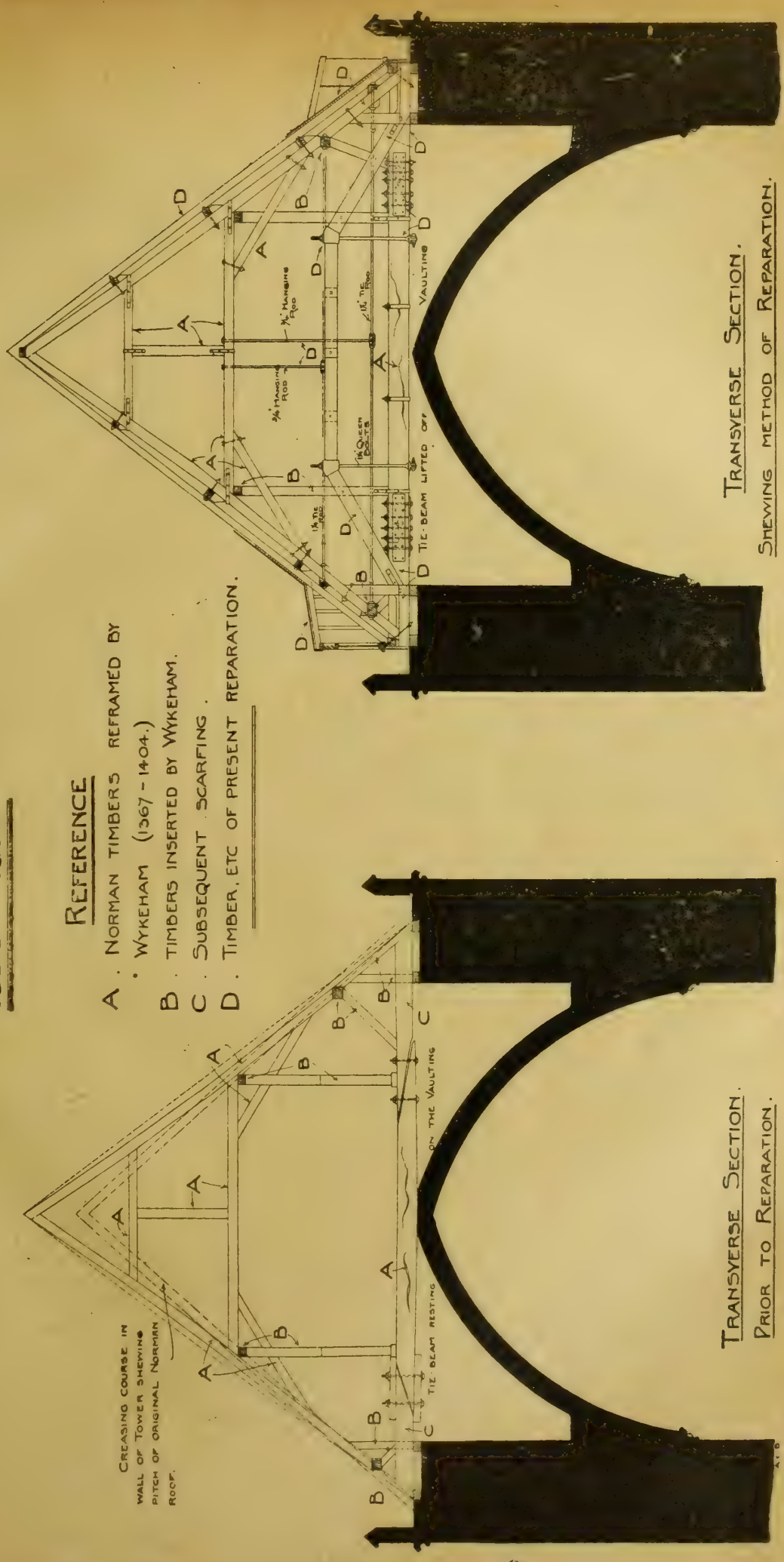
## REPARATION OF THE NAVE ROOF.

1896 - 1898.

### REFERENCE

- A. NORMAN TIMBERS REFRAMED BY WYKEHAM (1367-1404.)
- B. TIMBERS INSERTED BY WYKEHAM.
- C. SUBSEQUENT SCARFING.
- D. TIMBER, ETC. OF PRESENT REPARATION.

CREASING COURSE IN WALL OF TOWER SHEWING PITCH OF ORIGINAL NORMAN ROOF.



TRANSVERSE SECTION.  
PRIOR TO REPARATION.

TRANSVERSE SECTION.  
SHEWING METHOD OF REPARATION.





# Intercommunication.

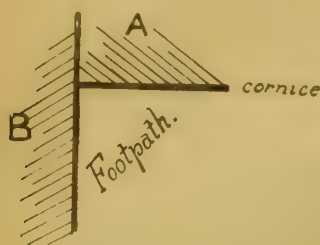
## QUESTIONS.

[12185.]-**Certificate.**—Shall be greatly obliged if someone will kindly give me a good form of wording the certificates one has to give a builder from time to time as the work he is doing proceeds, and when he requires part payment for the same. Also the form generally used when the work is finished, and done in accordance with the drawings and specification.—TECHNICAL.

[12186.]-**Quantity Surveying.**—Is it usual to give a separate item for plumbings to all external angles of a building? Does this include all window and door jambs, as well as quoins? Are all the four angles of a square pillar measured? I believe this item is sometimes given as "forming fair quoins."—SURVEYOR.

[12187.]-**Wet Granite Walls.**—Can any practical reader speak from experience of a thoroughly effectual remedy for drift right through walls? I have no faith in the patent liquids in such a case. Is there anything short of cementing the whole surface outside? The walls were battened, but all to no purpose against a heavy Dartmoor drift.—E. A. S.

[12188.]-**Encroachment.**—A has a piece of land on which I have recently built a shop, over the window of which there is a projecting wood cornice. B has



property standing at right angles to A's property. The cornice above referred to butts up against B's wall, but is not attached to it. B complains that A is encroaching on his rights. Will someone kindly give an opinion?—T. L. S.

[12189.]-**Society of Architects Examination.**—What are the subjects required for this examination, and where are particulars to be obtained?—PHIL.

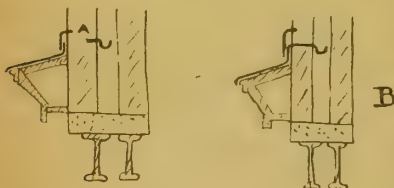
[12190.]-**Ornamental Ceilings.**—Is there any work on this subject treating of wooden, panelled plastic, and other ceilings? How are wooden moulded ribs formed and fixed to form panels? Also, I should like to know how the plastic slab decoration is fixed. Is it necessary to plaster or board the surface, or can they be fixed direct to the joists? An answer will oblige.—A SUBSCRIBER.

[12191.]-**Architectural Tours.**—Are there any tours arranged so that a student may be able to sketch and study the chief buildings on the Continent at first hand? Books do not always afford all that is wanted—the materials, their arrangement and working, also the colours, are not mentioned—and personal inspection is of more value than whole pages of description.—A STUDENT.

## REPLIES.

[12172.]-**Wood-Block Floors.**—One of the best wood-block floors I have seen is the "Fawcett," in which steel tongues are introduced, running through the corners of each block, by which they are held together and prevented from springing. See notice in last week's "B.N."—G. H. G.

[12176.]-**Wet Over Shop.**—Are you quite sure that provision was made for draining away the water from the lead gutter in cavity? Are the flashings over shop cornice watertight? The water may perhaps come in at A (see sketch), that is, between the flashings and the end



of gutter. Your best plan would have been to have built in the lead gutter in one large piece extending over cornice, as sketch, B.—ALLEN T. HUSSELL, Hfracombe.

[12176.]-**Wet Over Shop.**—The lead shown in section does not go through the whole outer-wall thickness, hence it does not intercept percolation of water. It should also have a fall on each side to prevent any dampness coming through. Sometimes mortar droppings fill up the cavity and allow the wet to pass through. I should advise the lead to be dressed up a course or two within an inch of the outer thickness, and then bent horizontal again and passed through the inside thickness of wall. It is a good plan also to put a sheet of lead through the whole thickness of wall above the cover-stone. There is little doubt one cause of the wet running down on the inside of hollow is that the lead channel, as shown, connects the two thicknesses, the water overflowing the lead channel wetting the inside brickwork. But the chief cause of the mischief is that the lead does not go through the outer  $\frac{1}{2}$  in. of wall, the water therefore is absorbed downwards, and trickles down, round, or

through the cover-stone. Remedy: Bake out joint above cornice of shop, and insert 4lb. lead, and turn up against outer wall in cavity.—G. H. G.

[12177.]-**Area of Brick Piers.**—Square length of a side, or multiply by itself. The length of diagonal is found by multiplying length of side by square root of 2, which is 1.41, 14 in decimals, or 1.5.0 in duodecimals. Area of oblong by length into breadth; length of diagonal by adding squares of two adjacent sides, and extracting square root. If  $l$  = length  $b$  = breadth, then  $\sqrt{b^2 + l^2}$ , &c. Area of polygon: Divide into triangles, drop perpendicular lines from opposite vertices on these lines, and find areas of triangles by that for trapeziums. Say top and bottom = 5ft. and 7ft., distance vertical being 12ft.;

then— $\frac{5 \times 7}{2} \times 12$ , or 72sq.ft.

Area of triangle, say 12ft., 15ft., and 19ft.— $= \frac{1}{2} \times 23 \times 11 \times 8 \times 4 = 4 \sqrt{506}$ , or 90sq.ft.

See Dobson and Tarr's "Measuring" (Crosby Lockwood and Co.) A rod of brickwork averages 15tons in weight, made up as follows:—4,852 bricks, 1 cubic yard lime, 3 cubic yards sand, equal to 235 cubic feet of bricks, and 71ft. of mortar (four courses to a foot) not allowing for waste.—REGENT'S PARK.

[12177.]-**Area of Brick Piers.**—The area of piers may be calculated by dividing the total load on pier, divided by the safe load per super. foot of concrete, which will give the feet superficial of footings, the square root of which will give side of same.—G.

[12178.]-**Damp.**—Try a solution of "Eunate," or Szelermey's liquid. The cost may be obtained by writing to either firm. The former is supplied by the Bath Stone Firms, Ltd.—A. T. O.

[12179.]-**Flooring.**—Such a floor as described, of 9in. planks placed on edge, laid on main beams and nailed, would make a very strong and fire-resisting floor. I believe for a floor on which heavy machinery is placed, and which has to stand vibration, this plank-on-edge floor will be found all that has been said of it. Insurance premium will be reduced, and the wear to machinery will be lessened. There is no doubt about the strength and stiffness of such a floor, if the main girders are placed at ordinary distances apart.—G. H. G.

[12181.]-**Gas-Fires.**—The only gas-fires, in my opinion, permissible in any room where health is valued are those built up with asbestos in the ordinary grate, from which the noxious products can escape by the chimney. These are not economical, nor are they "healthy," but they dry the air in the room less than any other, and they are clean and very convenient. The best forms are Verity's and Fletcher's. Verity's is the dearest; but I like it the best. Fletcher's is cheaper, but the "fuel" required is dearer. Verity's is a sort of firebrick box of the shape of a tin-loaf, into which a Bunsen burner plays, the jets of gas escaping through holes among the lumps of fireclay and asbestos piled upon the grate. I have it in my bath-room, billiard-room, and study, and can speak well of it. My wife insisted on having it taken out of the drawing-room, because she said it always gave her a dry throat. Have nothing to do with any gas-stove without a flue, or which has a stove-pipe out in the room. If you have Verity's or Fletcher's, or any other of the same sort, be sure you have plenty of gas behind them. The ordinary gas-pipe which supplies your burners is not big enough. The one great disadvantage in London with gas-fires is that the gas companies will not put on enough pressure in the cold mornings or on Sundays. In the afternoon when you have got warmed up they put on plenty. In frosty, foggy weather, too, such as, thank goodness, we have not had much of this winter, the gas products freeze in the pipe, and you very often cannot get a fire worth calling such.—KAPPA.

[12182.]-**Preserving Wood.**—Mostly by fan work, hot or cold air, stove work, open air. There is a fresh arrangement of late by putting timber into a solution of 100 gallons, say, adding, borax 10 per cent., resin, 5 per cent., soda  $\frac{1}{2}$  per cent. Having electrode at top and bottom, when contact is made the sap rises to surface, and the other materials are absorbed by the wood.—REGENT'S PARK.

[12182.]-**Preserving Wood.**—"J. J. S." should try the patent wood preservative, "Carbolinum Avenarius," registered, which enters into pores of wood by its own action. For wood plates, bond-timber joists, &c., it is well suited, and I believe it has been largely used by builders and others. Apply to Peters, Bartsch, and Co., Queen-street, Cheshire, or Derby.—ARCHITECT.

[12183.]-**Painting Plaster Walls.**—If "A. B." puts on a coat or two of oil-paint, it will, no doubt, do a little good. The oil should be boiled in the first coat, or a first coat of boiled oil and red-lead will be better. I should be inclined to try some of the advertised stone liquids, or the Bath Stone Firms' "Eunate" before painting. Stucco work ought not to be painted. Houses so treated only look decent for a year or two, and then the coating peels off and becomes dirtier than before. The walls should be thoroughly dry before painting, and this weather is the worst for the purpose. Wait till the walls are perfectly dry.—G. H. G.

[12184.]-**Foundations.**—Accidents may arise to foundations by the sinking of trenches or drains below the foundations and near the building, by sinking wells and drawing-off subsoil water, or by any means by which the foundations can be undermined or disturbed. The manifestations of such interference would possibly show itself in settlements or cracks of the plaster, the dragging of wall-paper, walls cracked or out of plumb, un-level floors, &c. I know of no book treating of building near the Thames, &c.—G.

Mr. Frank Latham, assistant surveyor of Margate, has been elected as borough surveyor of Penzance.

The Hon. John Collier has completed his portrait of Dr. Welldon, which is being subscribed for by past and present Harrovians, and in accordance with the wishes of the Bishop of Calcutta it has been hung in the Vaughan Library at Jarrow.

## PARLIAMENTARY NOTES.

**SOUTH KENSINGTON MUSEUM.**—In reply to Sir C. Dilke, Mr. Akers Douglas (First Commissioner of Works) said: All the new buildings on the east side of the Exhibition-road will be devoted to the art collections. The existing science building on the east side of the road will be the only portion which will continue to be used for science purposes. The new science buildings will be erected on the west side of the road. The plans have been prepared by the architect in communication with the officers of the art and science branches, and meet with the approval of the Lord President and his department. Mr. M'Laren asked when it was proposed to commence the new buildings in front of the South Kensington Museum; whether the new public offices in Whitehall and Parliament-street would be commenced as soon as the sites were cleared? Mr. Akers-Douglas said: It is proposed to commence the new buildings in front of South Kensington Museum within the next few weeks. The new public offices in Whitehall and Parliament-street will be begun as soon as the sites are cleared and the plans approved.

**HERTFORD HOUSE.**—Mr. Massey-Mainwaring asked when Hertford House, containing the Wallace Bequest, would be opened to the public. Mr. Akers-Douglas replied that the trustees hope that it may be possible to open the collection to the public at the beginning of next year. As far as his department was concerned, the whole of the works will be finished in July.

## WATER SUPPLY AND SANITARY MATTERS.

**LONDON WATER COMMISSION.**—At the meeting of this Commission on Monday, Mr. J. Restler, engineer for the Southwark and Vauxhall Company, stated that the area served by the company was 50 $\frac{1}{2}$  square miles, and the population supplied 820,000. He considered it right that the water companies should be defended against the consequences of failure to supply by reason of frost, drought, or other unavoidable circumstances. Mr. Bounois, M.P., chairman of the West Middlesex Water Company, said that company had never experienced any difficulty in furnishing a full supply of water to its district. He explained the steps taken by the company to provide for future demands, and, as regarded the management of the London water supply, said it did not seem to him any disadvantage to the consumer that there should be eight different companies, but rather the reverse. He had grave doubts whether any real saving would be effected by the amalgamation of the companies, or by their acquisition by a single elective authority. The witness stated objections to the equalisation of water-rates over London, and to the existing sinking-fund clauses. If a policy of purchase were determined on, it should be carried through under the Lands Clauses Act. At Wednesday's sitting of the Commission, evidence in reference to the position of the West Middlesex Waterworks Company was given by the secretary and engineer of the company. Mr. Tendon, chairman of the Grand Junction Company, was of opinion that purchase would not be advantageous to the consumers. The sitting was adjourned until Monday next.

## CHIPS.

A new Baptist chapel on the Grove Estate, London-road, Lowestoft, was opened on Thursday in last week. There is sitting accommodation for 700.

Mr. Wm. Ede, builder, of Frances-street, Truro, has committed suicide by hanging himself in his tool-house in William-street. At an inquest held on the body, a verdict of suicide during temporary insanity was returned.

A new illuminated clock, showing the time upon two external dials, and striking the hours upon a large bell, has just been erected over the granary at Vaynol Park, Port Dinorwic, near Bangor, North Wales, for Mr. J. G. Duff Assheton-Smith, J.P., by Messrs. Wm. Potts and Sons, clock manufacturers, Guildford-street, Leeds. Mr. Williams, of the Vaynol Estate Building Department, having erected the tower, and carried out all the necessary builder's work. Messrs. Potts have also a large clock and bell for the New Barry Dock Offices, Cardiff, South Wales.

A chancel screen, presented to the parish church of Leamington by Alderman S. Flavel (churchwarden), was dedicated on Saturday. The screen is of hammered wrought-iron, richly decorated, and constructed from designs prepared by Sir Arthur W. Blomfield, A.R.A. It is about 26ft. high, and surmounted by Maltese cross 7ft. high, and weighing 1 $\frac{1}{2}$ ct. It forms the finishing work in the task of restoring the chancel, which Mr. Flavel commenced ten years ago. The screen is the work of Messrs. Hart, Son, Peard and Co., Limited, of Drury-lane, W.C.



## LEGAL INTELLIGENCE.

**A BETINAL GREEN ARBITRATION.**—COLONEL WARD V. THE SCHOOL BOARD FOR LONDON.—This claim, heard in the London Sheriff's Court on Friday, before Mr. Under-Sheriff Burchell and a jury, was for nearly £20,000 compensation in respect of the compulsory sale of a site of some fifty thousand square feet in Gossett-street, Daniel-street, and Orange-street, Bethnal Green. The experts for the claimant included Mr. Edmund Farmer (Debenham, Tewson, Farmer, and Bridge-water), Mr. Eason (Reynolds and Eason), Mr. Bliss, and Mr. Dixon. On behalf of the School Board, Mr. Daniel Watney (Watney and Sons), Past President of the Surveyors' Institution, Mr. Samuel Walker (Walker and Son), Mr. Giffard, and Mr. G. A. Wilkinson gave evidence to the effect that about £11,000 would amply compensate the claimant. The jury awarded the claimant the sum of £18,000.

**RE EDWIN FAIRCHILD.**—This was an application for an order for discharge. The receiving order was made in November last, the bankrupt being described as of St. Mary's-road, Harlesden, surveyor, and it appeared that proofs amounting to £17,372 had been made against his estate. No assets were disclosed, and none had been realised. The bankrupt was formerly a builder, and in 1888 he paid a composition of 1s. 6d. in the pound on liabilities amounting to between £7,000 and £8,000. Since that failure he had not been engaged in business or had any regular occupation. Mr. Registrar Hope suspended the order of discharge for two years.

**GREAT NORTHERN RAILWAY AND THE BURTON CORPORATION.**—At the Conference Rooms, King's Cross Station, N., on Friday last, Mr. J. Wigram sat as arbitrator to consider a claim of the Great Northern Railway Company against the Corporation of Burton-on-Trent for compensation for a sewer recently constructed through property of the company at Burton. The company acquired the land through which the sewer now passes in 1879, and they now claim that by the action of the Corporation they are prevented from extending their building area. The company estimated the damage at £2,251, while the surveyor of the Warwickshire County Council laid the damage at £384. The arbitrator reserved his award.

**HOUSES WITHOUT PARAPETS.**—At Bristol Police-court, on Friday, an important decision of the Divisional Court, which affects a large number of houses at St. George, was declared. A case was heard at the Bristol Police-court in May of last year, in which Edward King, builder, of the Grove, Fishponds, was summoned at the instance of the city surveyor, Mr. T. H. Yabbicom, for erecting at Glen Park, Bell Hill, St. George, in 1897, a certain house contrary to the provisions of the Bristol Improvement Act, 1847, inasmuch as he omitted to build parapets to such houses. The Bristol magistrates then dismissed the information, but on appeal the Divisional Court stated that the decision must be reversed. The Chairman stated, in pursuance of the ruling of the Divisional Court, they now convicted him, fining him £1 and costs.

**A DERBY BUILDING ARBITRATION.**—At the Surveyors' Institute, Savoy-street, London, an arbitration has taken place before Mr. Robert Vigers (the president of the Institute), between Messrs. Ford and Messrs. Bemrose (Limited), both of Derby. Mr. A. A. Hudson appeared for the claimants, and the Hon. A. Lyttelton, M.P., for the defendants. In May, 1895, Messrs. Bemrose and Co. (Limited), well-known printers, contracted with the claimants, builders at Derby, for the erection of buildings in Park-street, Canal-street, and Carrington-street, Derby, for the sum of £10,559. The architect was Mr. Ridgway, and the contract was drawn up without any detailed statement or specification, being based on eight plans and a bill of quantities, as is not unusual in the North of England. The builders, finding early in the contract that the quantities were insufficient, called in Mr. G. H. Kenwick, of Birmingham and London, a surveyor, who, after January, 1896, measured up the work done, and rendered detailed statements to Messrs. Bemrose. In September, 1896, the works were completed, and the cost, according to the measurements of Mr. Kenwick, was £15,316 1s. 1d. The sum of £8,750 had been paid on account, and the claimants now sought to recover £6,566 1s. 1d. due on the contract. The account of the builders was sent in on February 18, 1897, and though negotiations had been entered into no arrangement had been made. No money had been paid since that time. On the 1st April, 1897, the architect of Messrs. Bemrose gave a certificate that £1,530 13s. 5d. was the amount due, with the exception of four items, which were not included in the contract. The question turned on the legal interpretation of the contract, which specially prescribed that no alteration or variation should invalidate the contract, and that at the conclusion the architect should certify the sums due for payment. Mr. Kenwick was examined. He said he had been for 20 years a

quantity surveyor. He had measured up the work on Messrs. Bemrose's premises. He had been 36 days there, and, charging at the rate of the schedule of prices in the contract, he found the cost of the works had been £15,316 1s. 1d. The quantities supplied are, on the whole, short in every trade, though there were some exceptions in which the quantities supplied were not required, and for which he had given credit on his account. In cross-examination, witness said he had not separated the items in the contract from what might be considered extras. He had only, as he was instructed, measured up all the work, and charged for what had been done. His view was that the bill of quantities was simply a schedule of prices that the builders were to be paid, *quantum meruit*, for all the work done at that scale. Mr. Lyttelton, for Messrs. Bemrose and Co., contended that the claimants had, as a matter of law, proceeded altogether upon a wrong basis. They had measured up and charged for the whole building independent of the contract. At the very outside they were only entitled to the extras at the contract price. Mr. Hudson said if there had been a proper specification that might be so; but the quantities given were not sufficient to erect the building. Considerable legal discussion arose on this point. Ultimately Mr. Hudson stated that, at the request of the arbitrator, Messrs. Ford would prepare an account showing the difference in the quantities in the contract and the work done, and all the alterations and variations, with any difference in the contract price; and for this purpose the proceedings were adjourned for one month. The claimants agreed to render their statement of claim within 14 days.

**THE VALUE OF LAND AT KILBURN.**—The Under-Sheriff and a special jury sat at the North London Hotel, Kilburn, on Friday, to hear the case of "Cave v. the Metropolitan Railway Company," a claim for compensation in respect of the compulsory sale to the company of a strip of land at Kilburn held by the claimant on a building lease from the Ecclesiastical Commissioners. Professor Bannister Fletcher valued the land in question at £2,867. Mr. E. H. Bousfield (Messrs. Edwin Fox and Bousfield) estimated the total compensation payable to the claimant at £2,337. On behalf of the railway company, Mr. James Green (Messrs. Weatherall and Green) expressed the opinion that the apporportioned ground rent of the land taken by the company was £15 per annum, and this capitalised at 2½ years' purchase amounted to £337 10s., which he deferred for seven years on the 4½ per cent. table, giving £248, to which he added the customary allowance of 10 per cent. for compulsory sale, making £272. Among the experts engaged on behalf of the company were Mr. A. R. Stenning and Mr. C. W. Willoughby (Messrs. Weatherall and Green). The jury awarded the claimant £625 as compensation.

**FRANCIS MORTON AND CO., LTD.**—A second and final dividend of 4s. in the pound (making, with the previous payment, 7s. in the pound) has been declared, payable on Monday last, or any subsequent day, between the hours of ten and three o'clock.

## CHIPS.

Messrs. E. H. Shorland and Brother, of Manchester, have just supplied their patent Manchester grates to the new cottage hospital, Ramsbottom.

In the case of Arthur Simpson, of Leeds, estate agent, surveyor, and valuer, an order for discharge from bankruptcy has been conditionally granted.

Col. W. R. Slacks, R.E., inspector of the Local Government Board, held an inquiry at the Guildhall, Bath, on Friday, into the application of the town council for a provisional order, amending the Bath Act, 1870, so as to enable the corporation to borrow additional moneys for the Monkswood reservoir. The town clerk explained that the loan for these works, which were completed in 1897, was for £29,000. There was an excess of £7,270 1s. 1d., the total cost of the reservoir being £36,270 1s. 1d. Mr. C. Gilby, the waterworks engineer, described the construction of the reservoir, and how the extras were incurred.

Before the Lord Chief Justice, on the 9th inst., in the Queen's Bench Division, Mr. A. Lucas, an art publisher, sued the Great Central Railway Company to recover £875 damages for injury to two houses at Marlborough-hill, St. John's Wood, caused, as he alleged, by the works in connection with the new line to London. There had been subsidences, and the result was cracks in the walls and other injuries to the houses. The defendants said the damage was in no way brought about by the construction of the railway. The jury awarded the plaintiff £250.

At the Derby Bankruptcy Court (George Brough, builder, applied for his discharge. He had paid a dividend of 8s. 7d. in the pound, but it was stated that he had not produced to the Official Receiver all his books of accounts. His honour suspended the discharge for three years.

## Our Office Table.

THE private view of the seventy-third exhibition of the Royal Scottish Academy will take place at the Mound, Edinburgh, to-day (Friday). This year the old controversy as to what is to be done with the work of the architectural members and the other black-and-white work has been compromised, the *Scottsman* remarks, by allotting a certain amount of wall-space in the first octagon to the architectural members of the Academy, and by resolving to hang in this gallery, where the water-colours are also placed, the best drawings by outsiders. The rest of the black-and-white work is hung in the small octagon. Among the works on loan are two by Whistler, the one entitled "A Piano Lady," and the other "The Thames in Winter." There is an example of the work of an American artist resident in Paris—Mr. John W. Alexander; a large sea piece by the late Henry Moore (from the Manchester Corporation Art Gallery), called "Mounts Bay"; and there are also hung works by Alma Tadema, David Murray, Tom Graham, and Byam Shaw. The President (Sir George Reid) sends three portraits—a half-length of the Marquis of Tweeddale in archer's uniform—a companion picture to that painted by the late Sir John Millais of the Marchioness of Tweeddale, and exhibited also in the Royal Scottish Academy; a half-length of Mr. W. Wybrow Robertson, of H.M. Office of Works, presented the other day to the Merchant Company by subscribers; and a full length of Sir William Henderson, ex-Lord Provost of Aberdeen, intended for the municipal collection. Mr. Guthrie shows his portrait of Mr. J. J. Burnet, A.R.S.A., architect, Glasgow; Mr. Lavery sends an equestrian portrait of Mr. Cunningham Grahame; Mr. George Henry, a figure-picture; Mr. Lorimer, "The Ordination of the Elders"; Mr. G. Ogilvy Reid, a large picture of Prince Charles Edward escaping from the mainland in a fishing cobble. There are landscapes by Mr. Thorburn Ross, Mr. Robert Burns, Mr. James Paterson, Mr. John Smart, Mr. Beattie Brown, and Mr. A. K. Brown; portraits by Mr. Arthur Melville, Mr. Henry Kerr, and Mr. R. Brough. Mr. Hole sends an altar-piece. The water-colours include drawings by Mr. Tom Scott, R. B. Nisbet, and Mr. Marjoribanks Hay.

THE "Waddesdon Bequest" to the nation will necessitate a considerable rearrangement of part of the collections in the British Museum. The only condition attached to the bequest by the late Baron Ferdinand Rothschild is that the collection shall be kept together in a room to be known as the Waddesdon Room, but, owing to the crowded state of the galleries, the museum authorities have had some difficulty in finding a suitable exhibition gallery for the many objects included in the bequest, the first portion of which has now been received at Bloomsbury. It is proposed to set aside the Anglo-Roman Room for the purpose, space for the antiquities at present exhibited therein, which illustrate the Roman occupation of Britain, being found elsewhere. It will be some months before the collection can be seen by the public.

THE Metropolitan Asylums Board, at their meeting on Saturday, adopted a resolution declaring that every architect employed by the managers should be, as a general rule, engaged under an agreement sealed by the board, and a draft agreement with an architect, submitted by the works committee, was approved and adopted as the basis of future agreements with architects, and upon the understanding that the actual agreement entered into should be settled in each separate case by the board's solicitors. It was explained that the committee had included in the draft agreement every condition that could be properly put in for the protection of the interests of the managers and of the public, particularly in the matter of expenditure. Mr. Hilton Johnson, who was for seven years a managing engineer and electrician in the service of the Great Northern Railway Company, was appointed assistant engineer to the board at a salary of £300 a year, with travelling expenses.

THE Improvements Committee of the London County Council reported on Tuesday that they have received a letter from Mr. H. W. H. Palmer, stating that he has instructions to dispose of the unexpired lease of the Olympic Theatre in Wych-street, a property required by the Council in carrying out the plan of the new



street from Holborn to the Strand. The lessee holds for an unexpired term of 51 years from December 25, 1898, at a rent of £2,250 per annum. The agent acting for the lessee has expressed the willingness of his client to accept for his interest in the property the sum of £12,000, which the committee consider to be a reasonable amount. They are advised by the valuer that if the Council neglect this opportunity, the property will undoubtedly fall into the hands of a speculator, with the almost certain result that a few months hence the Council will have to pay a largely increased amount. The valuer estimates the saving to be effected by purchasing immediately at no less than £25,000. The committee say they have no hesitation in advising the Council to take steps to save so large a sum. The recommendation will not be dealt with until next Tuesday, under the operations of the Standing Orders.

A RECENT voting contest was, says the *Canadian Architect*, held by the readers of the *Brochure Series of Architectural Illustration* to determine which were the eight greatest façades in the world. The "greatness" was to be considered from a purely architectural point of view, not from that of historic or other interests. No limitations of style or period were imposed. The contest resulted in the choice by consensus of the following façades, the order of preference being indicated:—(1) Notre Dame Cathedral, Paris; (2) The Parthenon, Athens; (3) The Opera House, Paris; (4) St. Mark's Library, Venice; (5) St. Peter's, Rome; (6) Amiens Cathedral; (7) The Farnese Palace, Rome; (8) The Ducal Palace, Venice. The selection and its order are curious and unexpected from an English standpoint, and it is strange that the cathedrals of Peterborough and Wells are not even located.

MR. G. A. T. MIDDLETON and R. W. Carden, A.A.R.I.B.A., have organised a sketching tour for architectural students to Italy at Easter. The party leaves Harwich on Saturday, March 25, and, proceeding via Hook of Holland, Cologne, Basle, and Milan, will visit Verona, Venice, Bologna, Ravenna, Florence, and Rome, returning via Pisa, Genoa, Pavia, Chiasso, and Basle, and arriving at Liverpool-street Station from Harwich on Tuesday, April 18. The inclusive cost of the twenty-five days' tour, which is arranged for a working and sketching party, will be thirty guineas. At Whitsuntide Mr. Middleton will conduct a similar party through Holland.

#### MEETINGS FOR THE ENSUING WEEK.

**MONDAY.**—Carpenters' Hall. "Terracotta," by Professor T. Roger Smith, F.R.I.B.A. 8 p.m.  
Royal Institute of British Architects. "Municipal and Public Libraries," by J. M. Brydon and F. G. Burgoyne. 8 p.m.  
Surveyors' Institution. "The Management and Valuation of Brickfields," by J. L. Crouch. 8 p.m.  
Society of Arts. "Cycle Construction and Design," Cantor Lecture, No. 1, by Cyril Davenport. 8 p.m.  
Liverpool Architectural Society. "Some Burgundian Churches," by Professor F. M. Simpson. 6.30 p.m.  
Leeds and Yorkshire Architectural Society. "Steel Construction in Buildings," by Professor Goodman. 6.30 p.m.  
**TUESDAY.**—Institution of Civil Engineers. Discussion on "Lake Superior Iron Ore Mines." 8 p.m.  
Society of Arts. "Persian Trade Routes," by A. Hotz. 8 p.m.  
Northern Architectural Association. Annual Social Gathering. 7.30 p.m.  
**WEDNESDAY.**—Society of Arts. "Electric Traction and Its Application to Railway Work," by Philip Dawson. 8 p.m.  
**THURSDAY.**—Society of Architects. "Lincrusta Walton," by F. Scruby. St. James's Hall, Piccadilly, W. 8 p.m.  
**FRIDAY.**—Birmingham Architectural Association. "The Advantage of Being An Artist," by H. B. Cresswell.

## The Society of Architects.

Founded 1884. Incorporated 1893.

The FOURTH ORDINARY MEETING of the Society of Architects for the Session 1898-99 will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, February 23rd, 1899, at Eight p.m., when a Paper will be read by F. SCRUBY, Esq., on "LINCRUSTA DECORATION."

ELLIS MARSLAND, Hon. Sec.  
C. McARTHUR BUTLER, Sec.

The builders of the clock-tower at Wainfleet are Messrs. Turner and Sons, of Wainfleet, and the design was furnished by Mr. J. B. Corby, architect, Stamford.

## Trade News.

### WAGES MOVEMENTS.

**BARNSELY.**—The members of the Barnsley Building Trades Federation threaten to lock-out the whole of the Trade Union labourers in their employ. In September the plasterers employed by Mr. Lindley struck work because material was being obtained from a firm at Mirfield which employed a man who had failed to pay a fine imposed by the National Union of Plasterers. This was settled, but the Barnsley Labourers' Union imposed a fine on a labourer who had continued to work for Mr. Lindley when the strike occurred. The man would not pay the fine, the labourers struck, and Mr. Lindley's shop has been idle ever since, as the plasterers cannot work without labourers. The Federation, having failed to obtain a settlement, have given notice that if the objection against Mr. Lindley's shop is not removed by to-morrow (Saturday) they will lock-out all the Trade Union labourers in their employ.

**NORTH WALES SLATE TRADE.**—At the Carnarvon-shireslate quarries, particularly those at Bethesda and Llanberis, business keeps extremely brisk, and there is some difficulty in getting the output to meet the demand. In all the districts high wages are being earned by quarymen. The sett quarries at Penmaenmawr are also very busy.

**THE PLASTERERS' DISPUTE.**—The standing committee of the National Master Builders' Association met on Wednesday at Derby to consider the reply of the Plasterers' Union to the ultimatum addressed to that body on Feb. 1. The reply was regarded as most unsatisfactory; but it was decided, in order to give the union an opportunity of reconsidering its decision, to postpone further action till after Feb. 21.

**THE SKILLED LABOUR MARKET.**—The monthly memorandum prepared by the Labour Department states that in January the state of employment underwent little change, and remained good in all the principal trades. The proportion of unemployed in the trade-unions making returns was, at the end of January, 3 per cent., compared with 2.9 per cent. at the end of December, and 5 per cent. in January, 1898. Employment in the building trades (painters and decorators and plumbers excepted) has continued good. The furnishing trades are scarcely so brisk.

### CHIPS.

On Saturday, a new Liberal Club, erected in Bolton-street, Brixham, was opened by the president of the Central Liberal Association, Mr. G. S. Bridgman, C.C., M.S.A., of Paignton. Constructed at a total cost of £700, the club includes a skittle alley in the basement, a reading-room, a billiard-room, and a games-room; also rooms for a caretaker. Messrs. Hosgood and Wills were the builders. The architects were Messrs. Bridgman and Bridgman, of Paignton.

The Leeds Board of Guardians have adopted plans by Mr. Butler Wilson for the enlargement of the central offices in South-parade, Leeds, at an estimated cost of £7,100.

An inquiry has been held at Heaton Norris by Mr. H. P. Boulnois, an inspector of the Local Government Board, touching the urban district council's application to borrow £6,407 for works of sewerage and sewage disposal and other sums for private street works.

The urban district council of Leiston, East Suffolk, have adopted plans by Mr. Miller, C.E., of Ipswich, for the sewerage of the town at an estimated cost of £3,000, and have also arranged with Messrs. Richard Garrett and Co., the well-known local agricultural implement makers, for a supply of water from their existing artesian well and tank and its distribution through the district by cast-iron mains at an estimated capital outlay of £1,000.

A Dominican Church of St. Sebastian is now in course of erection in the Gerald-road, Pendleton, Manchester. A priory, to accommodate a larger number of fathers, will soon be built according to the designs of Messrs. Sinnott, Sinnott, and Powell, of Liverpool, the architects of the new church. The church and priory buildings have a frontage to Gerald-road.

The town council of King's Lynn have just accepted a number of tenders for electric lighting amounting in all to £22,833. The installation will be carried out under the direction of Professor Henry Robinson, of Westminster.

The building trade is particularly brisk in the island of Mull, N.B., at present. Among buildings in course of construction are Salen Parish Church, a lemonade factory at Tobermory, and a mansion house at Glenborrodale, as well as a shooting lodge at Shielbridge, for all of which Mr. Donald Fletcher, Tobermory, is the contractor.

## LATEST PRICES.

### IRON, &c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	to £8 10 0
Rolled-Steel Joists, English.....	6 10 0	" 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0
Bar Iron, good Staffs.....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0
Do., Welsh.....	5 15 0	" 5 17 6
Boiler Plates, Iron—		
South Staffs.....	7 17 6	" 8 5 0
Best Sneddahl.....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £3 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		
No. 18 to 20. No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	to £11 0 0
Best ditto.....	11 5 0	" 11 10 0
Cast-Iron Columns.....	£6 5 0	to £8 15 0
Cast-Iron Stanchions.....	6 5 0	" 8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	" 8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	" 7 15 0
Galvanised.....	10 10 0	" 11 10 0
Cast-Iron Sash Weights.....	4 2 6	" 4 5 0
Cut Clasp Nails, 3in. to 6in.	9 0 0	" 10 0 0
Cut Floor Brads.....	8 15 0	" 9 15 0
Wire Nails (Points de Paris)—		
0 to 7 8 9 10 11 12 13 14 15 B.W.G.		
9/0 9/6 10/ 10/9 11/6 12/6 13/6 14/3 15/3 17/3		per cwt.
Cast-Iron Socket Pipes—		
8in. diameter.....	£5 10 0	to £5 15 0
4in. to 6in.....	5 5 0	" 5 10 0
7in. to 24in. (all sizes).....	4 15 0	" 5 0 0
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]		
Pig Iron—		
Cold Blast, Lilleshall.....	105s. to 110s.	
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.	
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:		
Gas-Tubes.....	75p.c.	
Water-Tubes.....	70	
Steam-Tubes.....	62½	
Galvanised Gas-Tubes.....	60	
Galvanised Water-Tubes.....	55	
Galvanised Steam-Tubes.....	45	

	Per ton.	Per ton.
Zinc, English.....	£30 0 0	to £31 0 0
Do., Vieille Montagne.....	31 10 0	" 32 15 0
Sheet Lead, 3lb. per sq. ft. super.....	17 0 0	" 18 0 0
Pig Lead, in 1cwt. pigs.....	16 0 0	" 17 0 0
Lead Shot, in 28lb. bags.....	20 0 0	" 21 0 0
Copper Sheets, sheathing and rods.....	81 0 0	" 82 0 0
Copper, British Cake and Ingots.....	77 0 0	" 77 10 0
Tin, Straits.....	106 0 0	" 107 0 0
Do., English Ingots.....	107 0 0	" 108 10 0
Spelter, Silesian.....	23 17 6	" 24 0 0

### TIMBER.

	per load	to	to
Teak, Burmah.....	£13 0 0	to	£15 10 0
" Bangkok.....	10 10 0	"	14 10 0
Quebec Pine, yellow.....	4 7 6	"	6 5 0
" Pitch.....	5 5 0	"	8 15 0
" Oak.....	4 0 0	"	6 0 0
" Birch.....	3 0 0	"	5 0 0
" Elm.....	4 12 6	"	5 15 0
" Ash.....	3 17 6	"	5 5 0
Dantaic and Memel Oak.....	3 5 0	"	3 15 0
Fir.....	2 0 0	"	4 0 0
Wainscot, Riga p. log.....	3 15 0	"	5 15 0
Lath, Dantaic, p.f.....	4 10 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	8 0 0	"	8 5 0
Box.....	4 0 0	"	15 0 0
Sequoia, U.S.A. ... per cube foot	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 6½	"	0 0 7
" Honduras.....	0 0 3½	"	0 0 4½
" Mexican.....	0 0 3½	"	0 0 4
Cedar, Cuba.....	0 0 0	"	0 0 0
" Honduras.....	0 0 3½	"	0 0 4½
Satinwood.....	0 0 8	"	0 1 9
Walnut, Italian.....	0 0 8	"	0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in.:			
Quebec, Pine, 1st.....	£18 15 0	to	£25 5 0
" 2nd.....	13 15 0	"	17 0 0
" 3rd.....	6 0 0	"	10 0 0
Canada Spruce, 1st.....	7 10 0	"	10 10 0
" 2nd and 3rd.....	7 5 0	"	8 10 0
New Brunswick.....	7 5 0	"	8 0 0
Riga.....	8 5 0	"	9 5 0
St. Petersburg.....	11 15 0	"	14 5 0
Swedish.....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	13 0 0
Battens, all sorts.....	5 0 0	"	16 0 0
Flooring Boards, per square of lin.:			
1st prepared.....	£0 9 6	"	£0 16 3
2nd ditto.....	0 8 0	"	0 13 0
Other qualities.....	0 6 8	"	0 7 0
Staves, per standard M.:			
Quebec pipe.....			
U.S. ditto.....	£35 0 0	"	£42 10 0
Memel, cr. pipe.....	210 0 0	"	220 0 0
Memel, brack.....	180 0 0	"	190 0 0

### OILS.

	per ton.	to	to
Linedseed.....	£17 7 6	to	£17 17 6
Rapeseed, English pale.....	22 0 0	"	22 5 0
Do., brown.....	20 10 0	"	20 15 0
Cottonseed, refined.....	15 0 0	"	15 10 0
Olive, Spanish.....	28 10 0	"	29 0 0
Seal, pale.....	21 0 0	"	21 5 0
Coconut, Cochin.....	29 0 0	"	29 10 0
Do., Ceylon.....	25 0 0	"	25 10 0
Palm, Lagos.....	23 0 0	"	23 5 0
Oleine.....	18 15 0	"	19 15 0
Lubricating U.S..... per gal.	0 6 8	"	0 7 8
Petroleum, refined.....	0 0 6	"	0 0 6½
Tar, Stockholm..... per barrel	1 0 0	"	1 5 0
Do., Archangel.....	0 15 0	"	0 18 0
Turpentine, American... per ton	28 15 0	"	29 0 0



## LIST OF COMPETITIONS OPEN.

Northwich—Dwelling House (£25 rent) for Erection on Land Liable to Subsidence	£20, £10, £5	F. A. Cowley, Clerk to Salt Compensation Board, Northwich	Feb. 24
Knutsford—Cemetery Buildings	£20 and £10	W. J. Downes, Surveyor U.D.C., Knutsford	" 28
Beverley—Grammar School Buildings (limit £12,000. Assessor)	£25 and £10	F. G. Hobson, Clerk to the Governors, Newbegin, Beverley	Mar. 4
Shoreditch—Additions to Town Hall (limit £12,000)	£50 and £25	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C.	" 22
Doncaster—House for Grammar School Master (limit £3,500; Assessor)	£50 (merged), £25	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster	" 30
Forfar—Isolation Hospital (Assessor)	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee	" 31
Bradford Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£150, £100, £50	The City Surveyor's Office, Bradford	April 14
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	£50, £20, £10	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate	" 30
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds	June 1
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair)	£100 (merged), £60, £40	F. Moggridge, 18, King's-place, Portman-square, W.	—
Wandsworth, S.W.—Guardians' Board-room, Offices, &c.	£20	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W.	—
Hexham—Vagrant Wards at Workhouse	£20	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

New Deer—Dwelling-House, Mitchellhill	C. G. Smith, Estate Office, Haddo House, Aberdeen	Feb. 18
Cork—Three Houses, Victoria-road	James F. M. Mullen, M.S.A., Architect, 30, South Mall, Cork	" 18
Bradshaw—Villa	W. Clement Williams, Architect, 29, Southgate, Halifax	" 18
Fyvie—Dwelling-House, North Faddonhills	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Manchester—Wesleyan Church, Ladybarn	Greaves and Burbridge, Architects, 1, Harrington-street, Liverpool	" 18
Richmond—Schoolhouse at Grammar School	Clark and Moscrop, Architects, Feethams, Darlington	" 18
New Deer—Dwelling-House, Anechmaliddy	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Kilbarchan—New Parish Church	W. H. Howie, I.A., 131, West Regent-street, Glasgow	" 18
Bradford Moor—Eight Through Houses	G. C. Gamble, Architect, Parkinson's Chambers, Bradford	" 18
Altyre—New Kennels, &c.	A. and W. Reid and Wittet, Architects, Elgin	" 18
Fyvie—Dwelling-House, Blackhillock	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Farsley—Store, Town-street	John W. Fawcett, Sec., 10, Albion-street, Leeds	" 18
Sutton—Twelve Houses, and Dwelling-House and Shop	Morgan, Baines, and Clark, Surveyors, Sutton, Surrey	" 18
Methlick—Dwelling-House, West Monletty	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Altyre—Additions to Keeper's House	A. and W. Reid and Wittet, Architects, Elgin	" 18
Charlbury—Classroom, Out-Offices, &c., at Infants' School	George Castle, Architect, Woodstock	" 18
Helmsley—Additions to Police Stations	Walker Stead, M.I.C.E., County Surveyor, Northallerton	" 18
Tarves—Dwelling-House, Hornscoft	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Dudley Hill—Warehouses	Samuel Robinson, Architect, Cheapside	" 18
Tarves—Dwelling-House, Backhill of Little Meldrum	C. G. Smith, Estate Office, Haddo House, Aberdeen	" 18
Stockton-on-Tees—Two Pairs Cottage Homes, Windsor-road	John Rodham, 16, Finkle-street, Stockton-on-Tees	" 20
Southampton—Artisans' Dwellings	George B. Nalder, Town Clerk, Municipal Offices, Southampton	" 20
Cliffe—New Offices at National School	A. E. Loach, Architect, Strood	" 20
Tenby—Staircases and Balconies for Workmen's Dwellings	H. T. Morley, Architect, Tenby	" 20
Stockton-on-Tees—Pair Cottage Homes, Hartington-road East	John Rodham, 16, Finkle-street, Stockton-on-Tees	" 20
Dudley Hill—Six Through Houses, Tong-street	B. Stephenson, 268, Tong-street, Dudley-hill, Bradford	" 20
Chartham—Cemetery Chapel, &c.	Andrew Bromley, Architect, The Cathedral Precincts, Canterbury	" 20
Brampton—Wesleyan Chapel and Schools	Thos. Pattinson, Secretary, Townley-place, Brampton	" 20
Stockton-on-Tees—Pair Cottage Homes, Hartington-road West	John Rodham, 16, Finkle-street, Stockton-on-Tees	" 20
Hayfield—Alterations to Free Methodist School	J. Lowe, High-street, Hayfield	" 20
Cork—Offices and Store, South Mall	Samuel F. Hynes, F.R.I.B.A., 41, South Mall, Cork	" 21
West Kensington—Foundations for Central Savings Bank	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 21
Bridlington Quay—Two Dwelling-Houses, Lansdowne-road	Samuel Dyer, Architect, Bridlington Quay	" 21
Kinloss—Extension of Graveyard	Mackenzie and Grant, Forres	" 21
Neath—School Buildings	D. M. Jenkins, Architect, Gwyn Hall, Neath	" 21
Kilkenny—Forty Houses	William K. Cleere, Executive Sanitary Officer, Kilkenny	" 21
Staines—Sewage Disposal Works	J. C. Mellies, 264, Gresham House, Old Broad-street, E.C.	" 21
Morecambe—Five Houses, Lancaster-road	Marshall Bros., Architects, Back-crescent, Morecambe	" 21
Stockton-on-Tees—Premises, &c., Silver-street	E. E. Clephan, Architect, St. Nicholas Chambers, Newcastle-on-Tyne	" 21
Walton—Two Cottages	George Finch, Chapel Villa, Walton, Suffolk	" 21
Manchester—Platform Roofing at Station Buildings, Rose Grove	The Engineer's Office, Hunt's Bank, Manchester	" 21
Sheffield—Dwelling-House and Surgery at Winobank	G. A. Wilson, Architect, Hartshead Chambers, Sheffield	" 21
Bury—Surgery, &c., at Springwells, Manchester-road	H. Sheldermine, Architect, Hunt's Bank, Manchester	" 21
Haverfordwest—Additions to School Buildings, Barn-street	D. Edward Thomas, Architect, Victoria-place, Haverfordwest	" 21
Workington—Administration Block, &c., Ellerbeck Infectious Diseases Hospital	W. Eaglesfield, Borough Surveyor, Workington	" 22
Bethesda—Alterations of Carmel Congregational Chapel	The Chapel House, Rachub, Bethesda	" 22
Heanor—Iron Hospital (eight beds)	John Holbrook, Surveyor, Town Hall, Heanor	" 22
Gorton—Alterations, &c., to Buildings at Sewage Works	Charles J. Lomax, Engineer, 37, Cross-street, Manchester	" 22
Halifax—Five-Storey Warehouse at West Vale Works	Chas. F. L. Horsfall and Son, Architects, Lord Street Chambers	" 22
Uxbridge—Bathrooms at Workhouse, Hillingdon East	W. L. Eves, Architect, 54, High-street, Uxbridge	" 23
Southend-on-Sea—Chapel and Lodge at Cemetery, Sutton-road	A. Fidler, A.M.I.C.E., Borough Surveyor, Clarence-road, Southend	" 23
Rainhill—Nurses' Dining-Room at County Asylum	Jas. Gornall, Clerk, Rainhill, Lancs	" 23
New Brompton—Alteration of Stabling, Nile-road	E. J. Hammond, Architect, 111, High-street, New Brompton	" 23
Workington—Cottage	James Howes, 23, Curwen-street, Workington	" 24
Earlestown—Alteration of High Close	F. W. Ridgway, F.R.I.B.A., Architect, Dewsbury	" 24
Fleeton—Three Shops and Storeroom	Townsend and Fordham, Architects, Cross-street, Peterborough	" 24
Hipperholme—Three Through Houses	R. Berry, Architect, Arcade Chambers, Commercial-street, Halifax	" 24
Warminster—Vagrant Wards at Workhouse	Wm. Merrick, Clerk, The Lindens, Emwell-street, Warminster	" 25
London—Works and Repairs to Public Buildings (Three Years)	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
Ashton—Dwelling-House and Shop	L. J. Eustice, Ashton, Breage, Cornwall	" 25
Hebden Bridge—Hole-in-Wall Hotel	W. Clement Williams, Architect, 23, Southgate, Halifax	" 25
Westport—Post Office	H. Williams, Sec., Office of Public Works, Dublin	" 25
St. Mary's, Scilly—Wing, &c., to Tregarthen's Hotel	Oliver Caldwell, Architect, F.R.I.B.A., Penzance	" 25
Clayton—House and Two Shops at Nursery	S. Spencer, Architect, 344, Great Horton-road, Bradford	" 25
Burton-upon-Trent—Extension of Electric Light Buildings	F. L. Ramsden, Electric Light Works, Burton-upon-Trent	" 25
Egremont—Four Dwelling-houses, Out Offices, &c., Main-street Acton, W.—School	Clement Mossop, Butcher, Main-street, Egremont	" 25
Llantwit Major—Repairing Parish Church	Widnell and Trollope, 20, Tophill-street, S.W.	" 25
Masborough—Residence, Station-road and Albert-street	G. E. Halliday, F.R.I.B.A., Architect, Cardiff	" 27
Woodhouse—Police Station and Branch Free Library	G. Handley Johnson, Architect, 38, High-street, Rotherham	" 27
Hastings—Additions, &c., 18, Wellington-square	The City Engineer's Office, Municipal Office, Municipal Bldgs., Leeds	" 27
Penwortham—Classroom and Cloakroom at Middleforth School	Alfred Dray, Architect, Town Hall Chambers, Hastings	" 27
Hastings—Alterations to Silverhill Board School	J. Swindells, 3, Cannon-street, Preston	" 27
Earlehampton—Extension of Electric Lighting Station	Elworthy and Son, Architects, London-road, St. Leonards	" 27
Sheffield—Extension of Weaving Sheds	J. W. Bradley, C.E., Boro' Engineer, Town Hall, Wolverhampton	" 27
Battersea, S.W.—Two Cottages, Heathwall Pumping Station	F. W. Ridgway, F.R.I.B.A., Architect, Dewsbury	" 27
Halifax—Barn, &c., at Stone Farm, near Triangle	C. J. Innocent, Architect, 22, High-street, Sheffield	" 28
St. Erth—Two Cottages at Station	The Engineer's Department, County Hall, Spring Gardens, S.W.	" 28
Widowish—Stabling and Horsekeeper's Residence, Callis-alley	R. Horsfall and Son, Architects, 22A, Commercial-street, Halifax	" 28
Sheffield—Branch Stores, &c., Alfred-road and Pelham-street	The Company's Engineer, Plymouth Station	" 28
Ulverston—Wesleyan Church	J. O. Cook, Architect, 1A, Eleanor-road, Woolwich	" 28
Torquay—Rebuilding Store	H. Webster, Architect, St. Marie's Chambers, Norfolk-row, Sheffield	" 28
Torquay—Church Restoration	John Wills, Architect, St. Peter's Churchyard, Derby	Mar. 1
Bolderly—Infirmary at Workhouse	G. C. Vernon-Inkpen, F.S.I., Whittington Chambers, Southsea	" 1
Rowley Bridge—Public Elementary Schools	Temple Moore, Architect, 46, Well-walk, Hampstead, London, N.W.	" 1
Leeds—Alteration of 38 to 46, Great George-street	Alfred Price, Architect, Elworth, Sandhich	" 1
Norton—Additions to Girls' School	Horsfall and Son, Architects, Lord Street Chambers, Halifax	" 3
Omagh—Keeper's Lodge and Offices at New Cemetery	Smith and Tweedie, F.R.I.B.A., 12, South Parade, Leeds	" 3
Omagh—Church and Casual Vault at New Cemetery	The Rectory, Northern Cranes, near Cannock, Staffs	" 3
Knaresborough—School Buildings, &c.	J. L. Donnelly, Architect, 2, Bridge-street, Omagh	" 4
Putney, S.W.—New Sorting Office	J. L. Donnelly, Architect, 2, Bridge-street, Omagh	" 4
Thornaby-on-Tees—Infants' School	Barrowcliffe and Alcock, Architects, Mill-street, Loughborough	" 4
Shoburness—Gas-holders, &c.	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 6
Abingdon—Additions to Schools (264 children)	E. Goldie, Architect, 31, Upper Phillimore-place, Kensington, W.	" 6
Bala, Merioneth—County Intermediate School for Girls	Henry J. Robus, Engineer, 21, Bucklesbury, London, E.C.	" 6
Glasgow—Exhibition Buildings, Kelvingrove Park	O. Penton Lambert, Architect, Bridge-st.	" 7
Rugeby, near Sleaford—Superstructure of Lunatic Asylum	H. Teather, Architect, 83, Wylie Cop, Shrewsbury	" 14
	H. A. Hedley, Secretary, 141, Buchanan-street, Glasgow	" 15
	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W.	April 4



BUILDINGS—continued.

Holbeck Moor—Public Shelter	Fredk. W. Rhodes, Architect, Upper Wortley, Leeds	—
Anfield Plain—Block of Buildings	T. E. Crossling, Architect, Stanley	—
Morecambe—Four Houses and Shop, Bold-street	James Hartley, Architect, Bradford Chmbrs., Queen-st., Morecambe	—
Odsal—Villa	William H. Sharp, Architect, 239, Roorley-lane, Bradford	—
Holbeck—Ten Through-Houses	Fredk. W. Rhodes, Architect, Upper Wortley, Leeds	—
Southampton—Twenty-Nine Houses on Old Jail Site	William Burrough Hill, F.S.I., Southampton	—
Earlshaston—Extension of Weaving-Sheds	F. W. Ridgway, F.R.I.B.A., Architect, Borough Chmbrs., Dewsbury	—
Higham Ferrers—Three Dwelling-Houses	H. Adnitt, Architect, High-street, Rushden	—
Dewsbury—Two Shops and Houses, Halifax-road	E. W. Ridgway, F.R.I.B.A., Architect, Dewsbury	—
Barrow-in-Furness—Queen's Arms Inn, Rawlinson-street	M. O. Young, Architect, 90, Duke-street, Barrow-in-Furness	—
Hatfield Heath—Schools	Brown and Barrow, Architects, 12, Norfolk-street, London, W.C.	—
Southport—Laundry, &c., Meols Cop-road	F. W. Dixon, Architect, Trevelyan Buildings, Manchester	—
Reading—Two Shops, Oxford-road	W. Jane, 17, Market-place, Reading	—
Armagh—Alterations to Premises, Scotch-street	J. F. Giechrist, A.I.C.E.I., M.E.I.A.I., Scotch-street, Armagh	—
Sheffield—Two Pairs Semi-Detached Houses, Ecclesall-road	The Pinrose Works, Shoreham-street, Sheffield	—
Colchester—Stables, &c., at The Hythe	Chas. E. Butcher, Architect, 3, Queen-street, Colchester	—
Morecambe—Alterations to National Schools	Marshall Bros., Architects, Back-crescent, Morecambe	—
Broomhill—Additions to Property, Glossop-road	Hall and Fenton, Architects, 14, St. James's-row, Sheffield	—
Manningtree—Shop and House, High-street	R. W. Downing, Brook-street, Manningtree	—
Starbeck—New Stores and Premises	A. A. Gibson, Architect, Yorkshire Bank Chambers, Harrogate	—
Hatfield Heath—Schools	Brown and Barrow, Architects, 12, Norfolk-street, London, W.C.	—
Chudleigh Knighton—Repairs to Ten Cottages and Outbuildings at Underhayes	—	—
Walthamstow—Twelve Houses	—	—
Poynton—Drapery and Boot Shop, Office, &c.	—	—
Kendal—141 Working Men's Dwellings, Long Fields	—	—
Fleetwood—Restaurant, North Albert-street	—	—
Ballinamallard—School	—	—
Pocklington—Residence	—	—
Halstead—Additions to Industrial School	—	—
Cheshire—Sanatorium (100 beds), &c., Baginbun Lodge	—	—
Skegness—Alterations, &c., to Premises, Derby-road	—	—
Hull—Colour Mill, Sculcoates	—	—
Manningtree—Shop and House, High-street	—	—
Bradford—Prospect Inn, Bolton-road	—	—
Higham Ferrers—Three Dwelling-Houses	—	—
Skegness—Detached Villa	—	—
Caramore—Dwelling-House	—	—

ENGINEERING.

Glasgow—Electrical Plant	Kelvinside Electricity Co., Ltd.	J. M. M. Munro, Engineer, 136, Rothwell-street, Glasgow	Feb. 18
Manchester—Electric Tramcars	Corporation	J. M. McElroy, Secretary, Tramways Dept., Town Hall, Manchester	" 20
Eastbourne—Pier Improvements	Pier Company, Ltd.	M. N. Kiddle, 11, Dartmouth-street, Queen Anne's-gate, S. W.	" 20
Pontypool—Storage Tank near Cwm Quarries, and Laying Line of Sin. Pipes to West Monmouthshire Schools	Governors	Geo. H. Daniel, Engineer, Clarence-street, Pontypool	" 20
Leeds—Lancashire Steel Boiler, New Wortley Gasworks	Gas Committee	R. H. Townsley, Gen. Manager, Municipal Buildings, Leeds	" 20
Ashton-under-Lyne—River Wall to the Tame, &c.	Corporation	J. T. Earnshaw, A.M.I.C.E., Boro' Burv., Town Hall, Ashton-u.-L.	" 20
Edinburgh—Overhead Travelling Crane, &c.	Magistrates and Council	The Resident Engineer, Dewar-place, Edinburgh	" 20
Heanor—Deepening Well	Urban District Council	John Holbrook, Engineer, Town Hall, Heanor	" 20
Bury—Three Electric Motors, Sewage Works, Livsey Fields	Sewage Committee	J. Cartwright, Borough Engineer, Bury, Lancs	" 21
Whittington—Cylindrical Boiler	Gas Co., Ltd.	P. Penny, A.M.I.C.E., Engineer, Grosvenor House, Uxbridge	" 21
Haslingden—Disinfecting Apparatus	Town Council	The Borough Surveyor's Office, Haslingden, Lancs	" 21
Smethwick—Coke-Handling Plant	Gas Committee	B. W. Smith, Gasworks, Rabone-lane, Smethwick	" 21
Bury—Electric Wiring, Sewage Works	Sewage Committee	The Borough Engineer, Bank-street, Bury, Lancs	" 22
Gorton—Sludge-Pressing Machinery	Urban District Council	Charles J. Lomax, 37, Cross-street, Manchester	" 22
Bury—Footbridge over the Canal Feeder at Elton	Sewering Committee	The Borough Engineer, Bury, Lancs	" 22
Llangadock—Bridge over River Sawdde at Carregawadde	Llandovery Rural District Council	Morgan W. Davies, A.M.I.C.E., Gloucester-place, Swansea	" 22
Belfast—Boilers, &c.	Electric Committee	Victor A. H. McCowen, City Electrical Engineer, Belfast	" 23
Llanbadarn Fawr—Water Supply	Aberystwith Rural District Council	G. Jones and Son, Architects, Aberystwith	" 24
Chertsey—Rebuilding Durnford Bridge	Rural District Council	W. Durrant, Surveyor, Addlestone	" 25
Hovingham—Rebuilding Bridge	—	Walker Stead, M.I.C.E., County Surveyor, Northallerton	" 25
Christiania—Porcelain Telegraph and Telephone Insulators (140,400)	Norwegian State Telegraph Administration, Christiania	—	" 26
Treharris—Service Reservoir (350,000gal.), Dwelling-House, &c.	Merthyr Tydfil Urban Dist. Council	Thos. Fletcher Harvey, Engineer, Town Hall, Merthyr Tydfil	" 27
Edinburgh—Steam and Exhaust Pipes, Pumps, Tanks, &c.	Magistrates and Council	The Resident Engineer, Dewar-place, Edinburgh	" 27
Patterdale—Bridge over Griesdale Beck	—	Joseph Bentley, County Surveyor, 7, Lowther-street, Kendal	" 27
Sheffield—Electric Light Plant at Workhouse, The Edge	Eccleshall Bierlow Un. Guardians	J. D. Webster, Architect, 19, St. James-street, Sheffield	" 27
Wrexham to Rhos—Railway (3½ miles)	Great Western Railway Co.	The Office of the Engineer, Paddington Station, S.W.	" 28
Gloucester—Condensers, &c.	Electricity Supply Committee	R. Hammond, M.I.C.E., M.I.E.E., 64, Victoria-street, London, S.W.	" 28
Belfast—Steel Roof at Station	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-street, Dublin	" 28
Oldham—Two Lancashire Steam Boilers (28ft. by 8ft.)	Corporation	Arthur Andrew, Gas and Water Offices, Oldham	" 28
Llandilo, Bynea, and Pembrey—Bridges, &c.	Great Western Railway Co.	The Company's Engineer, Neath Station	" 28
Buxton—Rebuilding Bridge, St. John's-road	Urban District Council	The Surveyor to the Council, Town Hall, Buxton	" 28
Wakefield—Waterworks	Corporation	C. C. Smith, A.M.I.C.E., Waterworks Eng., Town Hall, Teignmouth	" 28
Llandiloee—Storage Reservoir (6,000,000gal.), at Nant-y-Geifr	Town Council	Arthur Davies, Town Clerk, Llandiloee	Mar. 1
Manchester—Passenger Lift at Town Hall	Corporation	J. Rison, Town Hall Steward, Manchester	" 1
Edinburgh—Aqueduct, Bridges, &c.	Edin. and Dist. Water Trustees	James Wilson, Engineer, 72A, George-street, Edinburgh	" 3
Buckie—Bridge	Improvement Committee	James Barron, M.I.C.E., 1, Bon Accord-street, Aberdeen	" 4
Sheffield—Bridges over River Sheaf	County Council	C. F. Wike, C.E., City Surveyor, Town Hall, Sheffield	" 4
Lleyther-le-Dale—Stone Bridge	—	The County Bridgemaster's Office, County Offices, Preston	" 6
Clatterkenny to Burton Port—Railway (49½ miles)	—	E. Radcliffe, C.E., 24, Clooney-terrace, Londonderry	" 13
Buncrana to Camdonagh—Railway (18½ miles)	—	J. Y. F. Cooke, C.E., St. Columb's, Londonderry	" 13
Dundee—Electrical Plant at Station, Dudhope Crescent-road	Gas Commissioners	W. H. Tittensor, Dudhope Crescent-road, Dundee	" 15
Belem—Waterworks	Government of Pará	The Treasury of Pará	" 15
Pernambuco to Olinda—Electric Tramway (3 miles)	Municipal Council	Secretaria da Industria, Pernambuco	" 18
Shanghai—Electric Trolley Tramways (23 miles)	—	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	June 30

FENCING AND WALLS.

Glasgow—Wire Fencing .....	Glasgow and South-Western Ry. Co.	The Company's Engineer, St. Enoch Station, Glasgow	Feb. 20
Manchester—Fencing, Gates, &c., Kirkmanshulme-lane .....	Corporation .....	The City Surveyor's Office, Town Hall, Manchester	" 21
Kewick—Wall, &c., Station-road .....	Urban District Council .....	William Hodgson, Surveyor, Town Hall, Kewick	" 25
Ilford—Iron Fencing (2,074 yards) and Entrance Gates for Public Park .....	Urban District Council .....	H. Shaw, A.M.I.C.E., Surveyor, 7, Cranbrook-road, Ilford	" 28
Rugby—Unclimbable W.I. Fencing (300 yards) .....	Urban District Council .....	D. G. Macdonald, A.M.I.C.E., Surveyor, Rugby	Mar. 1
Omagh—Boundary Walls, Entrance Gates, and Railings at New Cemetery .....	Guardians .....	J. L. Donnelly, Architect, 2, Bridge-street, Omagh	" 4
Kilchrean—Corriemony Fencing (3½ miles) .....		C. J. R. Fraser, Kilmun, Kilchrean	

FURNITURE AND FITTINGS.

Boyle—Iron Bedsteads (18), &c.	Guardians	W. Odbert, Clerk, Poor-Law Office, Boyle, Ireland	Feb. 18
London—Gasfitters' Work to Public Buildings (Three Years)	H.M. Commissioners of Works	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
Hastings—Gas-Fittings, Stoves, &c., Silverhill Technical Schools	U.D. School Board	Arthur Wells, F.R.I.B.A., Architect, Queen's Chambers, Hastings	" 27
Hastings—Fitting-up Technical Schools of Silverhill	Hastings U.D. School Board	Arthur Wells, F.R.I.B.A., Architect, Queen's Chambers, Hastings	" 27
Pontypool—Fire Appliances, Bedsteads, &c., for Workhouse New Infirmary	Guardians	T. Watkins, Clerk, Union Offices, Club Chambers, Pontypool	" 28
Barrow-in-Furness—Desks, &c., Three Schools	School Board	W. Hutchinson, Clerk, Town Hall, Barrow	—

PAINTING.

Morley—Public Baths	Corporation	Holtom and Fox, Architects, Dewsbury	Feb. 13
Belfast—Church Buildings, Great Victoria-street	Committee	Yeung and Mackenzie, 7, Donegal-square, Belfast	" 20
Whitworth—Chapel at Hallford Congregational Chapel	—	R. Nuttall, Whitworth, Lancs	" 20
Frestwich—Painting at Asylum	Committee of Visitors	The Superintendent, County Asylum, Frestwich	" 20
Bury—Public Baths, St. Marie's-place	Corporation	J. Cartwright, M.I.C.E., Borough Engineer, Bank-street, Bury	" 21
Loughlinstown—Three Wards in Workhouse Hospital	Guardians of Rathdown Union	The Workhouse Master, Loughlinstown	" 22
Wakefield—Town Hall	Corporation	Richard Porter, City Surveyor, Town Hall, Wakefield	" 22
Dublin—Dispensaries, 16, Peter-street and Grand Canal-street	South Dublin Union Guardians	Thomas Phelan, Architect, The Cathedral Precincts, Dublin	" 23
Canterbury—Interior of Kent and Canterbury Hospital	—	Arthur Bromley, Architect, The Cathedral Precincts, Canterbury	" 23
Thornaby—Chapel	Grand Stand Trustees	G. Hewlett, 1, Derby-street, Thornaby	—
Asot—Grand Stand and Other Buildings	Town Council	William M'zries, F.S.I., Englefield Green, Surrey	—
Longton—Interior of Public Baths	—	J. W. Wardle, C.E., Borough Surveyor, Court House, Longton	—

PLUMBING AND GLAZING.

Kilbarchan—At New Pariah Church	Joint Committee	W. H. Howie, I.A., 131, West Regent-street, Glasgow	Feb. 19
Dudley Hill—Six Through Houses, Tong-street	—	B. Stephenson, 268, Tong-street, Dudley Hill, Bradford	" 20
Hastings—Laying-on Water to Ore Village Schools, &c.	U.D. School Board	Arthur Wells, F.R.I.B.A., Architect, Queen's Chambers, Hastings	" 27







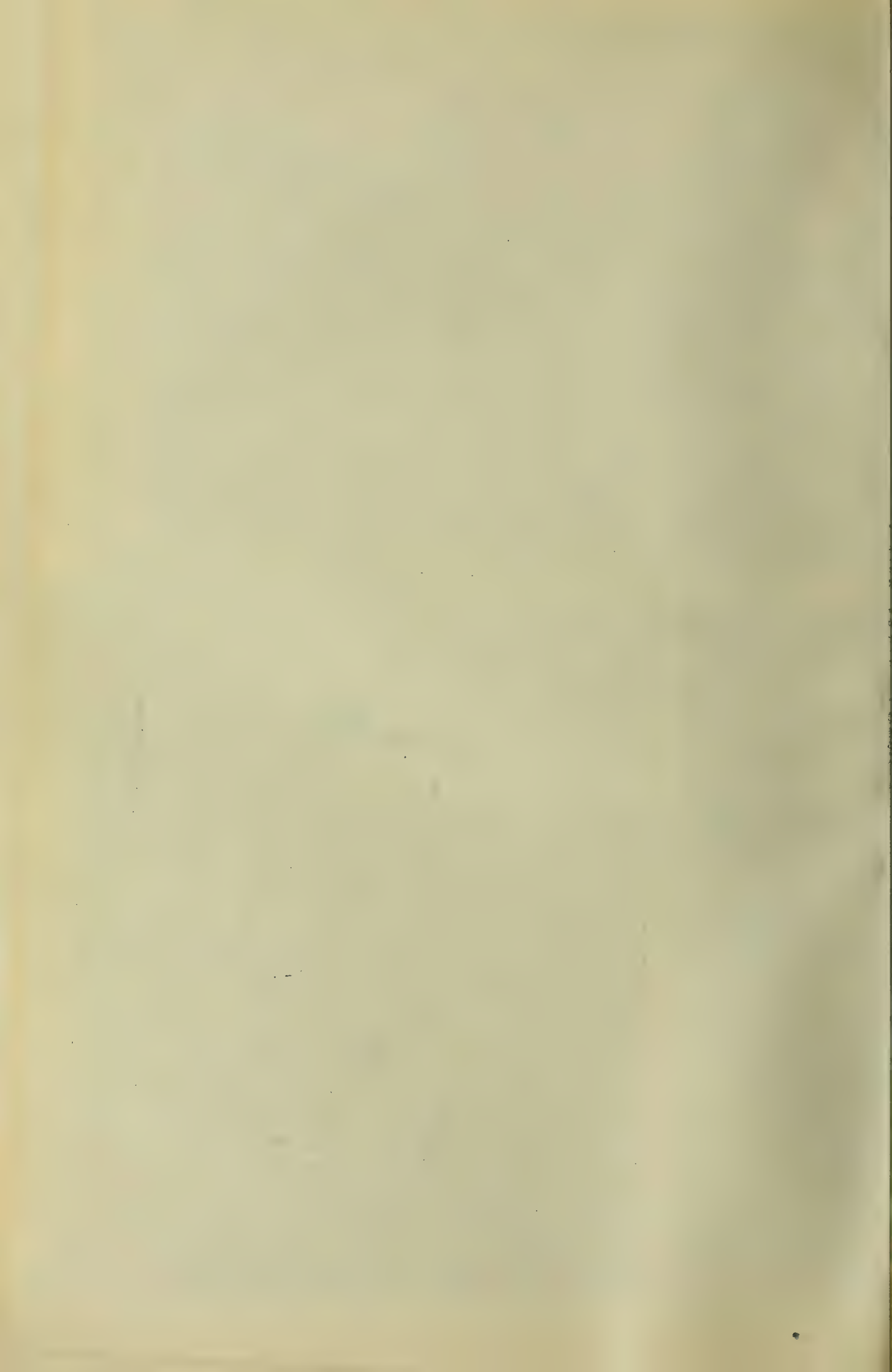


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GEO. WATSON















THE BUILDING NEWS, FEB. 17, 1896.





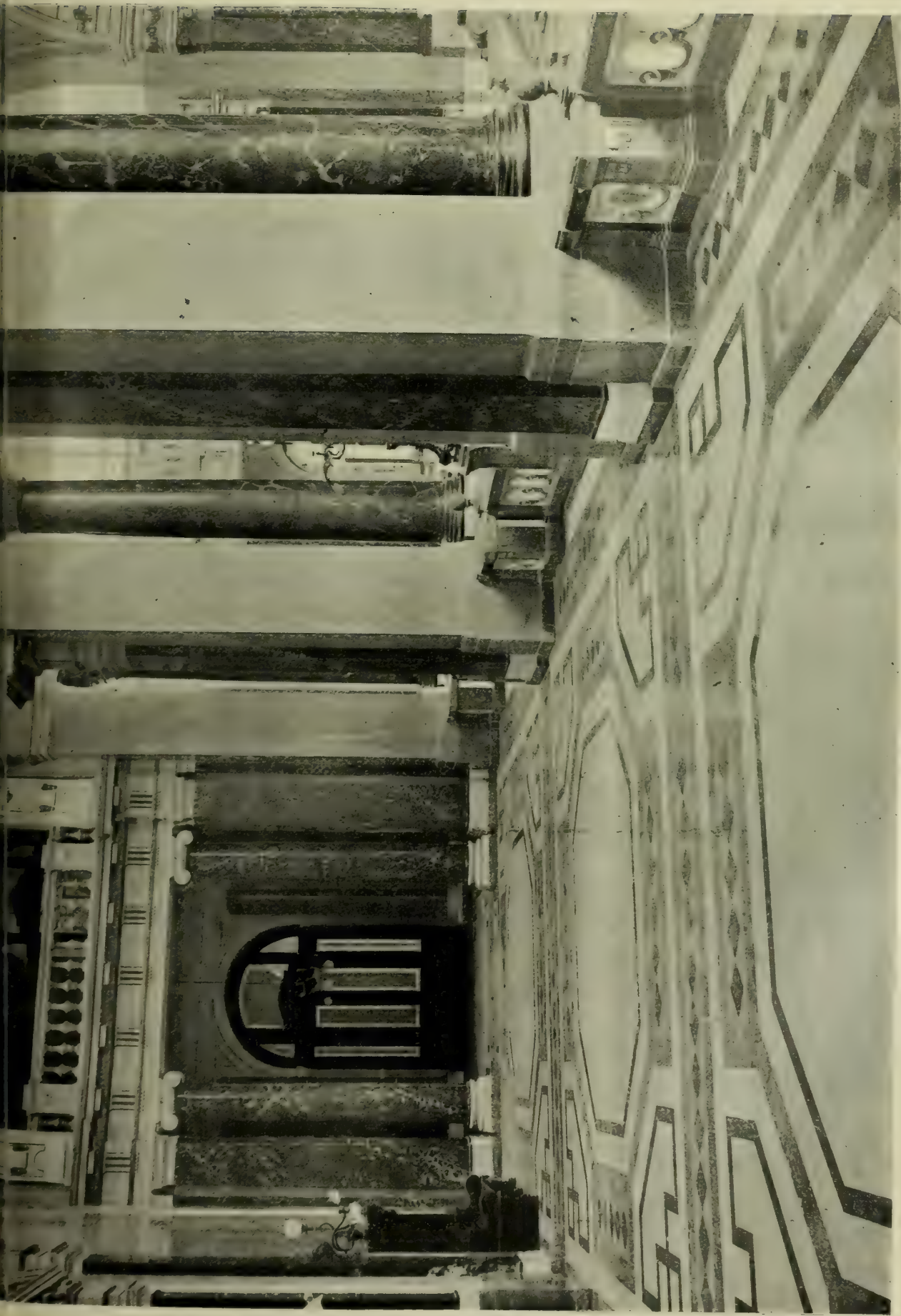


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PALACE OF JUSTICE, BUDA-PESTH.  
A. HAUSZMANN, ARCHITECT.



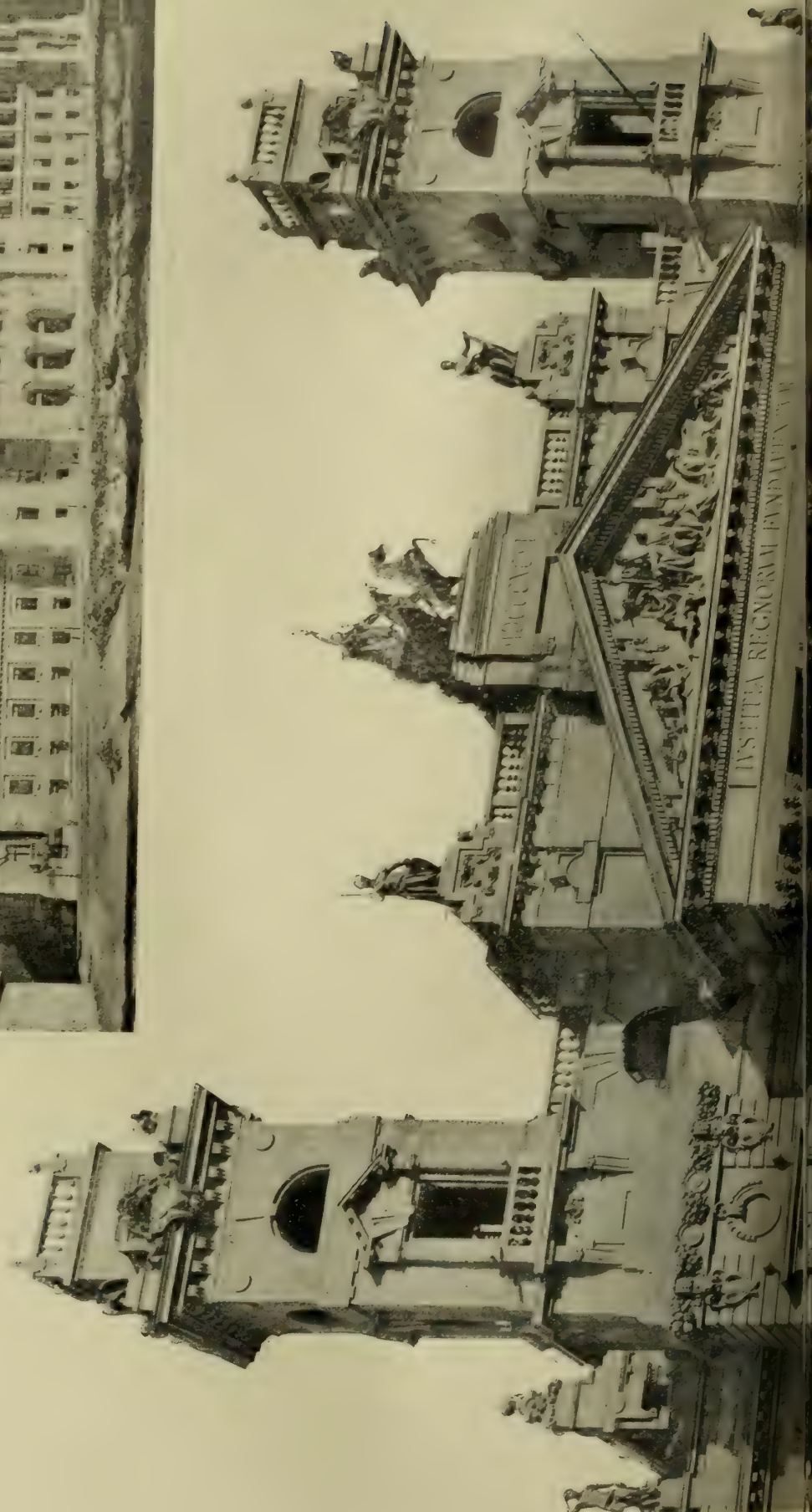
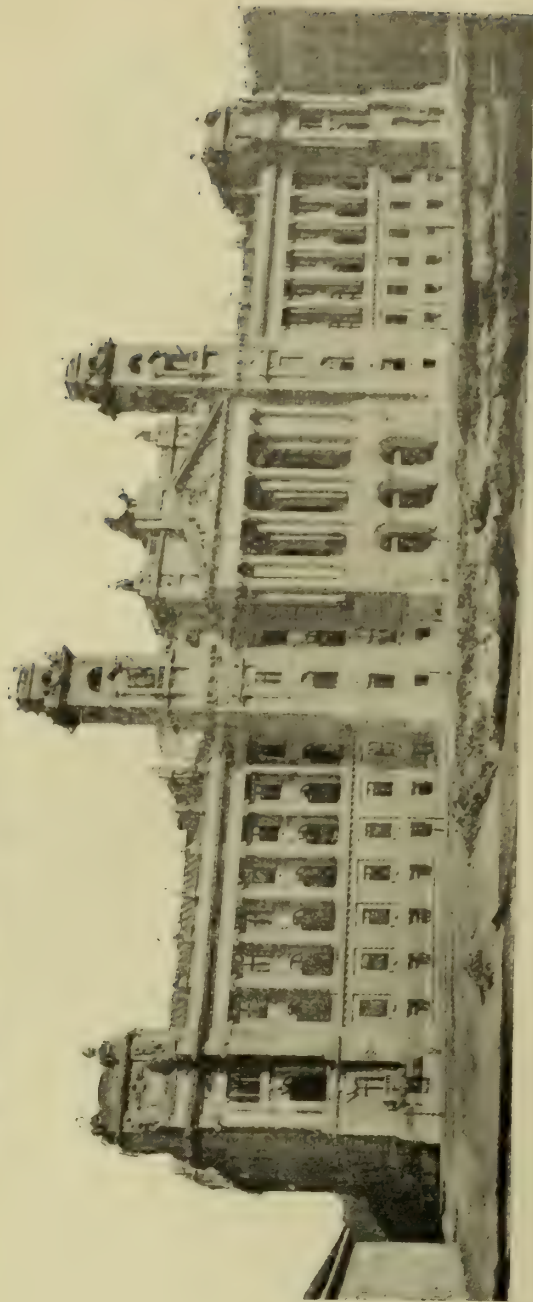








THE BUILDING NEWS, FEB. 17, 1899.





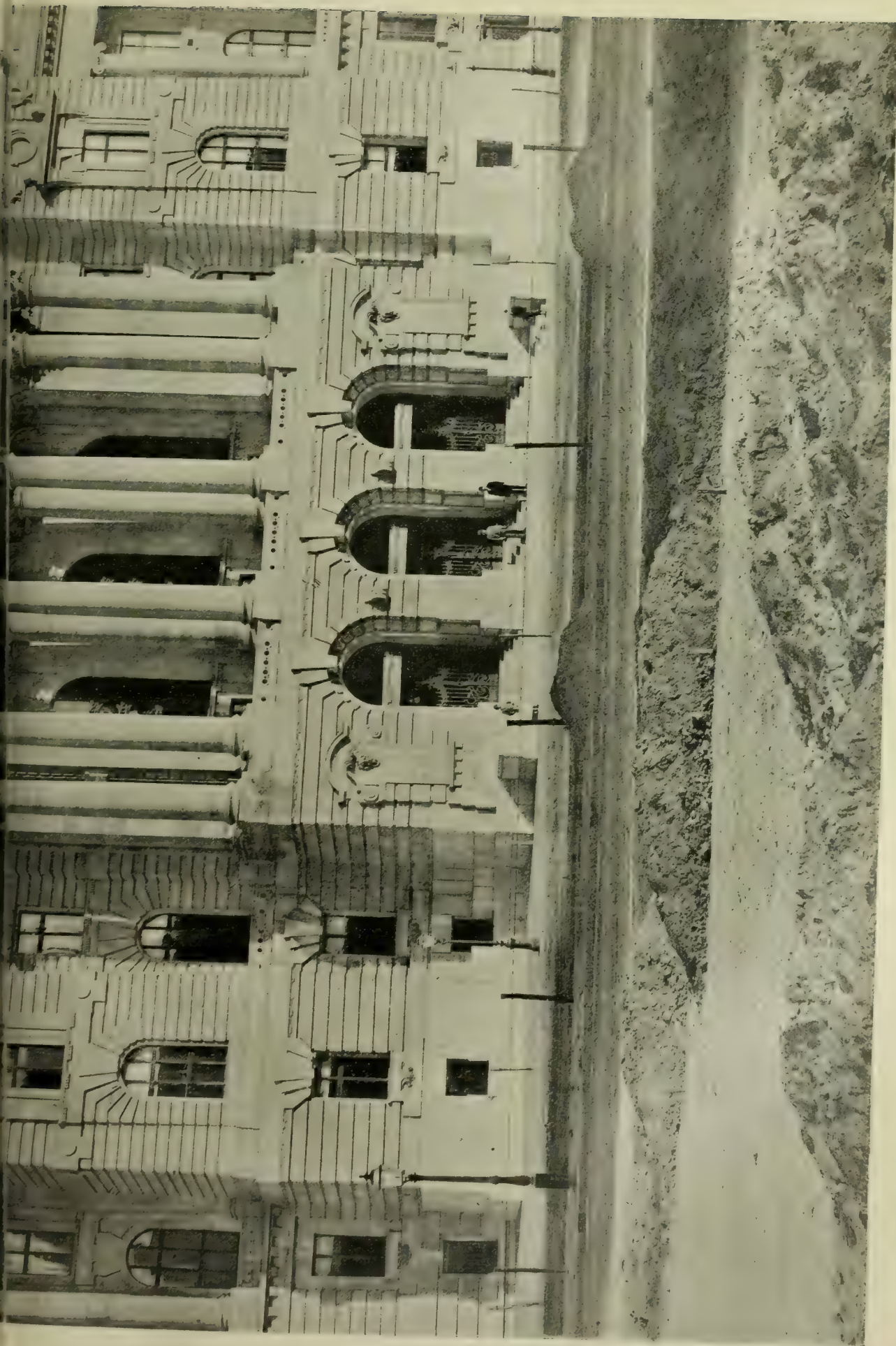


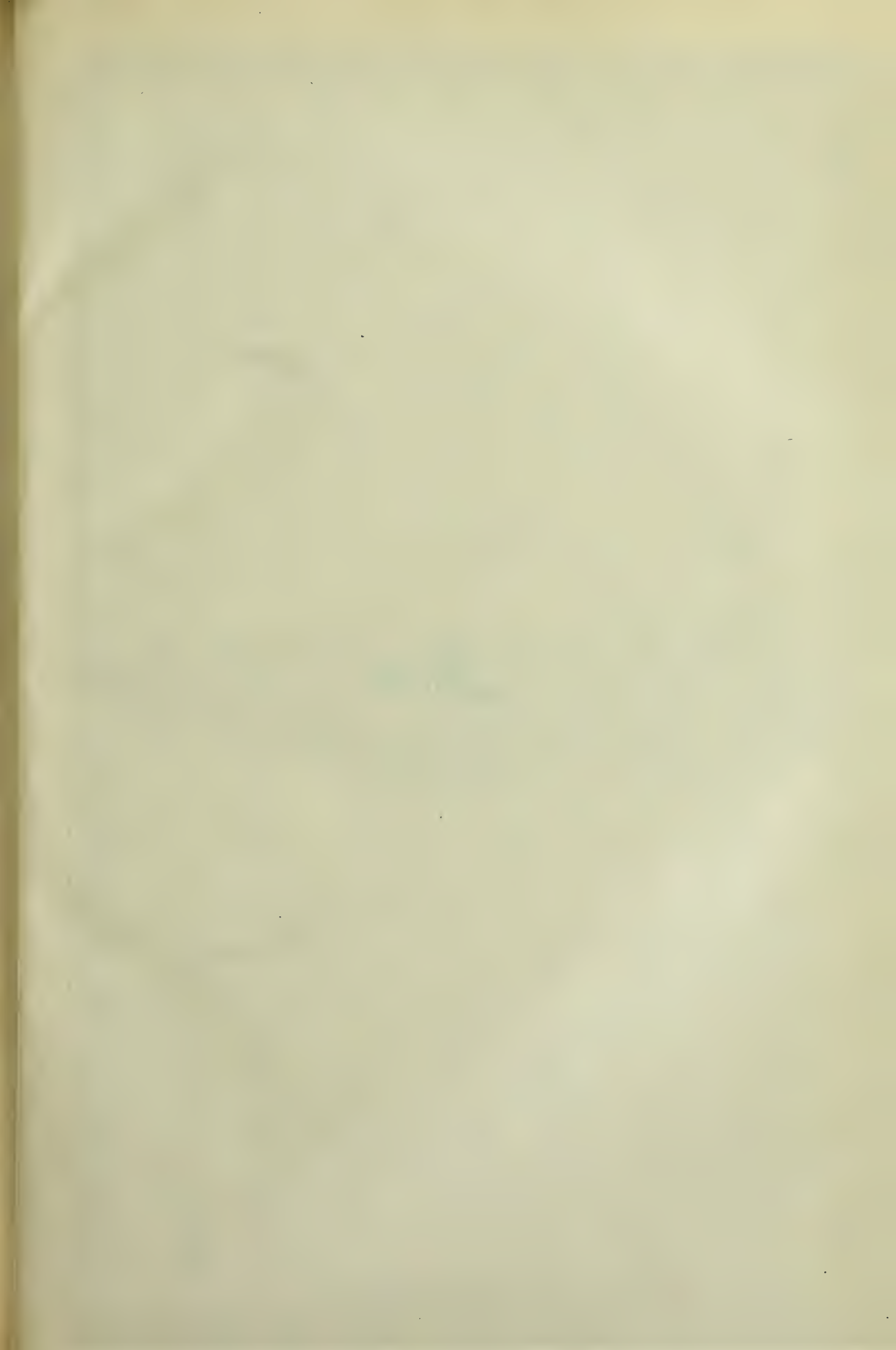
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PALACE OF JUSTICE, BUDA-PESTH  
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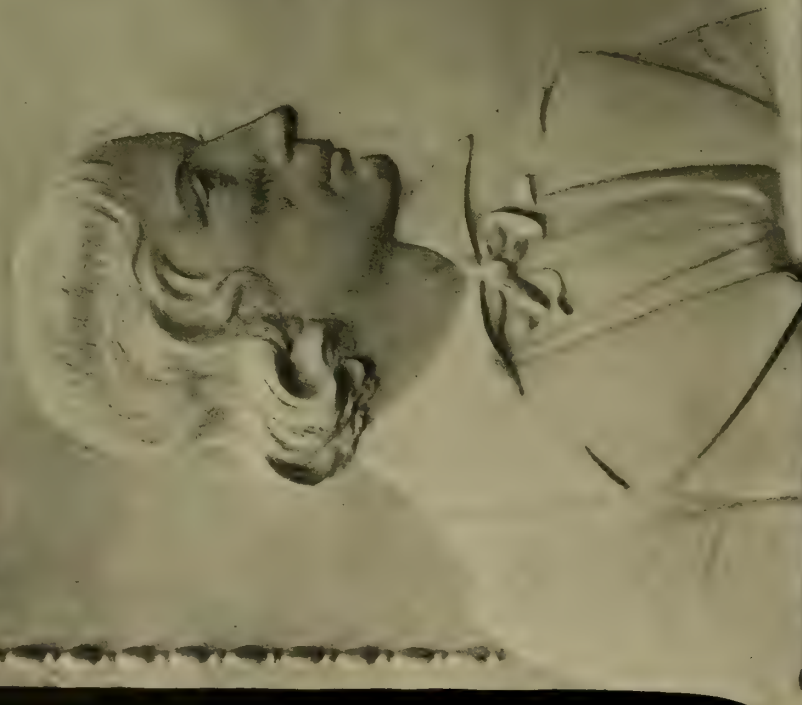








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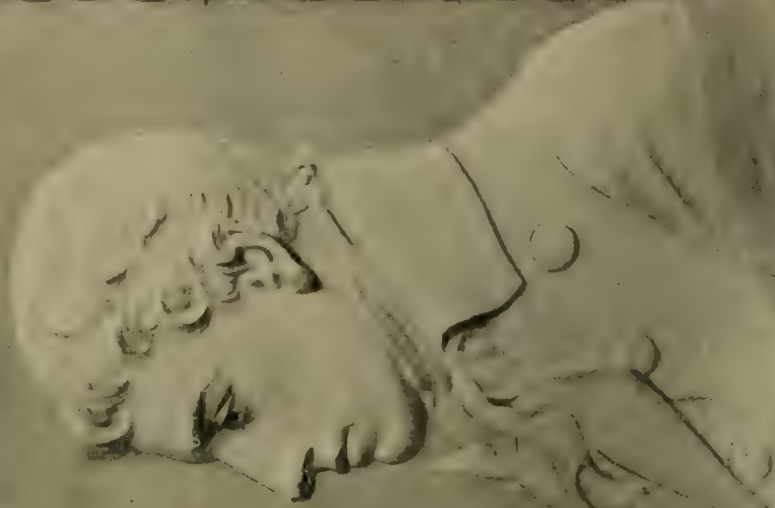
JOHN KEATS

BORN OCT. 29<sup>th</sup> 1795

DIED FEB. 24<sup>th</sup> 1821

GEO FRAMPTON  
1895

PRESENTED BY PASSMORE EDWARDS



CHARLES LAMB

BORN FEB. 18<sup>th</sup> 1775

DIED DEC. 27 1834

GEO FRAMPTON  
1895

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NAVE ROOF OF WINCHESTER CATHEDRAL BEFORE REPARATION.







# THE BUILDING NEWS

AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2303.

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## SUPERVISION AND INSPECTION.

**A**BLE and competent designers of buildings are often twitted as being impractical supervisors; the man who can conceive and plan is frequently unable to carry out his own ideas in the best way, and this inability is not altogether due to the want of practical knowledge, but to the want of seeing things with the eye of the workman. The difference is that between the power of abstraction, or of seeing the whole effect of the masses, and that of administering in detail. Both powers are wanted in a successful architect, but it is owing to their lack of co-operation that so few men pass beyond the teaching and traditions of the office and studio. The "draughtsman-architect," if we use a compound term, is an example of the extreme of this side. He knows when a building looks well on paper, he can give details of mouldings and drawings in various materials; but he would be quite at a loss to instruct a bricklayer, a carpenter, or a smith how to execute his design to the best advantage, or to discover any defect in the workmanship when done. The fact is, the architect accustomed to office routine, engaged in directing draughtsmen and carrying out the official duties of contracts, has so very little to do with the actual operations of building that his knowledge crystallises, so to speak, into certain stereotyped modes of thought. What he may have learned while a pupil or as a student of a class as to the trades are often misleading; theorising has taken the place of real building. The clerk of works now fills the office of supervisor, and has, by his intervention, rendered it possible to bridge the gulf between modern official architecture and building. In this way the modern gap has been filled up. But it is not the old way: it leaves the architect-designer independent of the real work, and, what is more to the point, his duty as an inspector or overseer in the real sense of the term disappears.

Speaking of the Gothic architects of the 12th century, Viollet-le-Duc says, in his remarks on "Construction": "The men who cannot acquire a very broad education for want of instruction, completed by the successive observations of several centuries, are obliged to make up for that elementary poverty by the keenness of their intelligence; and being unable to rely upon documents which do not exist, they must make these observations for themselves, collect them, classify them, and form a theory from them. Experience alone guides them; it is not until later that rules are established, and it must certainly be confessed that, however complete may be the theory, however numerous and good the rules, they never succeed in taking the place of the observation based on the experience of every day." So it was during the Mediæval period. The duty of inspection was paramount, and there was no thought of intrusting the work of supervision to others. What the master of the work or the architect designed he took care to see carried out.

Supervision means inspection; but in this sense the modern architect must plead guilty. In a large and complex building it would be absolutely impossible for him to look at everything; he gives his directions to the clerk of works, sometimes to the contractor. In a still looser sense the duty is understood to be fulfilled when it is delegated to another—the instructing someone else to see that your design is carried out. But how can another person

interpret A's meaning, or see what he intended? It is impossible. As well might a painter hand over his sketch and brush to another, and ask him to finish the picture. The analogy is not quite true—a building comprises a number of materials and technical matters which a picture does not, and therefore a man well versed in construction and workmanship can supervise as well as the designer. Up to a certain point he can do so; he can detect inferior materials, and reject them; discard imperfect bond or joints in carpentry; but in many instances such an expert is quite incapable of deciding whether the usual and correct method agrees with the intentions of the architect. The methods of the trade are generally the most expeditious and easy, and if there are several ways of executing a piece of masonry or a structure of timber, that which is easiest and cheapest will in all probability be followed. The designer's intention often takes more cube stone or timber to carry it out; it is more laborious. The delegate supervisor of work seldom cares to make those finer distinctions of material that the artistic architect thinks important. Take, for instance, such qualities as those of colour in bricks and slates. Uniform colour, texture, and squareness are considered sufficient recommendations for bricks if they are well burnt and hard, whereas the architect may desire varying tints and broken colour, and bricks which are a little uneven in surface, so as to break up the dead flatness. So also with slates. Greenish or pleasantly varied tints are preferred. A few of our leading architects insist on these qualities of colour and texture; they select their own materials, direct how the jointing of brick and stonework is to be done; they avoid anything like machine labour in stone and wood, and require certain ways of jointing and planing wood, so as to develop the individuality of the craftsman.

Another view of supervision as it affects the administration of the London Building Act, or any local by-laws, may be considered. It has often been asked whether those who administer the Act in the Metropolis can carry out a thorough system of inspection of every building in course of erection or alteration, or whether the district surveyor can adequately inspect every such building in his district? Many serious mishaps and building accidents take place which favour the assumption that the supervision is not what it ought to be. The superintendence of buildings in Edinburgh, as recently reported in the *BUILDING NEWS* (see abstract of paper read at the Society of Architects by Mr. David Lyon in our last issue), shows how thoroughly supervision is carried out north of the Tweed. A warrant is granted by the Court when a new building has to be erected, or alteration made, the duration of which is limited to three years, or longer term if thought desirable. The Dean of Guild may renew the warrant for three years longer. To prevent the person who obtains the warrant disposing of the ground of the building or the building itself, thus transferring his responsibility to the purchaser, the Court directs that the person by whom any building is erected or altered, if other than the petitioner to whom the warrant is issued, is to be liable for the due performance of the terms. Thus one cause of difficulty experienced under the Building Act is avoided. At the commencement of the work the petitioner has to give notice of his intention to begin, and the clerk of Court hands the notice on to the master of works, with the plans deposited and the rules that have to be observed, a copy of which is attached to the warrant.

Before the building can be occupied, within a month of its completion, the builder or owner has to intimate that the building is ready for inspection, and if satisfied with it, if it is fit for occupation, and in accordance with the law, the master of works grants a

certificate to that effect. On the other hand, if the owner fails to give notice for inspection, and permits occupation, he is liable to punishment. Under this rule, it is nearly impossible to let houses before their construction and sanitary condition are guaranteed to the tenants. How many of our suburban new estate dwellings are guaranteed or even inspected? Perhaps only their drainage is looked to; but bad foundations, sites on rubbish heaps, damp walls, and imperfect roofs and fittings go unchecked. The by-laws are theoretically perfect, but are they in all cases tested by actual inspection? We do not blame the district surveyors—they have enough to do; but are they furnished with the machinery and a large staff of inspectors? This it is that insures the efficient regulation of building operations in Edinburgh. The master of works has an army of inspectors trained in various branches of the trade, who are constantly engaged in inspecting buildings and alterations, examining them to see whether the regulations of the Court have been complied with, and whether the buildings are fit for occupation. Nothing less than this last test is actually agreed to. Those who have failed to comply or have deviated from the plans sanctioned are liable to a penalty not exceeding £25, besides being called upon to take down and remove any portion of the building that so contravenes. Equally stringent is the law in respect of alterations of buildings intended to be used for habitation, not previously so occupied, or any alteration as to the mode of occupancy by which a larger number of tenants are allowed without a warrant. These are evasions which can only be discovered by a careful supervision of buildings during progress and after they have been occupied. In London the provisions of the Act in these matters are unsatisfactory. How are the rules as to conversion of buildings (sec. 211) enforced? After the building is finished there is no interference with the number of occupants or mode of division, and irregularities are tolerated which often make the law of no effect.

## MODEL SPECIFICATIONS.—LIII.

DECORATOR—DISTEMPERING, PAPER-HANGING, ETC.

**U**NDER the head of the Decorator's work may be included, not only distempering, stencilling, graining, gilding, and other processes of the painter; but art-glazing, metal-work, mural painting, wall-papering, upholstery, &c. Some of these it is difficult to describe in a specification, and the most desirable way is to obtain an estimate from decorator or glass-painter, to be selected by the architect, and include a sum as provision, or describe as p.c. (stating cost per foot).

Distempering is a good ground for ordinary decoration for walls, &c.; it has no gloss, and the work dries quickly. The architect should make a sketch of any decoration for ceiling or walls, say, to  $\frac{1}{2}$  in. or larger scale, putting in the desired colours. For setting out the scheme of ornament, cartoons are made full-size, taking care to observe the rules for any stencil patterns, so as to repeat, and that "ties" are introduced to keep stencil firm. The design is drawn on cartoon paper or board and then transferred to the stencil paper, such as the Willesden paper or stout drawing-paper. This is oiled with boiled-oil, and the paper thus prepared can be used to trace the pattern on. For stencil patterns on mouldings tinfoil is often used. For stencilling upon distemper, a fine sponge is sometimes used for applying the colour, it produces a clean, sharp effect, and the broken tones are more artistic. The colour should be ground "stout" in turpentine thinned with turps and quick-drying varnish. Some useful directions are given in



W. J. Pearce's work on "Painting and Decorating."

For decorating by hand, the cartoon or drawing of ornament is transferred to the surface by rubbing the back of drawing with red chalk and tracing over the lines with a point, or pricking off the pattern or forming a pounce. Through the needle-points powdered black or red chalk is dusted to form the outline of ornament. Stencilled decoration is also used in painted work, as well as hand-painted ornament, and this kind of work is better done *in situ*. The ornament can be done in the following manner: Lay in the pattern in a flat tint; when dry, glaze in the shadows with brown or sepia, and outline strongly.

For low-relief decoration *gesso* has high decorative capabilities, and can be appropriately employed in friezes, panels, dadoes, wall surfaces. Gesso is made of fine gypsum or plaster of Paris and weak glue size—the latter should not be too strong, and the ground should be of plaster. The modelling is sometimes done on stencil-plate, which is then removed, leaving a clear, sharp edge to the ornament, giving a depth of relief of from  $\frac{1}{16}$  in. to  $\frac{1}{4}$  in. Wooden combs are used for producing waved surfaces, and various other tools and methods are used to produce the modelled effects of flowers, leaves, figures, &c. Hog's-hair and camel-hair brushes are employed to apply the paste in low-relief gesso work; but the work must be left chiefly to the artist's own resources and manipulation. The work is durable if properly done, and can be heightened by gilding. Gesso low-relief decoration has been lately much revived by Mr. Walter Crane and others, and promises again to become a mode of interior decoration in which the art of hand-modelling and individuality of treatment are combined.

#### DECORATIVE GLAZING.

27. *Brilliant Cut Glass.*—The panels of vestibule and screens to be glazed with "brilliant cut" obscured plate-glass, not exceeding 4ft. or 7ft. square, fixed by screwed beads. The designs or centres to be selected by the architect.

28. *Tinted Glazing.*—Glaze the screen with pot-metal glass in approved cathedral tints, properly bedded in the rebates, and secured by copper-band to saddle-bars. Or—

29. *Quarry Geometrical Lead Lights.*—Provide leaded quarry lights in selected geometrical patterns of three or more varieties, glazed with stout-rolled cathedral plate,  $\frac{1}{16}$  in. thick, in various approved tints, with two borders, and fixing in wood frames, banded with copper ties.

Prepare templates for geometrical leaded squares or quarries, according to designs, for 16oz. or 21oz. rolled tinted glass, and fixing securely to wood frames (or cementing in stonework), with all copper bands, clips, &c.; or specify the stained-glass work to be done from designs by Messrs. Heaton, Butler, and Bayne, of Garrick-street.

We append a few clauses for decorative stencil-work and painting.

30. *Stencilled Decoration in Distemper.*—The ceilings, friezes, and wall surfaces of hall or drawing-room to be decorated in distemper from the designs and under the architect's directions, and all the materials and colours to be of the best quality. Fill up all cracks in Parian cement, and prepare surfaces of ceilings and walls; line with white lining paper and lap joints, clearcole, and distemper, and pick out mouldings and enrichments. Or—

Fill up all cracks in Parian cement, and size, clearcole, and distemper walls for decoration. The decorator is to make full-size cartoons from the architect's sketch (or to set out the ornament on paper, or on the walls for the architect's approval). The stencilled ornament, and borders are to be made to accurately repeat, and with proper "ties" at intervals, and the tints to be selected and approved in position. The decorator to prepare all the necessary stencil plates, and to transfer the pattern accurately by means of a brush or sponge, so as to produce a clean, sharp pattern. The work to be approved by the architect. Pick out all mouldings and enrichments. Or—

31. *Painted Decoration.*—Prepare surfaces, fill up as before, and make full-size paper patterns for all the decoration from architect's sketches, with the tints shown and approved. After his



approval, the ornament is to be transferred to walls by means of red-chalk outlines or pounces pricked through the pattern, and the ornament is to be painted in two or more tints, the first laid on flat tint, and the shadows glazed with sepia or umber, and the mouldings and enrichments picked out in colours to the satisfaction of the architect. Or—

The colouring is to be in monochrome in tones of grey or sage-green, terracotta, or blue, the deeper shades of colour to be laid on first, then the next shade, and last the high lights.

32. *Relievo Decoration.*—The ceilings and walls of hall, staircase, and drawing-room to be stopped and prepared for relief decoration in gesso, which is to be done from the architect's design (or sketches), and under his directions. Transfer design to ceilings or panels. The whole of the work is to be hand-modelled, except the cornice and friezes, which are to be done with the aid of stencil-plates or millboard, the gesso being modelled on the stencil-plate. When removed, the plaster to be sharp and clean. The material to be of the best and finest quality gypsum or modelling plaster, mixed with thin glue-size to the consistency of cream, and to be applied quickly with a brush. For the higher parts of relief copper tacks are to be driven into the wall, and the lower relief to be not more than  $\frac{1}{16}$  in. to  $\frac{1}{4}$  in. Or—

Prepare walls, and lay on a coat of gesso composed of plaster of Paris or fine whiting mixed with glue-size, on parts to be in relief, the work to be done properly by hand, and to be modelled in low relief with hog's-hair and camel-hair brushes. The paste to be of the consistency of thick cream. (Instead of plaster and size, "Alabastine," a preparation made in several colours, can be used. It is very durable and hard.)

In our last article (p. 224) we gave a few sketches for lead-light panels for doors and windows, as 1, 2, 4, and 5, and the upper transom lights to a shop-front, 3. The borders are set with "burrs" or glass bottle-ends, which give a jewelled effect on the interior. Sketch 5 represents an ornamental leadwork light the leads being worked in curvilinear or folial forms corresponding to the cut panes. (See clauses 25, 26.)

In our present issue we show a few stencil patterns for borders, showing the "ties" suitable for margins of panels, friezes, bands, a, b, c. These patterns may be in monochrome shades in browns, reds, or greys. No. 2 represent a simple geometrical diaper for wall surfaces, and No. 3 a frieze.

#### PAPERHANGER.

In selecting a wall-paper, the lighting and aspect of the room are important; not less so is the use of the room. Rooms facing a cold aspect, north or east, should have a warm-toned paper; those with a sunny, or southern, aspect should have, on the contrary, cool colours—greys and blues—as the sunlight suffuses a warm glow over everything. In dark rooms the paper ought to be of light tone, and bright, so as to reflect all the available light. Of course, the pattern and tone of paper should also be dictated by the destination of room. Parlours and living-rooms should have cheerful, but subdued, patterns; drawing-rooms should have papers

of a bright and playful character, the colour and tone being adapted to the light and aspect. If pictures are to be hung, the colour and pattern should be subdued and quiet, or the pictures will be seen to great disadvantage or be "killed." A decided and obtrusive design is objectionable, as it forces itself upon the attention, so is a garish colour;—tertiaries and neutrals are the best tones.

Large patterns tend to make a room look small, especially where the whole pattern can be seen at once; upright vertical lines increase the apparent height of a room, and horizontal lines accentuate its length and width. Papers with fidgety, spotty patterns are always to be avoided, both in sitting-rooms and bedrooms, and for the latter quiet colours and patterns are desirable.

If there is a large and striking frieze, the "filling" or wall surface should be of a quieter tone and pattern.

In specifying, the architect should distinguish between hand block printed papers and machine printed; the former are superior for sharpness of pattern and colour, and the best designs are done in block printing. These are generally printed in distemper colours. Oil-printed papers have advantages, but the machine distemper papers are now largely used. Then there are flock papers of more or less relief, but these are not largely used now. For ceilings, papers printed in colours or monochromes, some in relief, are made in geometrical forms. Washable papers are numerous, and are well adapted for lavatories, bath-rooms, &c.

Several relief papers, or embossed fabrics, made from paper pulp, asbestos, canvas, linseed-oil and wood fibre, and other material, are in the market which are well known, such, for example, as the "Anaglypta" decoration (Anaglypta Co., Limited, Great Russell-street), the "Lincrusta," the "Coriacene" (Woollams and Co.), "Muraline," &c. Some of these are very effective relief decorations for walls and ceilings, made in a variety of patterns in every style of design, and the price moderate. These wall coverings vary in width, and can be painted, picked out in relief, and gilded. The "Anaglypta" fillings run from 21in. wide and upwards, and range widely in price. For machine printed and hand printed, raised flock, "Relievo" and embossed papers for ceilings and staircases, embossed copper panel decorations, firms such as Jeffrey and Co. may be specified.

NOTE.—A "piece" of paper is 12 yards long and 21in. wide, and contains seven square yards; and a piece of French paper is about 9 yards long by 18in. wide.

Describe preparation of walls, if rubbed down, sized, and stopped, and describe the least expensive first. State name of manufacturer, and quote pattern and price per piece.



# ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary meeting of this Institute was held on Monday evening, the President, Professor George Aitchison, R.A., in the chair. The death was announced of Mr. James Murray, of Portman-street, W., who joined as an Associate in 1851, became a Fellow in 1867, and retired from practice in 1889.

## MUNICIPAL AND PUBLIC LIBRARIES.\*

Two interesting papers on this topic, both illustrated by lantern-slides, were read—the first by Mr. JAMES M. BRYDON, F.R.I.B.A., dealing with the planning and treatment with reference chiefly to buildings of a sumptuous type, such as those subsidised or erected by millionaires in the States; the second, by Mr. F. J. BURGOYNE, librarian of the Central Tate Free Library, Brixton, treated of matters of finance, arrangement, management, and fitting in reference to institutions of the more modest type built on the penny-rate basis in the United Kingdom.

Mr. BRYDON explained that he should confine his attention to the buildings themselves, leaving to Mr. Burgoyne all questions relating to management. He proposed to show, with as full illustrations as possible, something of what had been recently done in library building, so that one may learn to follow in the future. A suitable site is of primary importance. It should be central and

prominent, yet quiet; ample in area for future extension; have a good light all round, and be dry. As regards the building,

## THE FREE AND OPEN SYSTEM

of the ordinary popular library—i.e., reference and loan, combined with reading-rooms—rendered proper supervision essential, and as libraries are usually understaffed, the arrangements of the plan must be concentrated, so as to enable the officials to supervise at a glance all the rooms to which the public have access. An ideal plan is to place all the public rooms on one floor. Where this cannot be done, the rooms to which most frequent and rapid access is required should be placed on the ground floor, and those less frequented on an upper floor. The administrative portion of the library—such as the book stores, the librarian's office, and the workrooms for his staff—must be conveniently placed for the service of the departments, to which they are more particularly attached. The public rooms should be lofty, well-lighted, and thoroughly ventilated.

## THE PLANNING

of a public library is not, however, a very complicated problem. The requirements are comparatively few and simple, and lend themselves to a stately and architectural system of design from which some striking effects almost necessarily follow. It must be endowed with a fitting dignity both in plan and elevation. The reading-rooms being large, give ample scope for the designer's knowledge of proportion. They should possess that quiet dignity of effect which can only be obtained by good proportion and restraint in design. Fussy little bay windows and other nooks and corners are uncalled for and out of place. Respecting

## THE LENDING DEPARTMENT,

the author considered that an architectural opportunity had been missed in many recent English libraries. Instead of being simply a book store, with a space cut off for the public, the latter might be treated as a hall or lobby by itself, as in some of the American libraries, notably at Boston, which was designed by Mr. McKim. There the delivery room is 64ft. long by 33ft. wide, and 20ft. high, and is decorated in the most sumptuous manner. Adjoining it is the stack-room, to all parts of which application slips are sent through pneumatic tubes. The books come back to the alcove by means of an elevator, delivering into a little electric railway with low wire basket carriages, running at the rate of 500ft. per minute. The delivery-room at the Edinburgh Public Library, designed by Mr. G. Washington Browne, of that city, is modelled on the telling-room of a Scotch bank. The central space is devoted to the public, with counters round three sides, and alcoves behind them for the storage of 48,000 books. This arrangement gives scope for, and is treated with considerable architectural effect, a handsome hall, instead of, as in most cases, an unseen store-room, being the result. The public library of the future will be the centre of culture and enlightenment of the district in which it is placed, and will wield an influence which must ever become wider and stronger. The building, apart from its books, should be of such a character as to assist, rather than retard, this influence. The suburban villa type, with its useless turrets and bay windows, should be altogether discarded; in short, the building should be endowed with that distinction of style and nobility of design which will render it an enjoyment and inspiration to all who hope for the growth of a living interest in architecture as a fine art. Having briefly referred to

## THE ARRANGEMENT OF ROOMS

in libraries recently erected in the United Kingdom, including Brixton, Chelsea, Wolverhampton, West Ham, Dublin, and Liverpool, plans, sections, or views of all of which were shown, the author turned to the great American libraries, describing in more or less detail the buildings, plan, and notable features of the Congressional Library at Washington, of which a lucid historical sketch was given; the public library at Boston; the Columbia University Library, New York; and the public library about to be erected in New York. In the Washington Library, founded in 1800 and rebuilt in 1889-95, the American Government had commissioned American sculptors and painters—some 50 in all—to decorate broadly and thoroughly one of its great national monuments. The result was the most interesting record possible of the scope and

capabilities of American art. Not only sumptuousness of design, but richness of materials, had been pressed into the service—marble, bronze, mosaic, fresco, and choice woods all bear their part. The staircase, hall, and the rotunda or reading-room are each a blaze of rich marbles and decoration. In the rotunda the columns and pilasters of the piers carrying the dome are of red Numidian marble, resting on pedestals of dark purple Tennessee marble, their capitals being gilded. The screens between the piers are of yellow marble, and the portrait statues which surmount the balustrade are of bronze. The room is lighted by eight large lunettes filled with glass. The building is 468ft. long from north to south, 340ft. deep from east to west, by 72ft. high. The rotunda is 100ft. diameter, 125ft. high to the top of the dome, and 160ft. to the domed ceiling of the lantern. The architects were first Mr. Smithmeyer, then General Casey, Mr. Bernard Green, and Mr. Pelz. The building cost £1,272,000 sterling. The great architectural features of the Boston Library (built in 1886-96 at a cost of £475,000) are the staircase hall and the Bate's Hall, the former notable for its noble series of mural paintings by the late M. Pavis de Chavannes, illustrating Philosophy, Astronomy, History, Chemistry, Physics, Pastoral, Dramatic, and Epic Poetry. The cost of the eight panels was £10,000. Bate's Hall is the reference reading-room on the first floor; it is 218ft. by 42ft., and 50ft. high to the crown of its arched ceiling. It has accommodation for 264 readers at thirty-three tables. Sargent Hall, named after the eminent painter, is 84ft. long, 23ft. wide, and 26ft. high; the ceiling is vaulted, and the hall is lighted from the roof. The decorative painting will be entirely by Mr. Sargent; the scheme, representing the Triumph of Religion, illustrates certain stages of Jewish and Christian history. Some of the work was shown at the Royal Academy in 1894. The interior court, another charming feature, is surrounded on three sides by an open arcade of white marble, similar in design to that of the Cancellaria Palace in Rome. In its centre is a marble fountain, set about with grass plots. Along the walls under the arcade are low oak benches, so that on warm days the court may be used as an open-air reading-room. The building is a careful study of Modern Renaissance, thoughtfully and lovingly carried out, reflecting the greatest credit on its architect (Mr. Charles McKim, of the firm of McKim, Meade, and White) and the public spirit that called it into being. Many interesting facts and figures in connection with this library and the ten branch libraries at Boston were given by the author. The third library called attention to—that of the University of Columbia, New York—was built and presented to the university by Mr. Seth Low, president of the university, as a memorial to his father. Its construction and equipment have cost nearly £240,000. The architects were Messrs. McKim, Meade, and White, of New York. In plan it is like a Greek cross, with the great reading-room at the intersection of the arms, and covered by a dome. It has a magnificent approach of great terraces, and steps leading up to a noble entrance-porch of ten Greek Ionic columns. The entrance-hall is adorned with splendid marble columns. The building may be taken as an example of a typical university library worked out on modern lines to suit modern requirements—a utilitarian scheme artistically carried out. The public library about to be built in New York was the subject of a limited competition last year, and copies of the successful design, lent by the architects, Messrs. Carrère and Hastings, were exhibited in the meeting-room. In its main lines it somewhat resembles the Boston Library; but in the instructions was this distinction—that though the authorities did not object to external splendour, they were rather disposed to favour a simple interior. The winning design had resulted in a good plan and what promised to be a stately, dignified exterior. A marked feature is the raising of the building on a great terrace. The architects were not content with designing the building alone, it must have a dignified setting; so by means of broad flights of steps, terraces, fountains, and votive columns, the approaches were made to contribute to and enhance the effect of the architectural picture. This, the author thought, was a point to which more attention should be paid in public buildings in England. In conclusion, the author expressed the hope that these American works were not without their lesson for us in more senses

\* The following illustrations of Public Libraries have appeared in the BUILDING NEWS during the past twelve years:—Aberdeen, plan (Alexander Brown, Aberdeen, architect), July 13, 1890; Abingdon (Jas. G. T. West, Abingdon), May 15, 1896; Acton, Passmore Edwards (Maurice B. Adams), Oct. 28, 1898; Ashton-under-Lyne (John Eaton and Sons, Ashton), Nov. 13, 1891; Ayer, Carnegie (Campbell Douglas and Morrison, Glasgow), Oct. 7, 1892; Balham, branch (Sidney R. J. Smith), April 15, 1898; Barking (C. J. Dawson, Barking), Oct. 19, 1894; Battersea, Lurline-gardens branch (Henry Branch), June 19, 1891; Belfast (W. H. Lynn, Belfast), Aug. 1, 1890; Bermondsey (John Johnson), Jan. 29, 1892; Bodmin, Passmore Edwards (Silvanus Trevail), May 1, 1896; Borough-road, S.E., Passmore Edwards (Phipps and Blomfield Jackson), Dec. 3, 1897; Boston, Mass., Old West Church (Asher Benjamin), Oct. 16, 1896; Brixton Central, Tate (Sidney R. J. Smith), Nov. 6, 1891; Bury, Lancs (Willoughby and Woodhouse), Dec. 4, 1897; Camberwell Central (Robert P. Whellock), Sept. 8, 1893; Camborne, Passmore Edwards (Silvanus Trevail, Truro), April 13, 1894, and May 24, 1895; Canning Town, West Ham (Lewis Angell), Sept. 29, 1893; Cardiff (Seward and Thomas, Cardiff), Dec. 29, 1893; Chelsea (J. M. Brydon), June 7, 1889, and June 27, 1890; Clapham, plan (Edward B. P. Anson), Aug. 1, 1890; Clerkenwell (Karalake and Mortimer), May 17, 1899, and Aug. 1, 1890; Colchester (Brightwen Binyon, Ipswich), June 16, 1893; Colne, Lancs (Woodhouse and Willoughby), April 29, 1898; Croydon (Charles Henman), June 3, 1892; Darlington, plan (G. Gordon Hoskins, Darlington), Aug. 1, 1890; Darwen (J. Lane Fox, Dewsbury), Jan. 20, 1893; Dulwich, Passmore Edwards (Charles Barry and Son), Oct. 23, 1898; East Ham, Passmore Edwards (Silvanus Trevail), Nov. 11, 1898; Edinburgh (G. Washington Browne, Edinburgh), June 27 and Dec. 12, 1890, and Jan. 2, 1891; Falmouth, Passmore Edwards (W. H. Tresider, Falmouth), April 13, 1894; Haggerston, Shoreditch, Passmore Edwards (Maurice B. Adams), June 12, 1898; Hammersmith, Shepherd's Bush-green, Passmore Edwards (Maurice B. Adams), March 29 and July 5, 1895, Mar. 13, 1896, and Jan. 14, 1898; Hampstead (Arnold S. Taylor), Nov. 12, 1897; Hull, branch (Henry A. Cheers), Oct. 12, 1894; Hyde (Woodhouse and Willoughby), Feb. 28, 1896; Kensal Town (Karalake and Mortimer), May 25, 1898; Lewisham (Albert L. Guy), Sept. 9, 1892; do., Central (Best and Callon), Sept. 2, 1898; Liskeard (J. Symons and Son), Feb. 14, 1896; Lower Edmonton, Passmore Edwards (Maurice B. Adams), Nov. 8, 1895, April 9, 1897, and Feb. 17, 1899; Minneapolis (Long and Kees, Minneapolis), April 17, 1891; Newark-on-Trent, Gilestrap, plan (W. Henman, Birmingham), June 27, 1890; Newcastle-on-Tyne, Stephenson (John W. Dyson, Newcastle), Jan. 24, 1896; Newington, S.E. (Ed. B. P. Anson), Feb. 12, 1892; Nunhead, Passmore Edwards (R. P. Whellock), April 17, 1898; Old Kent-road, S.E., Livesey (R. P. Whellock), June 26, 1891; Poole (Lawson and Donkin, Bournemouth), Aug. 12, 1897; Poplar (J. and S. F. Clarkson), Oct. 14, 1892; Redruth, Passmore Edwards (James Hicks, Redruth), Aug. 3, 1894; Rochdale, plan, June 27, 1890; St. George's, Bristol (Frank W. Wills), July 16, 1887; St. George's, Hanover-square (A. J. Bolton), Aug. 14, 1891, and Nov. 18, 1892; St. George's-in-the-East, Passmore Edwards (Maurice B. Adams), May 21 and Sept. 24, 1897, and Oct. 28, 1898; St. Ives, Cornwall, Passmore Edwards (John Symons and Son), May 1, 1893; St. Martin's-in-the-Fields (Robert Walker), March 6, 1891; Sale, Manchester (Robert J. McBeath, Manchester), Sept. 5, 1890; Shoreditch (Richard J. Lovell), May 12, 1893; do., Passmore Edwards (Henry T. Hare), Dec. 13, 1895, and Jan. 13, 1899; Southampton (A. E. J. Guy), Oct. 9, 1891; South Lambeth, Tate (Sidney R. J. Smith), April 19, 1899; Stoke Newington (Bridgman and Goss), Sept. 25, 1891; Streatham, Tate (Sidney R. J. Smith), April 24, 1891; Truro, Passmore Edwards (Silvanus Trevail), May 17, 1895; Walthamstow (J. Williams Dunford), Sept. 28, 1894; Washington, Congressional, Aug. 19, 1898; West Ham (Gibson and Russell), Oct. 4 and 11, 1895, and Oct. 7, 1898; Westminster (Francis J. Smith), July 7, 1899; West Norwood (Sidney R. J. Smith, June 27, 1890, and Jan. 30, 1891; Whitechapel (Potts, Son, and Hennings), Oct. 28, 1892; Widnes (Woodhouse and Gabriel), Jan. 12, 1894; Wolverhampton (Henry T. Hare), March 25, 1898; Yale, Conn. (Bruce Price), Jan. 18, 1899.



than one—not only as libraries, but as public buildings *per se*. Would that some of the public spirit and the love of art which animated the founders and designers of those works could be transferred to the hearts of the City Fathers of London and our great provincial towns!

#### LIBRARIES: THEIR MANAGEMENT, FITTINGS, AND ACCOMMODATION.

Mr. F. J. BURGOYNE followed with a paper in which he made some telling observations on the very limited income derivable by municipal libraries from the rates, urging that the initial charges for building and sites should be paid out of the general rates, and the whole proceeds of the penny rate ought to be available for the current work of the library. The plan of the building should be considered, not only in relation to the public, but also to the probable size of the staff which the income will allow to be engaged. Dividing municipal libraries into three kinds, small, medium, and large, the author indicated the minimum accommodation that should be provided for staff, books, and public, illustrating his points by reference to plans of existing buildings, a large number of which were shown by the lantern. For a small library, the plan generally adopted is a rectangular room, lit chiefly from the top, with newspaper stands and tables in the centre; the walls, on one, two, or three sides shelved for books, 15ft. to 18ft. in height, and a counter or rail running round the room 6ft. or 8ft. distant from the books. Libraries of medium size require a quiet room where books of reference may be consulted. Such a room may be combined with one for reading the higher-class magazines and reviews. If the public rooms are all on one floor, the reference books will be shelved alongside those of the lending departments. If on two floors, the reference department is placed upstairs, and the lending and general newroom on the ground floor.

#### IN THE LARGER LIBRARIES

the work done in the reference department is of the most valuable character, and it is advisable to have, in addition to the ordinary reference reading-room, a smaller room for the use of students of special subjects, or those who are engaged upon original research. The librarian should have a room for his own use—one that may be used, if necessary, for the meetings of his committee. In large libraries there should be a fireproof strong-room, on the same floor as the reference department, in which the rarer books and MSS. can be stored, and rooms for repairing and binding books. There should be mess-rooms for the staff, and suitable lavatory arrangements. The author recommended that before planning a building a clear idea of the method of work to be employed should be obtained from the librarian. The various methods of issue—with indicator, without indicator, and "open access"—require different accommodation and different arrangements, all duly described by the author. In shelving the books in the lending department, it is important to place them as near the issue-desk as possible, in order to facilitate quickness of issue. Reference-books, the author considered, were best shelved in a store-room adjacent to the reference reading-room. Room must be allowed for growth in this department. It was estimated that in the larger libraries stock would increase threefold in twenty-one years. To cope with such an accretion, the author favoured the adoption of the American "stack" system of packing the books, combined with rolling bookcases for works in least demand. This system was described by the author, and plans and sections were shown of the stack systems in the libraries at Grieswald, Halle, and Strasburg.

#### THE NEW SYSTEM OF SLIDING PRESSES

in use at the British Museum consists of stacks three tiers in height, and about 9ft. apart. In front of each bookcase a couple of steel girders with flanges are bolted to the iron floor above, at a distance of about 36in. from each other, and at right angles to the case. From these girders hangs a bookcase of the same width, to within a few inches of the floor. It can be filled with books, and is readily pulled away from its normal position close against the front of the fixed bookcase. It can be adopted piecemeal as the necessity arises for greater accommodation in any particular section of the library. A somewhat similar system is in use in the library of the India Office. The iron bookcases hang from girders, as at the British Museum, but are packed

close together, and if a book is wanted the case containing it is pulled out into the central gangway, which is the same width as the sliding case. This is the closest method of shelving yet devised, and very useful for books not much in use. All shelves should be of the same length—36in. is the most convenient length. No bookcase should be higher than 8ft.—7ft. is preferable. The lecturer concluded by showing lantern-slides of plans of libraries, most of which have been illustrated in our pages, and are referred to in a footnote. Valuable and practical criticisms were made on the merits and defects of the various schemes, especially on the desirability of providing in the smaller buildings for easy supervision of all departments from the librarian's desk.

Mr. F. PACY, hon. secretary to the Libraries Association, in opening the discussion which followed, congratulated his brother librarians on the fact that such a subject had been so clearly set forth before a representative body of architects who would be able to realise that the planning of public libraries was a subject which might well provide a field for the exercise of their highest abilities. Nothing could be more fatal to the success of a library than for it to be housed in a shabby and ill-arranged building in an out-of-the-way place. He was not in accordance with Mr. Burgoyne in his preference for the storage of books on the stack plan rather than in alcoves and along the walls. All proposals to decorate a library with paintings and frescoes, such as were adopted in the luxurious American buildings illustrated and described by Mr. Brydon, were quite out of place; there could be no better furniture for a library than its books. One practical hint that architects might consider was, that in their schemes for heating, the steam or hot-water pipes should not be placed behind the shelves, where they injured the books and filled the leaves with dust and dirt, but should be grouped in the centre of the rooms in the portion used by the public. By placing the librarian in the centre of the building, his easy supervision over all departments was certainly rendered practicable; but it had the disadvantage that he had to breathe the most impure air in the building. Tiles, marble, and other washable materials should be used where possible for walls and floors, and so the times during which the library was closed for periodical cleansing and decoration could be shortened. It was remarkable that in Great Britain, where we possessed an indigenous literature, the libraries were far less sumptuous and ample than in a new country like the United States.

Mr. J. H. QUINN, chief librarian, Chelsea, suggested that the architect of a public library should provide liberally for extras. In his own institution Mr. Brydon's designs were ruthlessly cut down by the building committee, who, within twelve months after its opening, regretted their own parsimony, but it was too late. He differed from Mr. Burgoyne in his liberal estimate of the rate at which a library could be weeded of works of fiction no longer in vogue. When the Chelsea Free Library was opened in 1891 they possessed 10,000 volumes, and it had now grown to 21,000. Before long they would have to build on space reserved at the rear, and he hoped Mr. Brydon would carry out the extension. The growth of libraries was inevitable. At Liverpool the William Brown Library had been already enlarged thrice, and now a fourth extension was in progress under Mr. E. W. Mountford.

Mr. H. H. STATHAM proposed a vote of thanks to Messrs. Brydon and Burgoyne for their interesting papers, remarking that it was cheering to hear from their colleagues that opportunities for architects and artist-decorators were presenting themselves in the States, while Mr. Burgoyne had shown that duties of a librarian did not necessarily extinguish in one the sense of humour. Complaint had been made of the risk of dust settling on books if air was admitted through open windows; but what was there to prevent dust getting in through air supplied by ventilating apparatus? As to the Liverpool libraries, the Picton circular reading-room was an ingenious and successful attempt to utilise a corner site, and unite two diverse buildings set at an obtuse angle to one another; but it had one serious drawback in use due to its shape and size—that every utiliser was reflected and magnified. The floors of libraries were generally laid with some noiseless material, which, from its absorbent nature, was not always easily kept clean. A better plan would be to produce a washable floor, and to cover it with strips of carpet or matting, which could be speedily taken up, changed, and replaced.

The vote was seconded by Mr. BERESFORD PITE, who observed that he recently had a surreptitious view of the most costly library in the United Kingdom—the Rylands Library at Manchester, now in course of erection from Mr. Basil Champneys' plans. The building was entirely exotic in style, possessing a gorgeous 15th-century vaulted hall; the windows filled with elaborate tracery, and the deep bays admitting a minimum of daylight. The outside atmosphere was to be excluded, but a current of air was to be washed, cleansed, and purified before being admitted to the building. There was necessarily a great difference in the treatment of such an institution, and one erected and supported out of a penny rate. He held that elaborate ornament and painted decoration were out of place in a free library, and that all space above the level of the books, say 7ft. 9in., should be left to whitewash and the imagination. Architects generally seemed at sea in the treatment of libraries, and the details were usually such as would be equally appropriate to baths and washhouses or vestry-halls. He believed that if our libraries were kept as plain as workhouses it would be a benefit to the architecture of the Metropolis in which we unhappily were obliged to live.

The vote of thanks was cordially passed, and Messrs. BYRDON and BURGOYNE briefly replied.

#### COLOUR DECORATION.\*

IN our cities and manufacturing towns the architect, in attempting to add the charm of colour to his building, has to encounter the smoke demon, who, no sooner than the building is finished, sets to work to deface it as far as he is able. At present no remedy is possible. Perhaps in the future, when we shall see more use made of electricity, or some means are found to compel manufacturers and householders effectually to consume their own smoke, we may see our buildings decorated with colour of a more cheerful tone than they now possess.

#### THE RESTLESSNESS OF GLAZED SURFACES.

The trials which have been made of glazed earthenware or majolica for both outside and inside architectural treatment are hardly satisfactory. It is an excellent material where cleanliness is a sanitary necessity; but the glazed surface is fatal to that repose that colour when applied to a building seems to demand. It gives a restless appearance which is disturbing to the harmony of colour; and even this material the smoke fiend does not respect. But then you can wash it, say its advocates. So you doubtless can; but do you find in practice it is washed? The light falling on the mouldings and ornaments is a disturbing element, and distorts them. It gives a better appearance and is more decorative if the material presents a smooth, non-reflecting surface, and has only a dull glaze. Detached objects executed in a glazed earthenware are properly so treated; when applied in larger surfaces it becomes distracting. These remarks apply, but in a lesser degree, to polished marble, which, unless introduced with great discrimination, is hardly satisfactory when covering large surfaces. Mosaic should be always employed on a concave or convex surface, and is hardly ever pleasing on a flat surface; hence its unsuitability in reredoses, as generally applied. I ask how long the custodians of our cathedrals and churches and the worshippers in them, will be content with the sculpture and painting that is generally thought good enough? There are not wanting instances where one sees work which it is a pleasure to find; but such instances are rare. Buildings erected by our best architects contain too often sculpture and painting executed by incompetent and nameless artists. The late John D. Sedding saw this need for calling on accomplished artists to help him in his work, and all true architects would wish it, instead of having to be content with the poor, lifeless, mechanical productions of advertising firms one generally sees.

#### SOME DECORATIONS BY COTTIER.

Mention must, however, in fairness be made of the great progress made in stained glass; much of it is admirable. In a house in the North, where it has been my privilege to stay many times, is a mode of decoration which is original, and certainly most delightful. I am indebted to the owner for a description of the work. He was

\* Abstract of a paper by COLE ALFRED ADAMS, F.R.I.B.A., read before the London Architectural Association, Friday, Feb. 17, 1899 (see p. 264 *post*).



present and saw how the work was done, and the artist who executed it was a Scotchman—by name Cottier—a man of great genius, better known in the North and America than here in London. The walls and ceilings were prepared in the usual way. They were then covered with a thick coat of oil and whitelead, made the consistency of pudding, and laid upon the walls and ceilings with a trowel. The next process depended upon what the nature of the design was to be. Supposing it was the ceiling to be treated, as a vine trailing over the whole surface; the artist with his thumb boldly draws the leading lines of the design, and then with the end of an ordinary paint-brush draws the stalk, leaves, and fruit. Those parts which he wishes to emphasise he modelled in the material—such as the grapes, which are raised in relief; in fact, with the coating, which he has been careful not to lay on to a uniform thickness, he is able to produce effects, whilst moist, as his fancy dictates. If he wants a more or less geometrical pattern on the walls, he takes a comb and by eye draws in patterns such as you may see done on the outside plaster of old cottages in Suffolk and elsewhere, and also similar to some Japanese patterns with which you are all familiar. Again, on the surface thus prepared, he puts a powdering here and there of small patterns. This coat is allowed to dry and harden. It is then painted the general colour it is to be, and the artist has various mixings at hand of the same colour, and blends them as he goes. Those parts of the design to be gilded are so done, and the various colours applied and allowed to dry. Finally, the work is dull-varnished, and has bronze powder mixed with the varnish, which gives a kind of sheen to the whole. The bright parts in gold are toned down, and the colours blended one with the other. This process is unlike anything with which I am acquainted, and it has great possibilities. The blurred edges of the patterns, flowers or fruit, raised in the process reflect light. The colours running one into the other satisfy the eye by their variety, and the dull old-gold effects, mingling again with the bronzes, give a richness and *tout ensemble* which is charming. This work, however, must be done by artists. Executed by the ordinary decorator it would be intolerable. One striking effect in this house was suggested by the patron: he saw a ceiling after it had been floated with the oil and white-lead with the trowel marks left. With a happy inspiration, he told the man to leave it so, and paint it with a deep copper bronze. The result is a most happy one—it has the same charm that beaten copper produces. The rooms in the house described are fine and lofty, the floors of parquet, and the house full of the most delightful old wood-work and furniture gathered from many cities at home and abroad; the walls are hung with pictures, and an air of distinction and good taste is prevalent everywhere. Why should not young architects become decorators? There may be some among you with an eye and love for colour and ornament who might do much worse than take up this branch of architecture as their calling. With the advantages you enjoy of learning your profession, it would be a great gain to you, and you would bring to bear a knowledge of architecture and building construction which would be of infinite use. Growing up around us are town-halls, picture galleries, free libraries, swimming-baths, &c. Do not these offer scope for the artist? For a moderate sum they might be made more attractive and interesting. Now, what happens? The powers that be call in the local painter and decorator; he sets to work and—paints it. Knowing very little of the principles of decoration, and absolutely nothing about architecture, he cannot apply his decoration architecturally, and, as a result, he not only wrongs the building and the architect who designed it, but commits the further crime of offending against good taste. Now, for comparatively a few guineas paid to an architect who made such work his speciality, or to a skilled decorative artist, the same local painter and decorator might be led to turn out a work which would at once appeal to educated taste, and give the public decoration of which they might be proud. If authorities having the care of such buildings knew where they could obtain competent advice and skill in carrying out this class of work, they would avail themselves of it. There is abroad everywhere a quickening of interest in public life, and, as time goes on, we may look for a further extension of this good work—a tendency to break down class prejudices;

much may be done to render the lives and homes of the poor happier and better by this process of levelling up. To this end the decorative artist may employ his talent, and do good by creating beautiful work that must have a refining influence. Is it not worth working for to become one of those who shall add to the fame of the town who employs him, by his skill in colour decoration, instead of leaving such work to be ignorantly and vulgarly carried out?

#### EXPERIENCE IN PRACTICAL DECORATION

may be gained in a way that is probably within the reach of most of you. In the parish in which you reside there will be a school or a parish room, and the parson would doubtless be glad of any one who could be found to volunteer to decorate it. This would give you the opportunity of doing experimental work which would be excellent training, and, at the same time, you will be doing practical good to others. But how to set about it! The parson may not unreasonably object to having his building made use of for experiments. You must first qualify yourselves by learning the handicraft to convince him you know something about the art. One of the best ways to study decoration is to sit down before the object you are engaged upon and try and grasp the notion or leading idea of the artist; how he has treated it and how worked it out; what leading colour or colours he has chosen; in short, its leading characteristics. This sitting down before the object you wish to study, and, so to speak, inhaling it through the pores will not be lost time. It will, moreover, have the great advantage of training you to the habit of recollecting a scheme of design and colour, so that when you come to transmit your thoughts to paper, you will have the faculty of seeing your design in your mind's eye. To resume. Having taken in the scheme or design—the next best thing is—supposing it to be a ceiling, for instance—to make a plan and sections of it, then select that portion which will illustrate how the design or pattern will repeat. These drawings you should sketch as neatly and with as little detail as will express the thing you are at work upon, then put on a few leading dimensions; note the distance from the eye where the decoration is most effective, the style, probable or approximate date, place, and, in fact, each and everything that occurs to you as worth noting. I have found by experience the utmost use of thus jotting down particulars of what I am sketching, and (may be years after) it recalls the subject and gives you data which may have passed from the memory. Having made these drawings, you may now proceed to detail the work to a larger scale and draw with the greatest care the ornament. A number or letter referring to where the part is should be noted on the plan or section, so that the details may agree with the drawings. When you have got your details sufficiently forward in pencil you may then proceed to colour them, and this will test your eye for colour. If you have not got your colours with you, or are pressed for time, a simple plan is to put on the drawing a schedule of colours and number them thus: red 1, blue 2, yellow 3, and so on; or you may elect to adopt the heraldic method. Either of these ways will be of use in keeping you in mind of the scheme of colour, and then you can at your leisure colour in your drawing; but the study will be of most use which is painted on the spot. And the habit of noting will be of use in describing how particular effects are produced and where the colouring has been influenced by the hand of time. Some decoration which we find now so charming owes that charm to reasons never dreamt of by the artists who did the work. In fact, the work of the past owes a great deal to the hand and palette of good old Father Time. Of course, in sketching at a museum, for instance, the object is generally detached, and can be embraced in one drawing; but here, again, I would urge upon you the need of cultivating your power of criticism and observation by noting down any memoranda which the subject may call forth. Let nothing appear too trivial. Where the detail would work out very small and not large enough to explain the design, that part should be drawn to a larger scale. As you proceed you will insensibly learn what best shows and illustrates the subject which you are engaged upon.

#### IN STUDYING FROM NATURE

the same method should be adopted. And as correctness, beauty, and accuracy of line cannot

be learnt better than by study from the living model, the same principle exists in studies made from still life, and no better advice can be given to those studying decoration than to go direct to that source. Every subtlety of line, curve, and contour, every gradation of colour and tint, of light and shade, will be found by those who seek it, in endless variety, and great is the happiness of the search. Store your sketch-book with such studies. Take, for instance, a spray of any flowering plant and sketch it in outline with the stalk, leaves, and flowers, with just enough detail to express it. Note the varieties of form and curve, and how the effect is produced. Then sketch the same spray from another point of view, and if you wish to study it further, from yet another. Then detach one of the flowers and carefully draw it in all its parts, if possible to a full size, the plan, elevation, and section. What is the use of all this? is asked. Every use; for the knowledge of parts thus grasped will one day stand you in good stead, and it teaches you the value of patient research, and trains you in the habit of thinking no part of your work too small or insignificant, besides giving you glimpses of the miraculous, and discovering new beauties which you never so much as dreamt of. You must, therefore, train yourself in the habit of close observation, which will in time become a habit. The simplest flowers are the most suitable to study from, and the most useful, the simpler the better. For models of expression in sketching you should study the Japanese. They succeed in that most difficult art of knowing how much to put into the picture to express its meaning. Time spent in studying these drawings will not be lost. Excellent Japanese books can be procured at Mr. B. T. Batsford's, bookseller, Holborn, and very inexpensively.

(To be continued.)

#### "BUILDING NEWS" DESIGNING CLUB.

A VILLAGE TAVERN.

THE limit of our choice has afforded no opportunity for the selection of designs—at least, for the two first places—from the rank and file of our contributors to the Club competitions. "Thistle" and "McGilligan" change places; but the superior character of their work, as compared with the other drawings sent in, has prevented the introduction of fresh names at the head of the list, which, to speak candidly, we would rather have seen diversified. Justice, however, must be done, even at the risk of what, to others, may seem a degree of partiality on our part. The goal to be aimed at in our club's work is the greatest good for the greatest number, and we are anxious to inspire among all the members a serious determination to persevere, even although it may so happen that some who hoped for more immediate success do not come to the top. The general improvement of the many is of far more consequence than the striking achievements of the few. Those who take their places among the best, notwithstanding these remarks, most assuredly have our sincere congratulations; but as nothing succeeds like success, they will need but little additional inducement to make the most of their opportunities. It is inevitable in the ordinary course of things that some who have tried, as they think, in vain, will fall away. No greater mistake could be made in their own interest, and certainly in no other. Practice and experience can be obtained in no other way than by repeated endeavour, while by working out a problem for themselves they will be better able to take advantage of the suggestions afforded by the chosen plans and the critical remarks which accompany the illustrations.

In accordance with our custom, we print, for reference, the conditions issued for this particular subject:—"D.—A Village Tavern situated by the road-side in the main street, with a frontage of 48ft., the ground line falling from left to right 1 in 12. The elevation is set back 15ft. from the rear line of pavement; but a porch or bays may project from the building not more than 6ft. The adjoining houses are plain 18th-century brick ones, 26ft. high to top of parapet. A carriage entrance, 10ft. wide, must be contrived leading to the stable-yard in the rear. The new building to comprise ground floor, first floor, and second floor. The top rooms may be partly in roof. The accommodation to include a good, sufficiently ample public bar, a smoke-room, a good, spacious stairway, 4ft. wide, leading



to club or meeting room about 32ft. long by 20ft. wide, or of that area on the first floor. There must be a billiard-room for two full-size tables on the ground floor, and a 'tap-room' leading out of the stable-yard. The stables and coach-house need not necessarily be drawn in. The residence connected with the tavern to comprise a sitting-room to the rear of the bar, a good ample kitchen, scullery and offices, five bedrooms, bath-room, and w.c. Sanitary accommodation for customers must be arranged in the yard premises; but it is essential to keep the house and its buildings distinct from the public part of the establishment. A retiring-room in conjunction with the big room on the first floor is necessary, also a rolling-way and hatch to the cellars below. The elevation is to extend the whole width of the site in front, and must include the 10ft. way already mentioned. The forecourt to be inclosed with posts and chains. A sign of the 'Red Lion' is to form part of the design. Style, 'Later Renaissance,' in red brick mainly, with stone sparingly used. An old-fashioned-looking tavern is required, not a modern gin-palace. Tiles for the roof. Parts may be plastered. Scale, 8ft. to the inch for elevation, and two sections, plans 10ft. to the inch if desired. There must be a sketch view."

"Thistle," "McGilligan," and "Nothe" are accorded the first, second, and third places respectively. The problem is not a cut-and-dried one by any manner of means, and the restricted character of the site, considering the requirements, necessitated no little thought on the part of the contributors. The 10ft. carriage-way and the billiard-room located on the ground floor increased the difficulty. "Thistle's" scheme may not be an ideal solution of the problem, but it is by far the best; while the suitability of the elevation may be at once acknowledged. The staircase crowding up the main entrance is a weak feature in the planning, while the entrance door being placed towards the lower level of the frontage necessitates the steps up to the ground floor level just inside the porch at the end of the passage, which is very awkward. Architecturally, too, the bay appears to suggest a room window rather than a staircase. Strictly speaking, this is an objection, though the chief criticism must be directed against the cramped space inside. On the other hand, the short stages of the stairway itself, leading from an assembly hall, are contrived to prevent crushing, and being so near the exit the audience would be soon out in the street. The bar is none too light. The tap-room has an external door under the covered way; but the apartment is not very convenient, almost all doors, window, and fireplace. The outside approach to the billiard-rooms is good; but the w.c. should have had a ventilated lobby and space ought to have been provided for a lavatory basin. The coal-place is awkwardly located. The kitchen is ingeniously contrived on the first floor, and is in a favourable position for serving dinners in the meeting-room; the back stairs would not only cut into the sitting-room, but would hamper the floor space of the scullery, if head room is well allowed for, as it must be. The divisional walls, too, upstairs are shown without much regard to the arrangements below, and lath and plaster partitions are not the result of really good planning. Would not a girder over the carriage-way opening have looked more satisfactory than the flat arch, which would have to be held up? The front door, for effect sake, is shown to hang the wrong way in the view. "Thistle" has not done the design for the entrance stone-work justice in his sketch, while in the section through the sitting-room he avoids the real crux in the matter of the rear staircase above mentioned.

"McGilligan" sends a pleasing front, though his detail is thin, particularly the pilasters to the entrance, which are drawn flush with the walling. The plan is ingenious, but not good, with the dark, long corridor in the centre of the building and the kitchen door at the end of the vista. No w.c. is provided for the billiard-room or the retiring-room upstairs. The service from the kitchen to the club-room is not good, while the lift, if used for anything more than drinks, is too small and too much in the way in the main entrance passage.

"Nothe," who ranks third, has distinct merit; but in the outline view he has hardly given sufficient emphasis to the roughcast treatment of the gables. In reality, they would appear more like the effect indicated in the elevation. The plan has similar defects to those pointed out in others. The central corridor would

be none too light, and the kitchen has little reference to the club-room upstairs. This apartment has no lavatory or convenience *en suite*. The public bar is not very nicely contrived, and the standing space in the hall at the foot of the staircase is awkward. The tap-room is not well located. The fourth position is taken by "Vigornia," who knows the value of simplicity in design, though his drawing is spiritless and poor. He isolates his house arrangements rather well from the public part of the building, and gives a good lavatory and w.c. to the billiard-room. The lift to serve the club-room would be most inconvenient, and the kitchen is a long way off. The tap-room down in the stable-yard would require a barman to be in attendance, as it is entirely isolated from the house. The front bar is not a good one, with the curved counter.

"Quadrant" draws in a splashy way. The sharply-pitched gables ill accord with the broadly-handled bays below, and these latter are not happily contrived. The tunnel between the two service counters, and running under the staircase is ingenious; but the whole arrangement is too cramped. It is a great mistake to make the only approach to the billiard-room through the smoke-room. The meeting-room is not a good shape, and it is entirely cut off from the kitchen, with no chance of serving a dinner. "Swan's" plan bears a very neighbourly likeness to the last named, and in some respects it is better, though in a general way it looks like "Quadrant's" plan turned over. The same contrivance under the stairs has been adopted, and the billiard-room is reached through the smoke-room. The tap-room comes close up to the bar parlour, with a door out of the archway for carts. As in the other, the kitchen has not been considered in relation to the club-room. Externally, this design seems wanting in point, and the archway being out of the centre of the gable as well as the bay oriel above, considerably mars the symmetrical effect imposed by the skyline. The interior woodwork is suggestive of taste. "Tokio" puts his windows very low down in a way not in accord with modern ideas of light and ventilation. He thereby gains a degree of quaintness in his exterior, and we accord him praise for his endeavour to insure a broad treatment. His plan has considerable merit, which we have not overlooked. The billiard-room is well placed, with a fireplace at each end, but the w.c. and lavatory ventilated only from the top is not a model arrangement. The kitchen, again, as before, is far away from the big room upstairs. The care devoted to the house-yard, scullery, and washhouse, &c., is commendable. "Tokio" ought to have avoided long, narrow passages. The tower was not wanted, and rather spoils his composition. "Scruton" overdoes his design, drawing in a heavy manner, and overweighting the elevation with pilasters and pediments. The whole thing is too ambitious, though marked by a degree of cleverness. The meeting-room is not a nice shape, and the landing is very wasteful; but the staircase with a lobby of its own has a distinct advantage in some ways. The coffee-room upstairs was not asked for, and the public-house is schemed too much on the model of a suburban house. "Pup" is improving, and if his drawings were more refined and not so crude he would stand a better chance. The whole performance is too rough and intentionally odd. The plan might have been made a success, with a little more thought. "The Old Firm" has not taken a village tavern of the old type as a model, but prefers the regulation "pub," with a roomy but uncomfortable bar, and a club-room contrived with little regard to hospitality beyond drinking. The design is, however, very well worked out from the author's standpoint, though we do not like his elevation. "Cantab," who comes next, has more sense of fitness. His perspective spoils the proportions of his façade. The plan is too cut up with passages. "La Poupée" mixes the scullery and billiard-room up together too much, and the elevation, which is country-like, is spoiled by odd little windows close up under the eaves, making the meeting-room exceedingly ungainly inside. The projecting window to the retiring-room must be 6ft. off the floor, judging from the perspective. "Grip" has merit, and shows ability; but his Red Lion Tavern might be taken for a police station. The plan is rather a good one, and is well worked out, though wasteful in staircases. The meeting-room has a recessed stage, which is all very well, but the place is not large enough for such a contrivance. "Espoir" marks his front

with three curved-shaped oriels, though there is a want of governing idea in the treatment, which is lop-sided and meaningless. The plan is very much of the same kind, with little sense of roominess. The symmetry of the three oriels in the club-room itself would be right enough inside. A third gable would have brought the external elevation more into shape. "Arc" might just as well have chosen a sweetly-shaped gable for the central feature of his frontispiece, instead of this waggon hood of a pediment, while his entrance comes nowhere in the composition—that is to say, the author has not realised the importance of the entrance as compared with the remainder of the elevation, particularly where a balance of parts above the ground story has been allowed to dominate. "Casual" would greatly have improved his tavern front if two gables had been introduced instead of one, and we are at a loss to understand why this was not done. The bar is too far inside the house, and the billiard-room brought to the front is not improved thereby. The club-room is well lighted, but the retiring-room cannot be got at except from the big room, and it has no w.c. The kitchen is right away at the back end of the building. The elevation is one of the best submitted. "Balbus" sends a regulation public house, though it is devoid of vulgarity, and has refined and simple detail. The broken eaves cornice cut away six times for the dormers is ugly enough, and stackpipes (not shown), necessary to carry off the roof water would be very much in the way below. The plan is poor. "Claude" approaches the conclusion of the series of the first-class designs. Three gables, three oriels, and three big arches make up the prescription for the treatment of his elevation. The plan follows, the cartway being in the midst. This cuts up the house too much into two, with no economy of administration. Externally, "Claude" secures a point, but it is at the sacrifice of homeliness and village-like hospitality.

"Astragal" has a very pretty elevation, and with it ends the best of the proposals made for our tavern. In execution this scheme would look well with its Tudor-like projecting porch, recalling the "Luttrell Arms" at Dunster. The plan, unfortunately, ill accords with the front, so inconveniently are the parts jumbled together. The bar is cramped. The billiard-room is a bad shape, and is too much shut off from the forepart of the premises. To reach it the visitor must either pass the kitchen or go outside. "Gargoyle" plans badly and draws poorly. The scheme of his front with the four oriels and two gables over the middle ones might have been made a pleasing arrangement if the detail had only been better. The front chimney comes somehow over a void, and the top floor is not quite clear. "F" draws neatly, and puts in sweep's brushes for trees. His plan has evidently had no little thought expended upon it. The loss in passages is an objection which "F" should avoid another time. "Blue Funk" need not feel so. He divides his bar in the "bottle" and "jug" fashion by screens, and cleverly has a hatch to serve the smoke-room, and the same for the tap-room. This indicates care. The club-room is well adapted for that purpose, but for meetings it would not do. "Blue Funk" has given a suburban house rather than one fitted for the wants of a village. His elevation would be considered pretty. We do not go so far as that; but the removal of the turret would have improved it. "Butts" is plain, and has a careful plan. The sections are worked out in a painstaking manner. "Vulcan" should have left out the trees. The flat pitch of his main roof does not harmonise with the sharp pitch of the front gables. The mitre would look so ugly, though, as a matter of fact, the main ridge would be lost from the street. In perspective "Vulcan" fudges the roofing to make it show. "Hoopoe" fudges nothing, and tries his level best, showing his work most conscientiously, making a feature of the wrought-iron sign. His plan is too cut up, and the style chosen is too pretentious. The other designs come as follows:—"Indian Ink," "Philomel," "Notts," "Quercus," "Sphinx," "Jonnie," "Angler," "Sparrow," and "First Attempt," which comes last.

A window in the modern chancel of the fine Perpendicular parish church of Cromer is about to be filled with stained glass, representing the Parable of the Sower, as a memorial of the late Rev. F. Fitch, for 53 years curate and vicar.



# CHAIR-TABLE MADE FOR H.R.H. PRINCESS HENRY OF BATTENBERG.

BY the courtesy of Mr Percy G. Stone, from whose designs it was made, we are enabled to give two illustrations of a Chair-Table just executed for H.R.H. Princess Henry of Battenberg. As a rule, "convertible" furniture is not distinguished for beauty of design or fitness of purpose; but this example is as simple and successful in all respects as any we ever remember to have seen.

## THE MANAGEMENT AND VALUATION OF BRICKFIELDS.

UNDER the above title a paper was read at the ordinary general meeting of the Surveyors' Institution, on Monday last, by Mr. R. L. Crouch, who dealt with the subject especially from the point of view of the surveyor, who had to do with arrangements between owners of brick-earth land and tenants who desired to work it at a profit. The paper dealt first with the geology of brick earth and the method of testing its fitness for special purposes, next with the working of a Metropolitan or rather suburban brickfield, next with the covenants in a brickfield lease, and lastly with the assessment for rating purposes of a brickfield and its valuation as between landlord and tenant, or incomer and landlord, at the termination of a lease. The author gave an exhaustive classification and analysis of brick earths, under the heads of clays, loams, and marls, all being alluvial deposits of varying thickness and constitution, the clays being hydrous silicates of alumina, of which the purest form was kaolin, or china clay, which, it was necessary to remember, would shrink and crack in drying and fixing in proportion as the alumina exceeded the silica. This could be remedied by adding sand. The distinctive characteristic of clay was its plasticity, which depended, so the author held, on its interstitial, but not chemically combined, water; for though a powdered brick would absorb a large proportion of water, it did not become plastic. Kaolin was derived from the decomposition of granite rocks, as a result of the action of the free carbonic acid in the air on silicate of potash and soda. The author proceeded to give interesting analyses of china clay, china stone, and pipe-clay, which are perhaps too full and technical to quote at length, our main object being to view his paper as dealing with brickmaking from the building aspect. The testing of soils was learnedly dealt with, and boring instruments advocated as preferable to test pits. The well-known system of boring was fully described, with a note of the usual precautions which are observed in the preservation of the several and distinct samples from each bore. It might be argued, as it had been by at least one well known professor, that an empirical test is the only practical test of what the results from a given boring would be; but the author contended that an analytical test was a great help in determining beforehand the value of a bed of clay. It must not be forgotten, however, that the value of the clay largely depended on the cost of getting it, of working it, of carting it, and of finding a market for the finished bricks. The author then went into a careful description of the various methods used for analysing the constituents of a clay, and from such an analysis determining its value as a brick-making earth, and followed with a description of the various processes of manufacturing bricks and the action of different constituents on the colour, hardness, or texture of the resultant bricks. The description of the process of burning stock bricks in clamps, as practised in the suburbs of London, followed, with a *résumé* of the advantages of the system, as preventing undue contraction of the moulded bricks, and the disadvantages in the way of unpleasant fumes from the ash-heaps and from the burning. The process of moulding, pugging, drying, and burning were dealt with, and the author next came to the important question of brick leases and brick royalties. The usual method was, he said, for the brick-maker to produce his moulders' books, showing the number made at so much per thousand, as checked by his wages book, to enable the owner or his agent to calculate the royalty (after taking care to occasionally look round the yard to see that a fair stock was kept up). Then came an allowance for waste—i.e., spoiled bricks, weather, firing, &c., which the author estimated at 5 per cent., although we have known instances

in which it is put, perhaps more fairly, at 10 per cent. The lessee should covenant to remove all top soil or vegetable mould and store and replace it at the end of the tenancy. Any clay brought



on to the ground must be considered as the landowner's. The ultimate prospective use of the field must, of course, be considered. If the land would then be suitable for building or for agricultural purposes it would be necessary to covenant for its being levelled to a fair surface, and

value to the hypothetical tenant, although the working and management of one field might make it of very much more annual value than that of another carelessly or ignorantly looked after. The depth of soil must be considered. If too deep, it was expensive to work. If too shallow, it hardly paid for the rent and the removal of the surface, and allowance must be made for proximity to town, accommodation for workmen, facilities for obtaining fuel and water, and, above all, cost of carriage to the best market.

Mr. J. Jopling said he had given the subject much attention for a number of years. He would advise anyone who wished to start brickmaking on unknown land to make practical experiments, and, if these were not successful, to consult an expert analyst. As to rating, no two fields, even in the same parish, could be assessed alike. He agreed that less than 3ft. of brick earth would not pay to work, but, on the other hand, the line must be drawn, he thought, at a maximum of 30ft. He had seen sanguine prospectuses, issued by vendors, stating that there were so many acres of brick earth 200ft. deep, which would cube out at so many million bricks. What was the good of clay at 200ft. deep? If one could not get clay within 30ft. of the surface, within reasonable distance of a market for the bricks, or of carriage by rail or water, if there were no available labour or fuel, and no prospect of disposal of the output, it would be better, he thought, to leave the land alone, and feed sheep on the grass growing on its surface. Many people thought they had only to dig clay, mould it into bricks, and burn it, and "there you are." There, indeed, they were! He believed a boring to be the best test, for such things had been known as carefully-prepared "test-pits." The valuation of the machinery of a field depended entirely upon whether it had been bought with a special intelligent knowledge of its adaptability to the circumstances of the particular field. A machine worth £500 in one field might be only worth £25 as old iron in another.

Mr. F. B. Buckland said that, although brick-making was one of the oldest arts, as instanced by the references to the Tower of Babel and the labours of the early Israelites, and by the works of the Romans, it must not be forgotten that times had changed, and that now steam and even electricity played a large part in the manufacture of bricks. He lately saw a brickworks where the whole chain apparatus had been superseded by



CHAIR-TABLE FOR PRINCESS HENRY OF BATTENBERG.

plans and sections should be attached to the lease. The question of the use of bricks made on the field for the purpose of sheds, &c., for the use of the lessee, and the subsequent property in such materials had lately been raised by a query in the "Professional Notes" of the Institution; but this, the author thought, depended entirely on whether the erections could be considered as "trade fixtures" or not. The rating of brickfields must depend, in every case, upon their

electric wires. He would suggest that there should be in all brick leases a covenant that no use should be made of the land except for brick-making or agricultural purposes, thus doing away with the present undoubted nuisance of brick-yards being turned into dustbin-refuse deposits and sifting-grounds.

Mr. G. Wragge could not help agreeing that the dustbin refuse and the burning of ashes in the making of stock-bricks was a nuisance; but



he asked the landowners, who derived a royalty from the brick-earth, and who at the same time complained that clamp-burning was a nuisance to the rest of their tenants, to suggest any method by which stock-bricks could be burned without ashes. He was sure any reasonable scheme would be eagerly taken up by the brickmakers.

Mr. J. W. Kemsley and Mr. J. J. Robson also spoke on Mr. Crouch's paper, agreeing on the whole with his conclusions, and the author having very briefly replied, thanking the members for their reception of his remarks, the meeting then adjourned.

#### SEWER VENTILATION.

LAST week we illustrated Messrs. Robert Boyle and Son's system of ventilation as applied to the sewers of a town. The diagram on the next page shows the application of the system to suburban sewers, to meet the difficulty which has hitherto been experienced in getting rid of the disagreeable smells arising from street ventilators. As the "air-pump" upcast ventilator, and also the downcast ventilator are fixtures, and have no movable parts, they cannot get out of order. There are no parts to corrode by the action of the gases arising from the sewers, as in the case of some ventilators, which cease to revolve with sufficient rapidity, causing the air to pass downwards instead of upwards, and driving the odours from the sewers up through the street openings.

#### OBITUARY.

MR. HAYWARD RICHARDSON BRAKSPER, A.R.I.B.A., who for over eighteen years was a member of the architectural staff at Spring-gardens, employed by the Metropolitan Board of Works, and their successors the London County Council, died on Tuesday, the 14th inst., at his residence, Ulverscroft, Napier-road, Wembley. He joined the Royal Institute of British Architects as an Associate (by examination) in 1888.

#### CHIPS.

Wellington parish church is being fitted with the latest improved "small tube" hot-water apparatus, by John King, Limited, engineers, Liverpool, employing their well-known special economic coil-heater, with waterway fire-bars.

A new line of electric tramways at Bradford to Eccleshill Mechanics' Institute, from the top of Bolton-road, belonging to the Bradford Corporation, was formally inspected on Tuesday by Sir F. Marindin, who expressed his satisfaction with the work.

A faculty was granted by Dr. Tristram, Q.C., Chancellor of the Diocese of London, on Friday, to the vicar of St. Philip's, Stepney, authorising him to convey an unconsecrated portion of the burial ground at the rear of his church, comprising 7,500sq.ft., to the governors of the London Hospital for the extension of that building from plans prepared by Mr. Rowland Plunbe, F.R.I.B.A.

At the Auction Mart, Tokenhouse Yard, last week, several parcels of leasehold ground-rents changed hands at over 23 years' purchase, and others were only withdrawn because 24 years' purchase proved unacceptable. A City freehold of some magnitude and a building site at West Norwood found competition and sale. Metropolitan and suburban property accounted for a large proportion of the total amount realised, the business done, including transactions not officially reported, amounting to £98,718.

The annual report of the Surveyors' and Auctioneers' Clerks' Provident Association states that the advance in receipts amounted to £53, and the invested funds have increased by £343. The committee have made grants from the Benevolent Fund of £10, and the sick claims have amounted to £30. The number of members is 136. The annual meeting will be held on Wednesday next, the 1st March.

On the retirement of Mr. W. H. Preece, C.B., the Postmaster-General has appointed Mr. J. Hookey, previously assistant engineer-in-chief, to be engineer-in-chief of the Post Office, and he has also appointed Mr. J. Cavey to be assistant engineer-in-chief and electrician.

The papers and MSS. from the Deed-room, Wimpole Hall, the property of the Earl of Hardwicke, which have been recently catalogued for sale by Messrs. Sotheby, Wilkinson, and Hodge, have been privately sold to the British Museum. The collection consists of a large number of letters of historical, political, and literary interest, to a great extent accumulated by Lord Chancellor Hardwicke.

#### COMPETITIONS.

THE REBUILDING OF THE OLD BAILEY.—The city surveyor (Mr. Andrew Murray) and Professor George Aitchison, F.R.I.B.A., are engaged in preparing the instructions to the six competing architects who will be asked to submit the plans for a new sessions house in the Old Bailey. The new building will probably cost over £150,000 to erect.

BRADFORD.—The Fire Brigade Station competition at Bradford has been settled, and Messrs. Mawson and Hudson, of Bradford, are the chosen architects. There were 44 designs submitted, and we understand the drawings were on public exhibition for two days up to Saturday night last; but several complaints have reached us from competitors who say they knew nothing of the exhibition, which they describe as having been closed before an opportunity was afforded them of inspecting the premiated designs, the announcement of the exhibition only appearing in an evening local paper on Friday last. It is a matter of regret, should this prove to be true, because, apart from the advantage of publicity, it is very desirable that competitors should see how those who manage to be successful have worked out the problem. Moreover, it is only reasonable to exhibit the plans so that it may be seen how the conditions have been complied with, and the rules of the contest adhered to—conditions which are, of course, binding on the promoters equally with the competitors, though this rule is by no means invariably observed. The chief elevation faces Nelson-street, with return facades to Dunen-street and Caledonia-street, the site at the rear being bounded by Bowling Beck, a narrow passage which will be widened. The total outlay is limited to £15,000. A premium of £100 for the first design, £50 for the second, and £30 for the design third in order of merit. A builder's *bond-fide* tender to be obtained to confirm the correctness of the estimate. The accommodation provides for an engine-house for five engines, a duty room, stable for eight horses, a recreation room and hayloft on the first floor. The chief officer's house and superintendent's house to be included in the scheme, with 24 dwellings in flats, a hose-tower, workshops, laundry, and additional stabling for six horses, as well as conveniences for the men in the yard. The second premium was awarded to Mr. W. J. Morley, F.R.I.B.A., of Bradford, and the third prize was given to Mr. Owen Roberts, of Liverpool. From the information sent us, it would appear that three schemes were prepared by Messrs. Mawson and Hudson, and the complaint is not so much that alternative plans were made—for that, surely, was allowable—but that no individual design was accepted, the first premium being given, it is asserted, for the three plans collectively. This must surely be due to a misapprehension? A protest, however, appears elsewhere, which certainly assumes that this was so. No official communication as to the award had been received by some of the competitors up to Wednesday; the result only reached them through the Bradford papers.

LEEDS.—The corporation are offering premiums of £150, £100, and £50 for the three best designs sent in for the erection of a market hall and market shops on a site 4,560 square yards, which forms part of the present Kirkgate Market.

MORECAMBE.—In a recent public competition for a convalescent home at Morecambe, for the Girls' Friendly Society of the Ripon Diocese, the design of Mr. Edward C. H. Maidman, architect, of Edinburgh, was selected, and he has been instructed to proceed with the work as quickly as possible.

SHOREDITCH.—The town-hall extensions competition at Shoreditch does not appear to make a very attractive project for architects, seeing that, to begin with, no elevations or sections of the existing buildings are furnished to competitors, who will consequently have to take their own particulars, and it is specified that the new part must be made to conform with the design of the facade of the old building. A plan of the ground floor is furnished with the conditions, but, inasmuch as the other floors enter most intimately into the project, which must be considered as a whole, including recasting of the officials' offices, it would only appear reasonable that competitors should have been supplied with measured dia-

grams to scale, at any rate. Beyond the additional offices, several extra committee-rooms are to be provided, and rooms for the caretaker. £12,000 is the limit. A turret or tower is suggested, provided the money will allow, which is very doubtful. How far any outsider can adequately understand to what extent the rearrangement of the offices is really intended is also a matter of great uncertainty. With a new building the actual intentions of the promoters is always more or less a question, but with an alteration job such as the Shoreditch town-hall this difficulty seems most speculative. No professional referee is guaranteed, and the premiums are £50 and £25. March 22nd is the day for sending in.

#### PROFESSIONAL AND TRADE SOCIETIES.

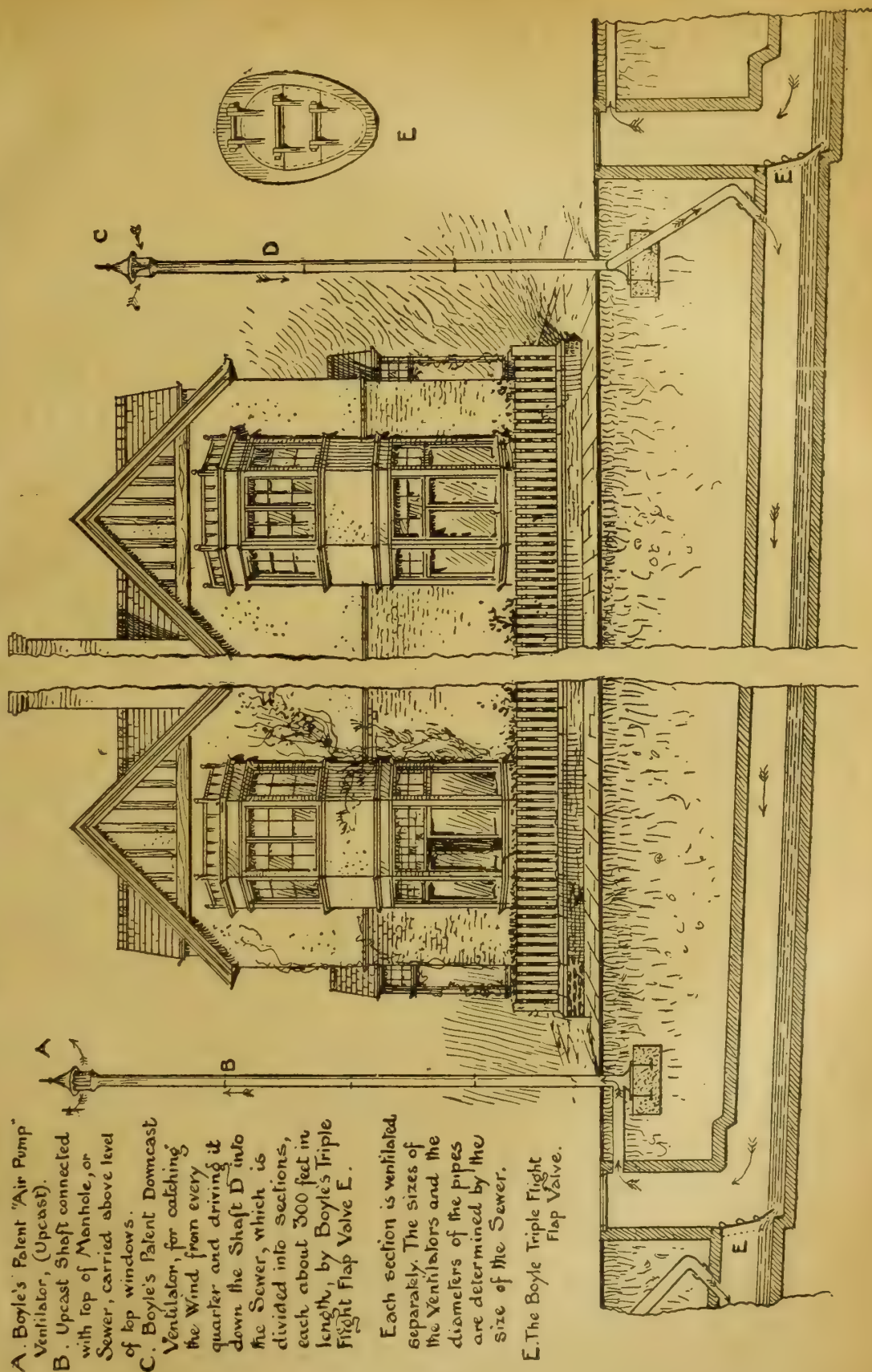
THE ARCHITECTURAL ASSOCIATION.—The ninth meeting for the present session of the Association was held on Friday evening at 9, Conduit-street, W., Mr. G. H. Fellowes Prynne, F.R.I.B.A., in the chair. A vote of thanks was accorded to Mr. H. L. Florence for allowing the recent Saturday afternoon visit of the members to the new Carlton Hotel in the Haymarket. The President called attention to the class on Colour Decoration, to be conducted by Mr. Alfred H. Hart, and to be opened on Wednesday, March 8. The subject was of great interest, the fee very low, and he trusted that many members would support the course, and do all they could to make it a success. A donation to the library of "English Cathedrals, Illustrated," by the author, Mr. Francis Bond, M.A., was acknowledged with thanks. Mr. Cole A. Adams, F.R.I.B.A., then delivered a lecture addressed to students under the title of "A Chat About Colour Decoration," explaining that he proposed to speak of some of the various methods adopted in colour decoration, and to offer a few practical suggestions which might be of use in the study of the subject. The paper is fully reported on p. 260, *ante*. A vote of thanks was accorded the lecturer on the motion of Mr. L. A. Shuffey, seconded by Mr. J. D. Crace, and supported by Mr. Hampden W. Pratt, Mr. E. Howley Sim, and Mr. Matt Garbutt. Mr. Pratt, in his remarks, referred to the works of decoration now in progress at St. Paul's Cathedral, and declared that it was time to speak as to the manner in which a building was being ruined by a great artist, who had no one to control him in his works. Mr. Cole Adams briefly replied.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.—A meeting of this Association was held in the Grosvenor Hotel, Westland-row, on Tuesday evening last, Mr. Geo. P. Sheridan, A.R.I.B.A., vice-president, in the chair. Mr. R. M. Butler, hon. sec., read a paper entitled "The Influence of Climate and Material on National Architecture." This paper was awarded the "Essay Prize" of the Association for 1897. The lecture was illustrated by lantern views, and the subject very fully dealt with. The lecturer showed that in all great periods of architecture the influences of climate and material had exercised a large influence over the art of building. That it was only when the art became corrupted and enervated, and when mere copyism was called design, that these principles ceased to govern design. Likewise the lecturer showed that the social conditions and requirements of the people had had in all times exercised an immense influence on their buildings. Messrs. Walter Doolin and Joseph Holloway having spoken in very complimentary terms of the paper, a hearty vote of thanks to the lecturer was passed unanimously.

BRISTOL SOCIETY OF ARCHITECTS.—The monthly meeting of this society was held at the Fine Arts Academy on Wednesday, the 15th inst., when the question of the competition for the proposed new library was discussed, and, after hearing the report of the deputation to the Libraries' Committee, it was resolved that in default of an independent professional assessor being appointed, the original determination not to compete be adhered to. Surprise was expressed that the Libraries Committee had refused to accede to so reasonable a request, the ostensible intention of the competition being to obtain the best design. Mr. Arthur Lee, J.P., read an interesting paper on "Marble Decoration," profusely illustrated by lantern views. The proceedings terminated with a hearty vote of thanks to Mr. Lee, on the motion of the President, seconded by the vice-president, and supported by Mr. Frank Wells,



# THE BOYLE SYSTEM OF VENTILATION As applied to SEWERS (Suburban).



A. Boyle's Patent "Air Pump" Ventilator, (Upcast).

B. Upcast Shaft connected with top of Monhole, or Sewer, carried above level of top windows.

C. Boyle's Patent Downcast Ventilator, for catching the Wind from every quarter and driving it down the Shaft D into the Sewer, which is divided into sections, each about 300 feet in length, by Boyle's Triple Flight Flap Valve E.

Each section is ventilated separately. The sizes of the Ventilators and the diameters of the pipes are determined by the size of the Sewer.

E. The Boyle Triple Flight Flap Valve.

the latter of whom strongly endorsed the remarks of the lecturer with reference to municipal buildings.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS. — The monthly meeting of this society was held on the 14th inst., at the School of Art, Mr. R. W. Fowler in the chair. Mr. P. Marshall, F.S.I., gave a lecture on "Surveying." The lecturer gave a detailed description of the work done by surveyors of 150 to 200 years ago, and the character and beautiful workmanship of

the finished plans of that period. He illustrated the manner in which the surveys were carried out from that period to the beginning of the present century, and explained how the plans were prepared by these early surveyors and the various details connecting therewith, contrasting the amount of labour expended upon the finished plans of that period with those prepared in these hurried times. After referring to the work done by the surveyors in the inclosures of the commons and waste lands of England, he

gave a detailed description as to how the surveys of these commons were made, the manner of laying out the roads and dealing with the rights of way across the same, also the way in which the surveyors valued the commons for dealing with the commoners' rights, and also the allotting and setting out the plots apportioned to them. He also gave an outline of the work done by the Commissioners and the hearing of claims, and as to what these claims consisted of, and explained how the lands were allotted in lieu of



those rights. The different methods adopted in meeting the expenditure incurred by the Commissioners in their work were then shown. He described the various systems of modern surveying, and their application to the surveys of country estates and property in towns, and specially explained the applicability of traversing with the theodolite for these surveys, with advice as to how the same should be carried out. Proceeding, he laid down what in his opinion was the best mode of preparing Parliamentary plans for engineering and other uses, and in particular the making of the surveys required for the working plans for railways and other works. He next gave advice as to preparing the cartoons for Parliamentary and other purposes, which are used in the illustration of works before committees of the Houses of Parliament and other tribunals, completing his paper with a brief description of how the Ordnance Survey of England was carried out, and the details shown on the published maps. On the motion of Mr. Fred Fowler, seconded by Mr. C. Hadfield, and supported by Mr. H. Vickers, a hearty vote of thanks was given to the lecturer.

**THE INCORPORATED INSTITUTE OF BRITISH DECORATORS.**—The idea of forming an institute for those engaged in the art and business of painted decoration, and having objects allied to those with which the institutes, such as those of engineers, of architects, and of surveyors have been formed, seems to have originated within the present decade, and to have taken more definite shape at a meeting of the National Association of Master Painters at Manchester in 1894. Endeavours were made to obtain a charter last year; but objections being found, it was decided to incorporate the institute under the non-trading clauses of the Limited Companies Act; and, after some years of persevering effort, the institute was finally registered as incorporated on January 21 this year. The first meeting of the provisional council since incorporation was held at Painters' Hall on February 8. This council, consisting of 25 members, is representative of England and Wales, Scotland and Ireland, Mr. Grace, of London, being president. They at once proceeded to elect officers and arrange for the organisation and working of the institute. Mr. W. H. Pitman was elected treasurer; Mr. G. Petter, auditor; and Mr. F. W. Englefield (of Messrs. Pritchard, Englefield and Company, solicitors), secretary. The first general meeting is appointed for March 23 at Painters' Hall, Little Trinity-lane, where the new institute's headquarters will for the present be situate.

#### CHIPS.

The new schools, Heath Town, Wolverhampton, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The net value of the estate of the late Samuel Baylis, of No. 5, Hanover-terrace, Regent's Park, civil engineer and contractor, Associate of the Institution of Civil Engineers, and Member of the Imperial Order of the Medjidi of the Ottoman Empire, has been sworn at the sum of £545,849 11s. 3d.

The Urmston Urban District Council have appointed Mr. James Heath, of Ashton-on-Mersey, as surveyor and sanitary inspector at a salary of £120 per annum. There were 42 applicants for the position.

At the Hampshire Assizes, last week, Charles Jobbins, builder, of Lee-on-the-Solent, was awarded £300 damages for slander in an action brought against Samuel C. Gale, auctioneer and surveyor, of the same place. Defendant, it was alleged, saw a commercial traveller named Howell, then in the employ of Messrs. Bailey and Messrs. White, of Portsmouth, and told him that Messrs. Pearson, a firm of builders at Notting Hill, had "closed down" on plaintiff, and that they were not the only ones. At defendant's suggestion Mr. Howell went to the railway station and stopped some timber consigned to plaintiff.

Messrs. Levatt and Co., of London, have secured from the Admiralty a contract to build the new naval barracks at Portsea, which are to replace the present wooden hulks as a naval depot for the port. The barracks are to accommodate 4,800 men, will occupy four years in erection, and are to cost £400,000.

The urban district council of Llandudno have decided to construct a new relief sewer to East Llandudno, in accordance with plans prepared by their surveyor, Mr. Stephenson, at an estimated cost of £11,600.

## Building Intelligence.

**BATLEY.**—The special sub-committee appointed recently by the corporation to take the initial steps towards the provision of a new town-hall for the borough have visited several Yorkshire townships where municipal buildings have been erected during the past few years. They have reported, and are now under instructions from the general purposes committee, comprising the whole of the members of the council, to consult Mr. Walter Hanstock, of that town, with a view to laying a scheme before the corporation. Mr. Hanstock will prepare sketch-plans of an entirely new building, and will also report to the council concerning the market estate as the probable site.

**BOMBAY.**—The new administration offices for the Bombay, Baroda, and Central India Railway Company have been recently completed near the Church Gate Street Station. The work was begun in April, 1894, and the surrounding garden has yet to be laid out. The principal façade, 300ft. long; has a tower 160ft. high rising from amidst the many dazzling white domes. The building is in the Gothic style, with Oriental feeling, and has been designed in harmony with the surrounding public buildings—a condition laid down by the Government of India. The structure is faced with blue basalt stone, and the domes, mouldings, and carved work are of white Porebunder stone. The tower, which can be seen from all parts of Bombay, is square from its base for the first hundred feet, then takes an octagonal form up to the springing of the dome. Crowning the central cupola is a group of figurative sculpture representing "Engineering," a work which has been executed by Mr. Roscoe Mullins. In the circular panels between the arches of the central carriage porch are two carved heads in full relief of Colonel French and Colonel Kennedy, which have also been executed by Mr. Mullins. Three floors of the building have been set apart for office purposes, and in the centre is an extra floor for records. On the ground floor, the traffic, police, medical, and cashier's departments are accommodated; the first floor is set apart for the agent's and engineering departments and the finely-decorated board-room, and on the second floor the accounts and audit departments and the Government Examiner of Accounts are housed, whilst space is also found for a library and an officer's tiffin-room. The architect for the building is Mr. F. W. Stevens, C.I.E., F.R.I.B.A., who has been assisted by his son, Mr. C. F. Stevens, M.S.A., and the total cost has been 6½ lakhs of rupees.

**DOUGLAS, I.M.**—The directors of the Isle of Man Banking Company, Ltd., having decided to erect new head offices in Douglas, made a tour of the chief cities in England and Scotland, and decided to build on the model of the Northern Assurance Company's premises at the corner of Union-street, Aberdeen. They accordingly instructed the architect of the edifice, Mr. Marshall Mackenzie, A.R.S.A., to prepare plans for a building to be faced with Aberdeen granite, and to cost about £13,000 in execution. The offices are to be built at the junction of the principal thoroughfares, Athol-street and Prospect Hill. It is intended to commence its erection at Whitsuntide, when the company obtains possession of the site. The style is Renaissance, and the whole exterior will be executed in finely-axed granite, while the interior of the lobby will be of polished granite, and of different varieties as to colour. All the granite work of the two elaborate fronts will be dressed in Aberdeen, and will be sent to Douglas by sea. On the ground floor the bank offices will be located, and the two upper floors will be let out as business offices. The angle to the streets will be rounded above the corner entrance, a range of four columns being carried up through the two floors over the doorway, and a uniform open balustrade will be carried along the two sides of the building, the piers between the windows being continued through the frieze.

**HYDE.**—The new building for the technical school and free library was opened on Saturday afternoon. The premises, which are in Union-street and near the Corporation baths and the Mechanics' Institute, have been erected at a cost of about £13,000. Of this sum the Corporation provided £5,000, and £1,640 was obtained from the old Mechanics' Institute. The new building has accommodation for 1,000 students. In the

basement are rooms for laundry work, cooking, dressmaking, and art-modelling. The ground-floor has a reading-room, ladies' room, lending department of the library, the librarian's room, the secretary's office, committee-room, and the building construction and machine construction departments. On the first floor are the chemical laboratory, the chemical theatre for scientific lectures, the chemical master's room, the physical laboratory, the elementary art room, and the advanced art department and the art-master's room. The architects were Messrs. Woodhouse and Willoughby, of Manchester. We illustrated the building in our issue of Feb. 28, 1896.

**RUGBY.**—The urban district council are in a dilemma with regard to the municipal buildings they propose to erect on the site of the Shoulder of Mutton Inn, High-street, bequeathed to the town by the late Mr. G. C. Benn. The donor expressed no wish beyond that the buildings should be some likely benefit to the town. The council decided on offices for their servants and a chamber for themselves, and a town's meeting condemned the proposal. The clerk was instructed to draw up a statement of the council's position for publication, and he unearthed a letter from Mr. B. H. C. Fox (Mr. Benn's legatee) in which that gentleman said he knew what Mr. Benn's wishes were. This letter was written in 1896, and the council at the time decided that a deputation should wait on Mr. Fox. The council, at their last meeting, instructed the clerk to ask Mr. Fox to receive the deputation now; but he has declined, and he reminds the council of Mr. Benn's wish that the gift, though unconditional, was intended to be for the benefit of the town. In addition to the site, Mr. Benn left £4,000 to erect buildings thereon, and £2,000 to maintain them. The council advertised for competitive designs for the buildings, the estimated cost of which was not to exceed £5,000, and they selected plans by Messrs. North and Hawk, of Battersea, from the 39 sets sent in. The estimate was exceeded, and they applied to the Local Government Board for sanction to borrow £3,000 to meet the additional cost. Now, however, it is found that the lowest cost will be between £8,000 and £9,000, and the council are reluctant to apply, in the face of present feeling, for sanction to borrow another £3,000.

**STONE, KENT.**—The Corporation of London have decided to make improvements at the City of London Lunatic Asylum at Stone, near Dartford, at a cost of £85,850. The original estimate—£70,000—which the Common Council accepted in October, 1897, included £12,095 for the warming, heating, lighting, and engineering works in connection with the new building; but further inquiry has led to the condemnation of existing boilers, which have been in use since 1865, and to the introduction of an entirely new system. This, together with the installation of the electric light in the Asylum, has necessitated an increase in the expenses of £15,850, bringing the total to £85,850. A report sanctioning that enhancement has been adopted by the corporation.

**WELLINGTON, SALOP.**—There are many signs of building activity in this town and its neighbourhood. The extensive steelworks at Hadley, formerly belonging to Messrs. Nettlefold, which have been closed since November, 1890, have been purchased by Messrs. G. F. Milnes and Co., of Birkenhead, who will manufacture electric tramcars, omnibuses, &c. Messrs. Milnes have also purchased over twenty acres of land adjoining for the erection of workshops. From 600 to 700 men will be drafted into the Wellington district, and a further 200 will be employed by the extension of large ironworks in the district. A scheme has been formulated by Dr. Whittaker (medical officer of health for the district) and Mr. Myles Morley (surveyor to the Wellington urban district council) to erect 60 workmen's dwellings, to be let at rents varying from 4s. to 7s. per week. To carry out this most of the dilapidated cottages in the town, 40 of which have been condemned as unfit for human habitation, will be demolished. A more extensive scheme is being undertaken by a syndicate to acquire the Vicarage Estate, situated on the old Watling-street Road, not half a mile from the foot of the Wrekin. It is proposed to erect detached villa residences on the estate, and upwards of £100,000 will be expended. Building operations will commence almost immediately. Mr. Dalgleish, architect, of Wellington and Shrewsbury, has been instructed in connection with the several building schemes.



**YORK.**—A fresh appeal has been issued for completing the work of restoring and rebuilding at the Cathedral, and the Dean and Chapter hope eventually to raise a sum of £50,000. A preliminary appeal to those directly connected with the Minster has brought in £5,000, and another £8,000 has since been promised. The appeal now being issued shows what has been done already (at a total cost of more than £100,000) and what it is proposed to do. Appended to the appeal is a report by the architect to the Dean and Chapter, Mr. G. F. Bodley, A.R.A., who suggests that the £50,000, if obtained, should be invested, and the interest, say £1,250 per annum added to the present fabric fund of between £700 and £800 a year, so as to place the authorities in a position to deal with the repairs in a better manner. The latest work done, the rebuilding of the pinnacles on the south side of nave, cost about £200 each; Mr. Bodley added that he should much like to complete the six flying buttresses on the south side and the pinnacles and flying buttresses on the north side; the former would cost £400 and the latter £200 each. The restoration of the pinnacle at the east end, together with the adjacent pinnacles and parapets, would cost £700 or £800. The west front, central tower, and nave and choir parapets are also all in need of repair, and the cost would be large.

## Engineering Notes.

**LEITH.**—Since the North British Railway obtained possession, in May last, of the ground between the foot of Easter-road and the foot of Leith-walk, Leith, in connection with the construction of their new line between Edinburgh and Leith, considerable progress has been made, not only with the railway, but with the passenger station buildings at the corner of Leith-walk and Duke-street, and the consequent widening and improvement of a portion of these thoroughfares. The work involved the demolition of most of the property contained in an oblong area between Glover-street and the foot of Leith-walk, and from there to Whitfield-lane, and some property between Easter-road and Glover-street. To accommodate the tenants of the dwelling-houses demolished, large blocks of tenements were erected at Halmyle-street and Lorne-street. Building at Easter-road in connection with the laying of the new line (Contract No. 1) was commenced about the middle of July last, and is being pushed forward as rapidly as possible. Two abutments have been erected at Easter-road, and the walls are forward nearly to Leith-walk. The west abutment is 113ft. long by 16ft. high, and 9ft. 6in. thick, and the east abutment is 61ft. long and the same height and width as the west abutment, with wing walls of about 50ft. long, an average width of 6ft., and a height of 24ft., with parapet ashlar on the top. Some of the stones in connection with this work are over four tons in weight. The walls of the subway from Easter-road to the station at the foot of Leith-walk are well advanced, 450ft. of the walls, which are 18ft. high and 5ft. thick, having been built. These walls are lined with white enamelled brick. Of the north retaining wall, 676ft., extending to the summit of the north station wall, has been built, with a height of 16ft. and a width of 6ft. The south retaining wall is also well advanced, 780ft. having been built, of the same height and thickness as the north wall. Both walls are up to the level of the hewn work for starting the station wall, which has been begun. The retaining walls are up to the level of the rails, and are filled up with excavations from railway cuttings. The erection of the station buildings (contract No. 2) is also making satisfactory progress. From the new corner at Whitfield-lane to the foot of Leith-walk a space of about 192ft. has been taken in, and from the corner of Leith-walk and Duke-street about 218ft. of Duke-street has been taken in. After taking down the property on these portions of Leith-walk and Duke-street, excavations were made for the erection of a large retaining wall for the platform. This wall is now up to the platform level, and is built at the foot of concrete 7ft. 6in. broad and 3ft. deep, with stone foundations 5ft., 12in. deep. Above that is rubble building up to 12in. below the ground floor, and coated with asphalt. The foundations are laid with a  $\frac{3}{4}$ in. coat of asphalt, and then with a pavement course 3in. thick all over, jointed and bedded

with cement. All the walls are built with cement, and no lime is used. The length of the Duke-street portion of the retaining wall is about 178ft., and that of the Leith-walk section about 155ft., the whole being now up to platform level. The frontage of the station buildings to Duke-street is about 218ft., and is built partly to the first and second story. The frontage to Leith-walk will be about 190ft. when finished. On the elevation to Leith-walk nine piers, extending from Whitfield-lane, have been erected up to the first-floor level. The stone for the buildings has been brought from Alloa quarries. Some of the shops on the ground floor of the station buildings will be ready for occupancy by May next, and the whole of the operations in connection with the new line will be completed in about three years' time. The contractors for Contract No. 1 (the laying of the new line) are Messrs. Young and Son, Edinburgh; and the contractors for Contract No. 2 are Messrs. Cousin, Edinburgh, who have the contract for the new Waverley Station, Edinburgh. Messrs. Blyth and Westland, C.E., Edinburgh, are the architects and engineers for both contracts.

**RYHL.**—The London and North-Western Railway Company are about to make great additions and improvements to the present inadequate railway station. The scheme includes the provision of a double set of rails, one for fast and one for local traffic. The station will be almost entirely reconstructed. The down platform, to occupy the site of the present goods shed, will be 1,000ft. by 80ft. At the west end of the platform, a bay will be constructed 500ft. long, with two platforms each 25ft. wide. These latter will be devoted to passengers using the Vale of Clwyd line. Other features of the down platform will be the erection of a building of red pressed bricks and terracotta dressing, containing waiting-room, booking-office, cellars, lavatories, &c. The up platform will be lengthened to 1,300ft., and also considerably widened, and the two platforms will be connected with a bridge, built in two portions, one for the use of passengers and the other for luggage, which will be raised and lowered to and from the bridge by hydraulic lifts. Messrs. Gates and Thomas, of Warrington, have secured the contract, which will occupy two years in completion.

### CHIPS.

New buildings are being erected for the Wholesale Co-operative Society at Silverton, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

The freedom of the Plumbers' Company will be presented to Sir Hugh Owen, late secretary to the Local Government Board, at the Guildhall to-day (Friday). Mr. H. Chaplin, the Lord Mayor, the chairman of the London County Council, and others will be present at the ceremony of presentation.

In the cemetery at Candie, Guernsey, a figure of an Angel of Glory, sculptured in Carrara marble, has been erected over the grave of Mrs. John Shaw. The work was executed by Messrs. Harry Hems and Sons, of Exeter.

New buildings are about to be built in Union-street, Aberdeen, for the Scottish Temperance Assurance Co., from plans by Messrs. Jenkins and Marr, of that city. The building will be Free Classic in style, and will have a façade 34ft. in breadth, and carried to a height of 70ft., and a depth of 92ft. The primary material will be dressed granite, and the cost will be about £5,000.

The town council of Widnes decided on Tuesday to raise the salary of their gas and water engineer, Mr. Isaac Carr, M.Inst.C.E., by £150 per annum.

A large turret Cambridge quarter-chime clock, made by Messrs. W. Potts and Sons, of Leeds, under the directions of the urban district council, was started at noon on Saturday at Skipton-in-Craven (West Yorkshire) Parish Church. The clock shows the time on two external dials, the largest of which is 12ft. in diameter, facing south, and the west dial rather smaller; also a small dial on the face of the clock inside, and one in the chamber below for the use of the ringers. The clock strikes the hours and Cambridge quarters. It has the gravity escapement, with compensation pendulum, and all the latest improvements.

The Art Loan Exhibition at the City Guildhall Art Gallery, the principal feature of which will be a representative collection of the works of the great painter, Turner, will be opened by the Lord Mayor on Monday, April 10. In addition to some of the most notable specimens of Turner's works, there will be a collection of the most striking pictures painted by his contemporaries Gainsborough, Romney, and Constable.

### LEGAL INTELLIGENCE.

WHAT IS A "NEW STREET"?—At North London Police-court, on Monday, Mr. E. S. Fordham gave his decision in a case in which the Hackney Vestry sued Mr. Stower, an owner of house property in Grove-lane, Hackney, and others for £202, their apportionments in respect of the making up of the road as a new street. The defence was non-liability, because the road had been in existence prior to the Metropolis Local Management Act of 1862, Section 98 of which held that all new roads should be 40ft. in width, unless (section 99) otherwise sanctioned by the Metropolitan Board of Works (now the London County Council). No such permission had been asked or given; and houses had existed in the lane for many years. For the Vestry it was argued that the character of the place had been altered by reason of the erection of dwellings, which had been built in conformity with the Act, 20ft. from the centre of the road. Mr. Fordham, in his judgment, said the question for him to decide was whether Grove-lane was a new street under the Metropolis Local Management Act, so as to make the owners of property abutting upon it liable to pay for paving it. From the plans laid before him by the Vestry he was inclined to think it was not a new street; but on personally viewing it he was at once satisfied that it was a new street in the ordinary and proper sense of the term, because of the erection of the Great Eastern-buildings along a considerable length of one side. An order was made for the amount claimed, with costs.

**A PLASTERER'S BREACH OF CONTRACT.**—Before his Honour Judge Woodfall, at Plymouth, on the 15th inst., James Martin, builder, of Croppin's Park-terrace, Plymouth, sued H. W. L. Lacey, plasterer, for £40, damages for breach of agreement. Plaintiff's case was that defendant agreed to do the plastering of all the five-roomed houses on the Ashford Estate, Mutley, which plaintiff built, at £49 a house. Before he had completed his undertaking he found another job under Messrs. Pethick, and abandoned his contract, after having completed six and partially plastered two. The defence was the agreement was to plaster three houses, which he completed, for £43 a house. It was denied that the agreement was to plaster as many houses as plaintiff built on the estate. Defendant said, having regard to the scarcity of plasterers, it would not pay him to do such houses at £49 each. Judgment for plaintiff for £20 and costs.

**PARLIAMENT-STREET ARBITRATION AWARD.**—A compensation claim against her Majesty's Office of Works in respect of the Whitehall improvement scheme was recently made by Messrs. Maynell and Pemberton, solicitors, who claimed £14,000 for the demolition of their office premises, No. 20, Whitehall-place. The claimant firm, which had existed at the address mentioned since 1835, had secured a Crown lease for a term of 99 years from July, 1820, at a rental of £93 6s. 9d. per annum. At the end of 1896 the Commissioners of Works served the usual notice to treat. The matter was referred to Mr. Robert Vigers, president of the Surveyor's Institution, who acted as sole arbitrator, and in the course of the inquiry it was submitted that the premises were worth £950 or £1,000 a year to the claimants as occupying tenants. Evidence in support of the claim was given by Mr. G. H. Brougham Glasier, F.S.I. (Messrs. Glasier and Sons), Mr. Edward Tewson, F.S.I. (Messrs. Dobbenham, Tewson, Farmer, and Bridgewater), and Mr. H. C. Trollope, F.S.I. (Messrs. Trollope), whose valuations ranged from £6,000 to £12,000. Expert evidence on behalf of the Crown was given by Mr. W. E. Horne, F.S.I. (Messrs. Horne and Co.), Mr. James Green, F.S.I. (Messrs. Weatherall and Green), Mr. W. H. Elwell, F.S.I., surveyor to the Great Northern Railway Company, and Mr. J. H. Sherwin, F.S.I., Whitehall-place. The arbitrator has just awarded the claimants £3,478.

**THE LONDON COUNTY COUNCIL v. DIXON.**—(Queen's Bench Division, Feb. 15, before Mr. Justice Lawrence and Mr. Justice Channell.)—This was a case stated by the Metropolitan police magistrate at Greenwich. An information was laid against John Dixon, the respondent, charging him that he, in May, 1898, at Sandhurst-road, did commence to form a street for carriage traffic leading out of Sandhurst-road without having obtained the sanction of the County Council, contrary to sections 7 and 8 of the London Building Act, 1894. Sandhurst-road is a new street laid out upon property belonging to Mr. A. Cameron Corbett. In May, 1893, a row of houses had been erected in Sandhurst-road. In that month the respondent commenced the erection of six shops upon land bought from Mr. Corbett. The shops were erected with a frontage to Sandhurst-road, and upon the same side of it as the row of houses already referred to. A space of 40ft., as is required by the Act for a carriage way, was left between the last of the houses and the first of the shops. This space was what was alleged to be the street commenced by the respondent. The shop at the corner has a doorway at the angle, and a shop window and other windows of the house over the



shop look into the space. There is also a door opening into the space at a distance of 10ft. or 12ft. from the Sandhurst-road, and five coach-houses and stables have been erected at the back of the premises, the only access to which for horses and carriages is by an entrance 80ft. down the alleged street. The alleged street is the property of Mr. Corbett, and a certain portion of it is used as a cart-track communicating with certain brickfields situated at the end of the alleged street, which is about 90ft. in length. There was no evidence that Mr. Corbett had entered into any agreement with the respondent that the space forming the alleged street should be left open, but this alleged street was marked on the estate plan of Mr. Corbett's estate as "proposed street." Nothing had been done by the respondent to form or lay out the alleged street except the building of the shops and stables. The requirement of section 7 was not complied with. The magistrate found as a fact that, in the circumstances, a new street for carriage traffic had been commenced to be formed and laid out, but that, though the respondent undoubtedly erected the shops in the expectation that the space would be a new street, yet he did not commence to form it, on the ground that he had no control of the roadway of the alleged street. Mr. Avory contended that, inasmuch as the magistrate had found as a fact that a new street had been commenced to be formed and laid out, the only question was who commenced to so form and lay it out. It was clear that Mr. Corbett did not, for he had done nothing. The person who commenced to form and lay out the street then was the respondent. He said that the Act was framed in order to enable the County Council to take steps to enforce the provisions of the Act before any expense had been incurred by owners or builders, and it was also framed to catch the builder who built on land adjoining a proposed street as well as the owner of the roadway. He cited "St. George's Local Board v. Ballard," and "Roberts v. Richards." Mr. R. C. Glen, for the respondent, contended that his client did not commence to form or lay out a street within the meaning of the Act, and that if he came within section 8 he was exempted by the proviso. He cited "Gozzett v. Malden Urban Sanitary Authority." The court dismissed the appeal. Mr. Justice Channell said that the section was framed in the broadest way, and, without the proviso, it would include cases which created an obvious absurdity, because any house built upon any land might at some time or other become one of three or more other houses abutting upon land on which a street might at some time be laid out or formed. But the proviso saved the section from this vagueness. A man might be said to do acts for a purpose other than that of forming or laying out a street within the meaning of the proviso when he did them for a usual purpose—that was to say, when, knowing that some other persons might build houses near him, he built his house so that it would be equally suitable whether the adjacent land were ultimately turned into a street or the contrary. In this case the respondent had obtained his land on such terms that he was entitled to a right of way to his stables; but, knowing that the land over which the right of way passed was likely to become a street, he so built his house as to be suitable in that eventuality.

**WHITWELL METHODISTS AND THEIR ARCHITECT.**—At Workop County-court, on the 7th inst., Augustus George Taylor, architect and surveyor, of New Brighton, formerly of Whitwell, Derbyshire, sued Mr. S. Clarke, of Workop, and others, trustees of the Free Methodist Chapel, Whitwell, for £32 10s., for preparing a plan of a proposed new chapel at Whitwell, and drawing up a bill of quantities for the same. Plaintiff alleged that he was ordered by the trustees to prepare the plan produced. He estimated the cost of the building at £1,300, and for preparing the plan he had charged one per cent. He was also ordered by the trustees to prepare a bill of quantities required, and for this work he had charged 1½ per cent. on the estimated cost of the building, or £19 10s., making in all £32 10s. He considered the charge perfectly reasonable. For the defence it was alleged that plaintiff had informed the trustees that he would prepare an estimate of the cost of the proposed building for a very small sum, that the charge made was most extortionate, that the plan was practically useless and unworkable, being entirely without specifications, whilst the bill of quantities prepared was only a rough sketch of what would be required. His Honour considered it a very fortunate thing that the trustees had not attempted to build with plaintiff's plan, and he considered that the defendants had behaved handsomely in the matter in paying £20 into court. There would be judgment for defendants with costs.

**QUANTITY SURVEYORS' CHARGES.**—**RAVEN AND ANOTHER v. MUNDAY AND SONS.**—The plaintiffs in this case, heard by Mr. Justice Darling in the Queen's Bench Division on Monday, were quantity surveyors, and the defendants were builders and contractors. In 1894 the City of London wanted buildings constructed at Deptford Meat Market; and the defendants carried out the work at a cost of

about £20,000. In reference to the works differences arose, and claims were made upon the one side and the other. There were also additions and omissions in reference to the contract, and the plaintiffs did a good deal of work as quantity surveyors in connection with the work. In this condition of things the city solicitor offered to recommend the city committee to settle the whole matter in dispute by a payment of £5,000; and this proposal was accepted by the defendants, and the money was paid to them. The plaintiffs now sued the defendants for money had and received upon their account, their contention being that the amount paid to the defendants to settle the whole of the matters in dispute must be taken to include the amount due to the plaintiffs for the work they had done, in the course of the building operations, as quantity surveyors. The defendants, on their part, denied that in the course of the settlement of the various claims they had incurred any responsibility to pay the amount claimed by the plaintiffs. Mr. Justice Darling, having heard the evidence on both sides, gave judgment for the plaintiffs for £299 14s. 3d.

**ARBITRATION AT BEXHILL.**—At the Surveyors' Institution, on Wednesday week, Mr. Daniel Watney sat as the sole arbitrator in the case of "Squirrel v. the Crowhurst, Sidley, and Bexhill Railway Company," a claim for compensation in respect of about nine acres of land on the Wakeham's Farm Estate, Sidley, Bexhill. Mr. H. T. Squirrel, the claimant, stated that the development of Bexhill during the last ten years had been phenomenal. The land in question, and in respect of which the net compensation asked for amounted to about £15,000, had been dealt with in comparatively recent years at a very low price, and, though it was over a mile from the seashore, there was a keen demand for sites for houses of from £40 to £50 a year. The development of the estate had been greatly retarded by the uncertainty as to which portion of it the railway would traverse, but, since this point has been settled, numerous sales of sites had been effected at prices which worked out at from £2,700 to £3,000 per acre and upwards. Mr. William Hurst Flint (Humbert and Flint) produced a detailed valuation of the property, and expressed the opinion that it could have been developed rapidly and advantageously. Further evidence was adduced on Wednesday on behalf of the claimant. Mr. James Woodhams (T. H. Woodhams and Sons) estimated the value of the land in question at £18,056, from which he deducted the cost of developing the property as a building estate, leaving a net value of £13,767, which he deferred for three years on the 4 per cent. table, representing in present money £12,238. To this he added the customary 10 per cent. for compulsory sale, £1,223, giving a total of £13,461. Confirmatory evidence was given by Mr. J. B. Wall, A.R.I.B.A., Mr. George W. Veness, Mr. Dodgson Graves, and other experts, and the case for the claimant was concluded. On behalf of the railway company, Mr. G. Humphreys Davies (Humphreys, Davies, and Co.), expressed the opinion that no practical man would buy the land in question as a building speculation at more than £300 an acre. It was all back land, and would be difficult and expensive to develop. It would be many years before the land would be ripe for building. He valued the land taken—9a. 1r. 29p., at £300 per acre—at £2,829, to which he added the customary allowance of 10 per cent. for compulsory sale, and £86 for the severance of a small piece of land, making a total of £3,197. The case was adjourned.

**PUBLIC HEALTH ACT APPEAL.**—**ROBINSON v. SUNDERLAND CORPORATION.**—In the Queen's Bench Division, on Friday, Mr. Justice Lawrence and Mr. Justice Channell heard an appeal from a decision by the Magistrates of Sunderland, under section 305 of the Public Health Act, 1875, for an order authorising the respondents, the Sunderland Corporation, to enter 31, East-street, the property of the appellant, a Mr. Robinson, for the purpose of making plans, surveying, and measuring and making certain work. The respondents, acting under section 36 of the Public Health Act, 1875, upon the report of their inspector of nuisances, had served notice on the appellant, requiring him to provide for the said house a sufficient water-closet, and an ashpit furnished with proper doors and coverings. The notice was not complied with, and the respondents determined to execute the works themselves. The respondents' borough surveyor applied to the appellant for permission to make an entry and examination for these purposes, but the appellant refused such admission. The respondents, thereupon, after due notice to the appellant, applied to the justices under section 305 for an order authorising the necessary entry. At the hearing of the application, evidence was tendered on behalf of the appellant as to the condition of his house and as to the sufficiency of a privy and ashpit there. On behalf of the respondents, the admission of this evidence was objected to on the ground that the question of the sufficiency of the privy and ashpit was a matter to be decided by the respondents under section 36 of the Public Health Act, 1875,

subject only to appeal to the Local Government Board under section 268, and that the respondents having jurisdiction under section 36 to give the notice in question in this matter, the justices could not review such notice, and were not entitled to receive evidence as to the sufficiency of the privy and ashpit. In support of this contention "St. Luke's (Middlesex) Vestry," "Sherborne Local Board v. Bogle," and "ex parte Whitechurch" were cited. The justices being of opinion that they were not entitled to review the decision of the local authority as to the sufficiency of the privy and ashpit, declined to hear evidence thereon, and made the order sought for. They, however, stated the present case for the opinion of the High Court as to whether they were right in refusing to receive the evidence. Mr. Scott Fox, Q.C., for the appellant, contended that the magistrates were wrong in refusing to hear the evidence. On the question as to the power of justices to state a case "Diss Urban Authority v. Aldrich," was referred to. Mr. Tindal Atkinson, Q.C., for the respondents, said the jurisdiction of the magistrates was limited to the inquiry whether it was necessary for the purpose of doing the works for the local authority to enter. He cited "Cooper v. Wandsworth Local Board," and "St. James Vestry v. Feary." The respondent had not applied to the local authority for a hearing. "Hargreaves v. Taylor," "Wood v. Widnes Corporation," and "Attorney-General v. Hooper," were also cited. Mr. Justice Lawrence said the magistrates were right, and the appeal must be dismissed. The question arose on the meaning of the words "sufficient cause" in section 305 of the Public Health Act, 1875 (38 and 39 Vic., c. 55). What was attempted to be shown as "sufficient cause" in this case was that the water-closet did not require alteration. That was not, however, a question into which the magistrates could enter when once a proper order had been made under section 36 of that Act. The magistrates might properly inquire into the regularity or irregularity of the order made by the local authority. As to whether the order was required, the magistrates had no jurisdiction. They were right in refusing evidence on that subject. Mr. Justice Channell concurred. There was no power in the magistrates to enter into the question of the sufficiency of the privy. Section 305 was the section for providing machinery under which the local authority could enter on premises for the purpose *inter alia* of making works. In this case the local authority desired to do away with the existing privy and to substitute a similar construction in its place. To understand the position it was necessary to consider section 36. Its framing clearly made the local authority the judges of the matter. The power of insisting on the substitution of one privy for another depended not on the sufficiency of the existing construction, but on the opinion of the local authority as to its sufficiency. It was not, therefore, within the functions of the magistrates to inquire into the sufficiency. In his opinion, the principle laid down in the case of "Cooper v. Wandsworth Local Board" did not apply. The real point was as to whether the justices ought to hear the evidence as to the sufficiency of the privy. In his opinion they had no such power.

At the London Auction Mart, on Tuesday, freehold ground rents, amounting in the aggregate to £1,749 per annum, secured upon a large number of private residences, dwelling-houses, shops, and other premises, including a block of modern residential flats, situate at Crouch End, Hornsey, St. John's Wood, Brixton Hill, and other suburban districts, were sold for a total of £91,120. The reversion to the rack rentals is in from 60 to 91 years, and the prices realised ranged from 29 to 31½ years' purchase.

An inquiry has been held by Mr. W. O. Meade-King at the Guildhall, Lincoln, as to an application by the City Council for the sanction of the Local Government Board to borrow £19,000 for electric-lighting purposes. It was explained that the population of Lincoln was estimated now at 48,000. The corporation in 1897 borrowed £20,650 for electric purposes, and the whole of that sum was either spent or in process of being spent. The current obtainable was equal to 5,000 8c.p. lamps, but the demand for the light already reached 6,000. The engineer, Mr. C. Vesey Brown, said the present length of cables laid was 4½ miles.

In the Queen's Bench Division, on Saturday, before Mr. Justice Bruce and Mr. Justice Ridley, judgment was given on a case stated by the arbitrator appointed to decide disputes between the Southampton Tramways Company and the Southampton Corporation as to the price at which the corporation should take over the tramways. The question to be determined was whether the company could be compelled to part with the undertaking under section 43 of the Tramways Act, 1870. If so, the arbitrator fixed the price to be paid at £51,605, and if not, at £109,963. Their lordships answered the question in the affirmative, and decided that the award held good for £51,605.



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## ILLUSTRATIONS.

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STUDENTSHIP PRIZE DRAWINGS.—DESIGNS FOR A VILLAGE  
TAVERN.—VICTORIA CLUB AND INSTITUTE, SHEERNESS.—  
HOUSE IN CHURCH LANE, HANDSWORTH.—BRIDGNORTH  
AND SOUTH SHROPSHIRE INFIRMARY.

## Our Illustrations.

PEARL ASSURANCE BUILDINGS, PORTSMOUTH.

This block is being erected in a prominent corner position close to the town-hall in Commercial-road, Portsmouth. Besides the company's own offices, it will comprise four shops, suites of offices on the upper floors, and a private hotel. It is being built with red brick and Portland stone to the main fronts, and the walls of the internal court are being faced with Wortley white-glazed bricks relieved with coloured bands. The dome and cupola will be covered with copper. The carving is being executed by Mr. Syd. Horsman, of London, and the fireproof staircases, &c., by Messrs. J. L. Wilkinson and Co., of Westminster. The building is being erected by Mr. J. H. Corke, of Portsmouth, from the designs of Mr. C. W. Bevis, F.R.I.B.A., of that town. Mr. A. J. Lewis is the clerk of works.

PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS:  
MELROSE ABBEY.

The sketch shows the south transept of Melrose Abbey. It is built of a purplish red stone, with some very strong yellows, which the weather has augmented here and there with patches of green, and which give it a very fine colour effect. The whole tone of the gable is much brighter in colour than any other part of the abbey, owing principally, I think, to its southern exposure. It is supposed to have been built between 1460 and 1480, and is, perhaps, the most elaborate example of 15th-century work in Scotland. The doorway is maintained by some to be an insertion, owing to the fact that the masonry immediately surrounding it is 2in. or 3in. beyond the face of gable, and has been splayed to meet it. This, I think, is really a mason's error in the setting-out, an instance of which can be found in most Mediaeval buildings, and which, being usually allowed to remain, often added an unstudied charm to the structure.

J. HERVEY RUTHERFORD.

[A complete set of R.I.B.A. Silver Medal measured drawings of Melrose Abbey were published in the BUILDING NEWS for Feb. 5 and March 26, 1897. The words "West Front" in the accompanying plate are due to an error.]

"BUILDING NEWS" DESIGNING CLUB:  
A VILLAGE TAVERN.

(For description and awards see page 261.)

VICTORIA CLUB AND INSTITUTE, SHEERNESS-ON-SEA.

The accompanying illustration shows the new assembly-hall and billiard-room for five tables, also the extension of the club premises, which is situate in The Broadway, Sheerness-on-Sea. The institution has been established for many years, and with its large and increasing number of members has outgrown its old building. The contract now in hand will more than double

the present bar accommodation, and the existing billiard-room, which is on the first floor, will be used as a reading-room in future. The large hall, when finished, will seat 600 in the body of the room, and its stage is designed for theatrical performances, with retiring-rooms and accommodation for scenery in a dock below. The great feature of this hall is its octagon-shaped roof, with arches of equal spans surmounted by a continuous girder and cornice. The floor space is rectilinear, and the span is fifty feet. To avoid the necessarily ugly outline of such a roof, if carried out to the ends, where an unmanageable sort of pediment would be presented to the street, the architect has adopted octagonal terminations, and in this way the acoustic properties of the hall are increased, while an architectural character to the interior is obtained by simple, bold, and constructional methods. The proscenium of the stage is formed by one of the before-mentioned arches, and steel ribs resting on the intervening piers form the principals of the roof, and carry the lantern, which is terminated by a lead-covered turret, inclosing an exhaust ventilator. The exterior of the work is faced with red bricks and stone, the porch and doorways being entirely of Portland stone. Messrs. Johnson and Co., of Wandsworth, are the builders of the work already in hand. Mr. Maurice B. Adams, F.R.I.B.A., is the architect.

HOUSE, CHURCH LANE, HANDSWORTH.

This residence, for Mr. W. G. Griffith, is to be erected in Church-lane, Handsworth, in accordance with the accompanying plans. Tamar bricks are to be used externally, with Broseley tiles for the roofs, oak for the half-timbered work, and pitch-pine and red deal for the joinery work. The architect is Mr. R. S. Oldacre, of Birmingham.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.

This building is designed to accommodate eighteen patients—viz., eight in male ward, eight in female ward, and two in private ward. All the accommodation for patients is on the ground floor; on the south of the central block is the out-patients' department, on the north is the kitchen department, with yard and detached laundry and mortuary block, while the wards are to the west, and connected to the central block by a cross-ventilated corridor; the upper story of central block is devoted to nurses and servants. The alignment of the large wards was adopted for the purpose of allowing a more even distribution of sunlight than would result from keeping them in a straight line, and also for convenience of administration. The ventilation is attained by concealed roof ventilators and by fresh-air inlets through hot-water radiators. The building generally is heated by hot-water pipes and radiators, supplemented by fireplaces in each room. The infirmary is built of bricks, all external walls being of hollow construction and faced with Ruabon bricks, the upper floor being faced with tile-hanging, with the gables of central block being of oak framing and rough-cast; and the roofs are boarded, felted, and covered with brindled Broseley tiles. The contractor was Mr. R. Merton Hughes, of Birmingham, and the laundry fittings are by Messrs. Bradford and Co., of Manchester. Mr. Edward C. H. Maidman, of 13, South Charlotte-street, Edinburgh, is the architect, whose design was selected in a limited competition confined to architects of hospital experience, Mr. Alexander Graham, Past Vice-President of the Institute of British Architects, acting as assessor.

The directors of John Oakey and Sons, Limited, propose a final dividend upon the Ordinary Shares of 5 per cent. for the half-year ending December 31 last, together with a bonus of 2½ per cent., making 12½ per cent. for the year; to pass £3,000 to reserve, making that fund £39,234 16s. 10d., and to carry £898 13s. 3d. forward to next account.

The Hon. W. F. D. Smith, M.P., is erecting an elementary school, with master's residence, and also almshouses for the village of Hambleton, Henley-on-Thames, in memory of his father, and also to commemorate the Diamond Jubilee of her Majesty.

The late Mr. H. Hicks, the well-known Peterborough builder, has left personal estate to the value of £30,000. The testator bequeaths to his wife an income of £600 a year, the surplus to accumulate until it reaches £1,600, which is then to be divided amongst his brothers and sisters, amongst whom the estate is to be divided on the death of his widow.

## ROYAL ACADEMY ARCHITECTURAL DRAWINGS, 1899.

THE days for sending in drawings and paintings this year have been fixed for March 24 and 25, the last day being Monday, the 27th. Sculpture will be received on the 28th.

Our friends and contributors who are willing to allow us to reproduce their drawings before they are sent to Burlington House, so that their works may be included in our series of illustrations from the Royal Academy Exhibition, to be published after the opening day, are invited to let us have them as soon as convenient for this purpose. We will return the drawings quickly, or, if desired, we are willing to forward them to the Academy direct, provided the necessary labels and letters to the Secretary are attached; and we will do this free of charge.

## CHIPS.

The Elgin Bridge, at Gogra, Bahramghat, was opened on Jan. 25th. It links the Bengal and North-Western Railway Trans-Gogra system with other lines, broad and narrow gauge, to the south and west. It consists of 17 spans of steel girders of 200ft. on the clear. The total cost has been £306,500. Mr. W. J. Turnbull has been the resident engineer in charge of the construction.

At the last meeting of the Council of the Royal Society of Painter-Etchers and Engravers, Mr. E. Bramley-Moore was elected an Associate.

During the exploration connected with the Roman Forum there have been discovered, near the Temple of Antoninus, some interesting fragments belonging to the Temple of Julius Cæsar.

A public recreation ground has been secured by the Peterborough Corporation for £11,000. The property had been advertised for public auction, but the corporation bought it in.

The city council of Sheffield have decided to make a start with a scheme for building houses for working men by constructing a group of twenty dwellings at Walkley.

It is proposed to rebuild the nave of the parish church of West Malling, in accordance with plans prepared by Mr. J. T. Micklethwaite, F.S.A., at an estimated cost of £4,000.

The Eastbourne Town Council have decided to purchase a picturesquely-wooded area called The Decoy, at Willingdon, for the purposes of a public park. It comprises 82 acres. In conjunction with this purchase the council resolved to construct a low-level drive from Eastbourne to Willingdon.

A new clock, striking the hours on a 16cwt. bell and the quarters on two large bells, is about to be placed in the turret of the Guildhall at Newcastle-on-Tyne. The two external dials are each 5ft. 3in. diameter, and a Grimthorpe double-legged gravity escapement will be provided. Messrs. W. Lister and Sons, of Grey-street, Newcastle, are the makers.

Very extensive alterations are being planned by the Great Eastern Railway Company in connection with Histon Station, in the Isle of Ely. Four acres of land have been purchased on the Cambridge or south side of the line, whereon will be erected new good-sheds, offices, sidings, &c. The surveys have been at work several days, and operations will commence shortly. The accommodation for passengers will also be largely extended.

A half-length portrait of the late Mr. Henry Lee, F.R.C.S., senior consulting surgeon to St. George's Hospital, by Mr. James Sant, R.A., has been presented by his widow to the Royal College of Surgeons.

The excavating and foundations of the huge hotel on Kirkley Cliff, Lowestoft, being well advanced, the contract for the erection and completion of the building has been given to Messrs. William Johnson and Co., Limited, of Wandsworth Common, London, at about £76,000. Messrs. Isaacs and Florence, of Verulam Buildings, Gray's Inn, are the architects.

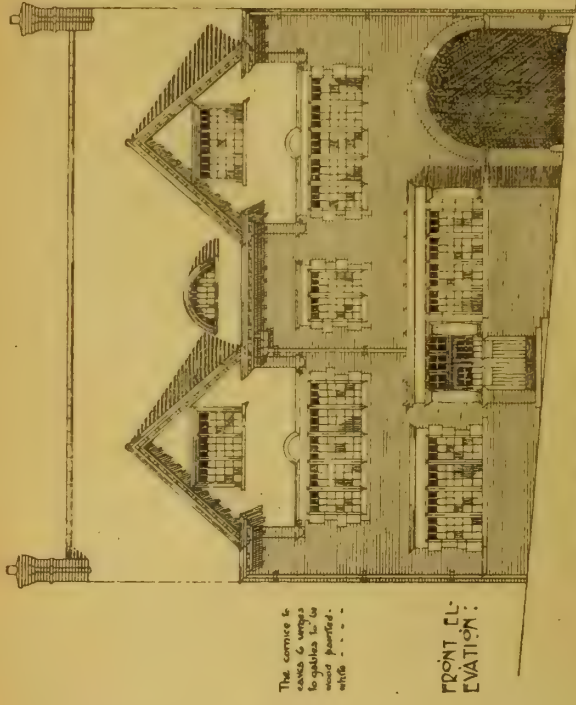
A font cover is about to be placed in the parish church of Grantham as a memorial of the Diamond Jubilee. The work will be carried out by Messrs. Rattee and Kett, wood-carvers, of Cambridge, at a cost of over £340.

The foundation stone of the new church of St. Peter, South Tottenham, was laid on Saturday afternoon. The new church, which is to be early Gothic in style, will provide accommodation for 800 persons, and will cost about £8,000. The building materials are red bricks and Weldon stone dressings.

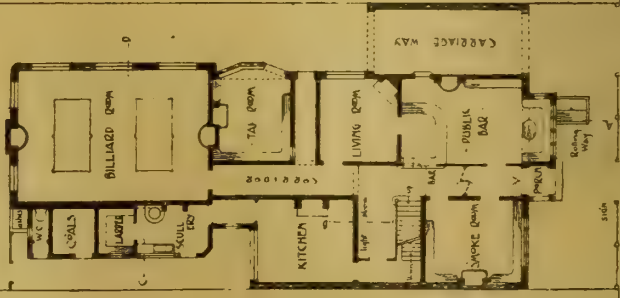
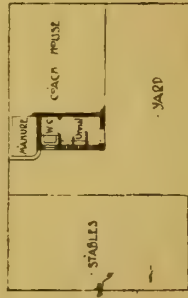
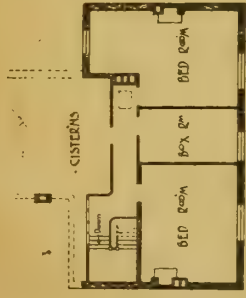
The city council of Truro have instructed Mr. George D. Bellamy, of Plymouth, to prepare plans for the improvement and enlargement of the cattle market at a fee of 53 guineas, said fee to merge in a commission of 5 per cent. if Mr. Bellamy is intrusted with the supervision of the work.



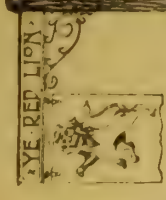
• PLACED THIRD •



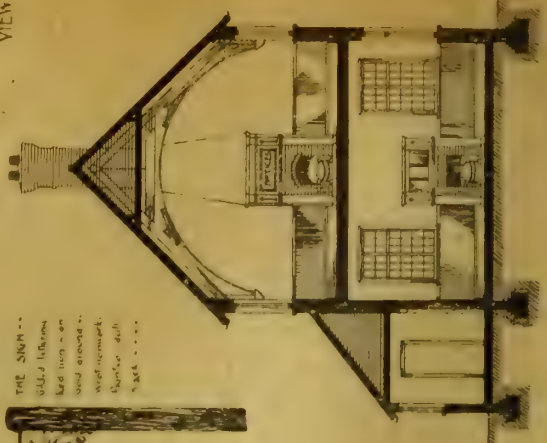
The cornice to eaves & verges to gables to be wood painted.



B. N. P. C.  
A VILLAGE  
TAVERN &  
BY "NOTRE"



THE SIGN --  
WILL BE  
HUNG IN  
THE  
KITCHEN  
--



VIEW

SCALE 1" = 10' 0"

SCALE 1" = 10' 0"











Pearl Assurance Buildings  
Portsmouth  
C.W. Bevis F.R.I.B.A. Architect Southsea



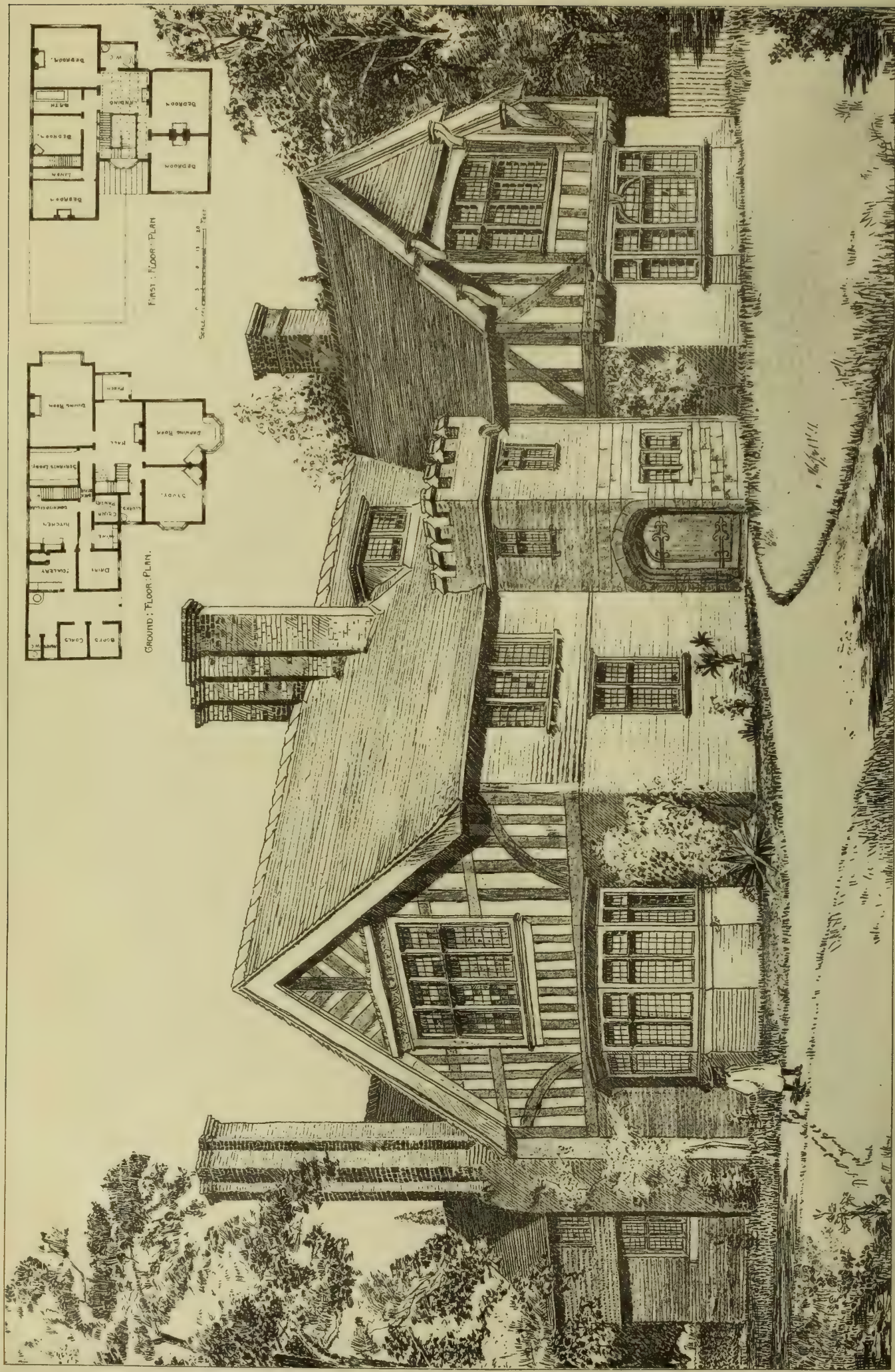










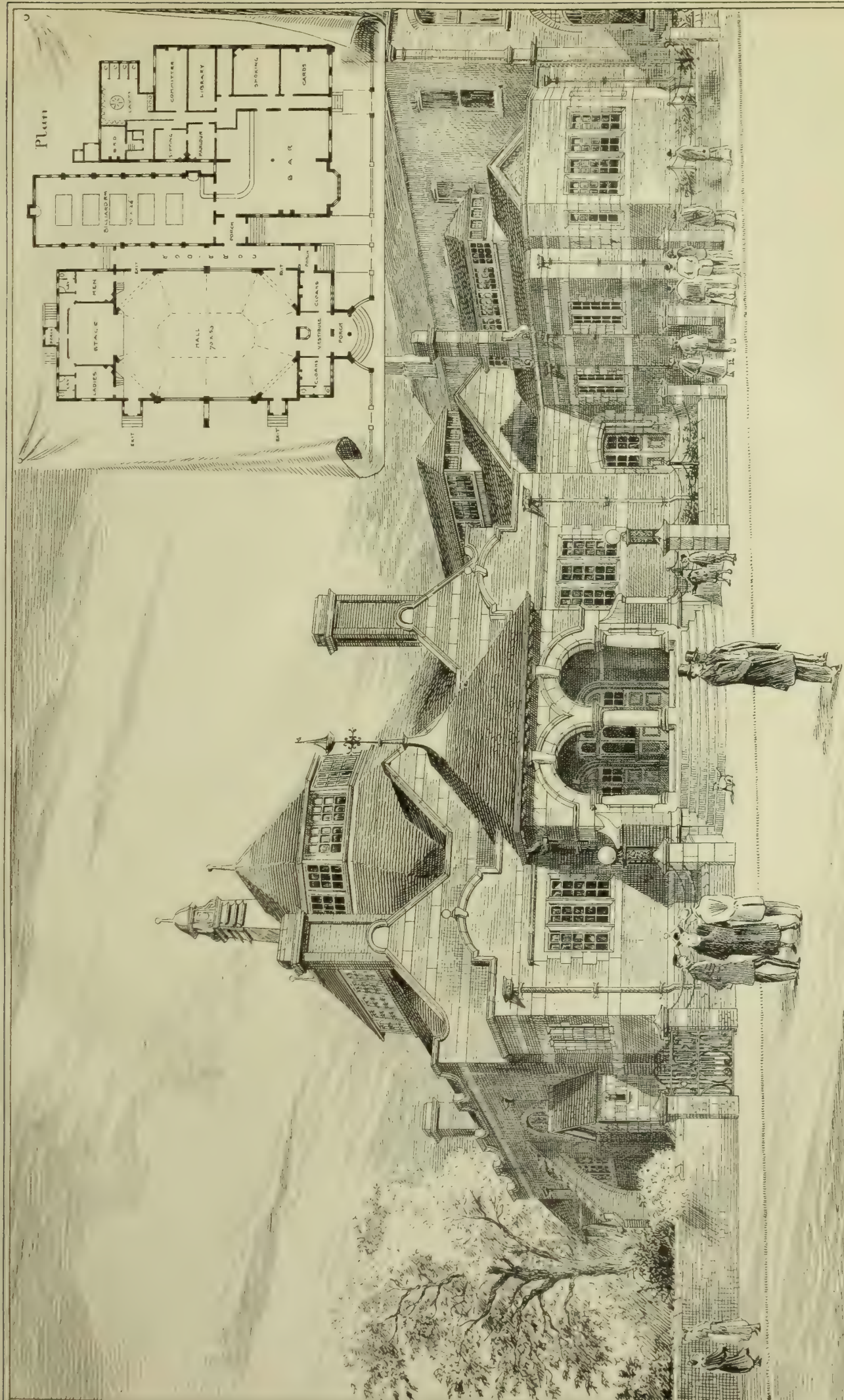


House about to be erected in Church Lane Handsworth : R.S.Oldacre Archt.

PHOTO-TINT BY ALFRED NICHOLS & SONS, LONDON, W.C.



THE BUILDING NEWS FEB. 24, 1899.



THE VICTORIA CLUB AND INSTITUTE SHEERNESS *on SEA* NEW HALL, BILLIARD SALOON & MAURICE B. ADAMS F.R.I.B.A. ARCHT.









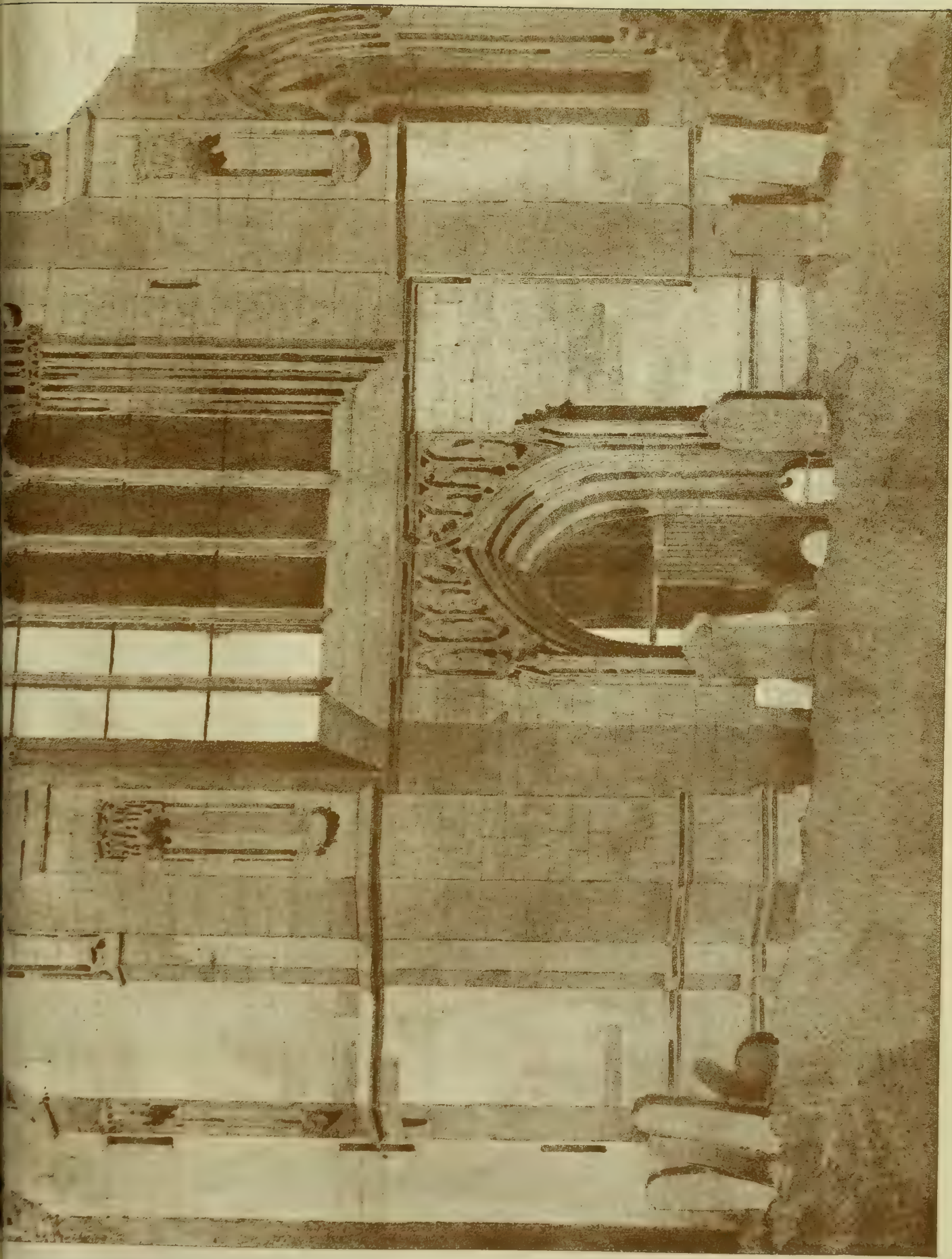


THE BUILDING DEWS FEB. 24, 1899.

MELROSE ABBEY. WEST FRONT.



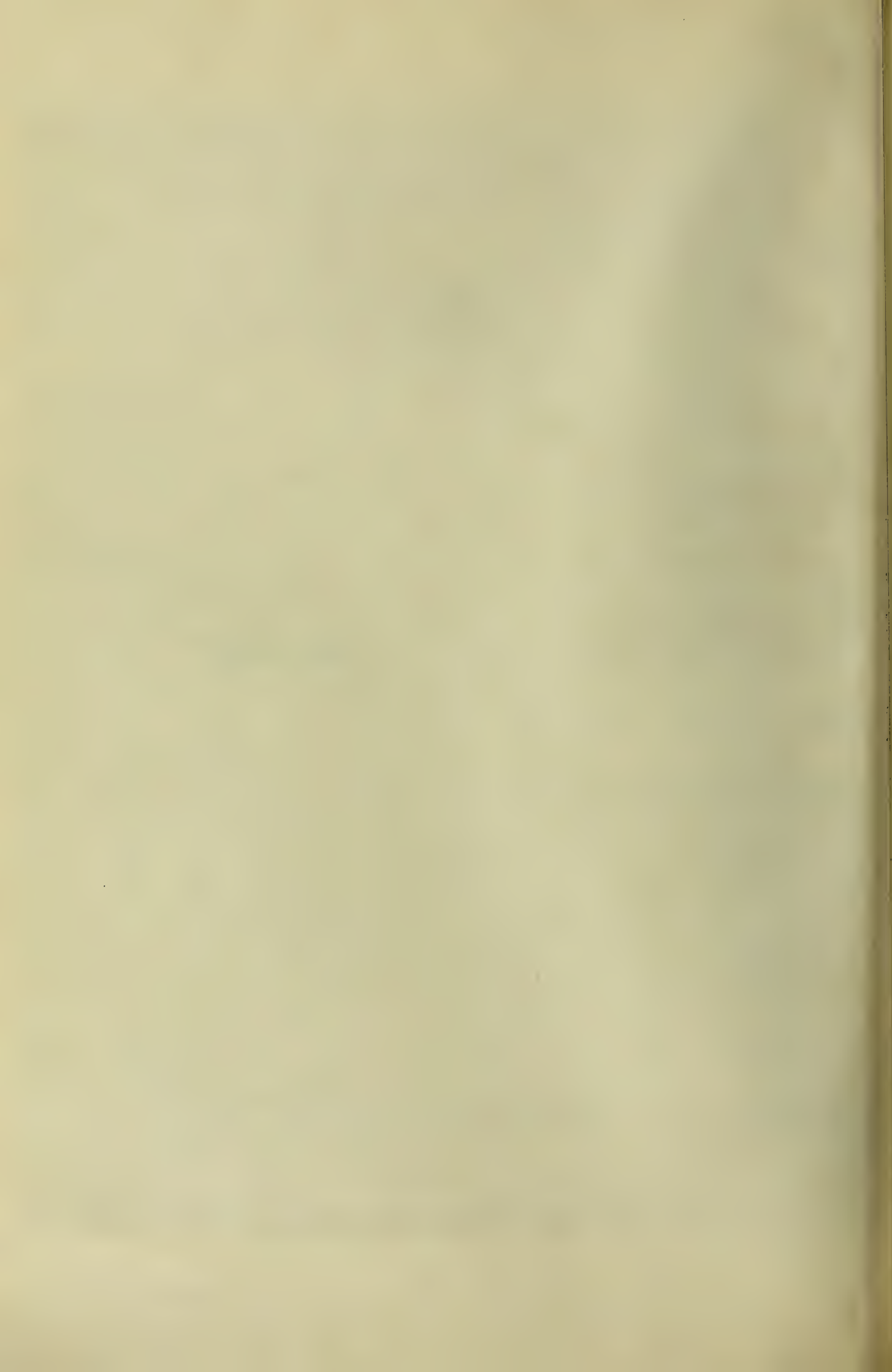




°PUCIN STUDENTSHIP PRIZE DRAWINGS° DRAWN BY HERVEY RUTHERFORD

PHOTO-TINT











# BUILDING · NEWS · DESIGNING · CLUB · · SUBJECT · D · A · VILLAGE · TAVERN

BY  
"THISTLE"



BILLIARD ROOM

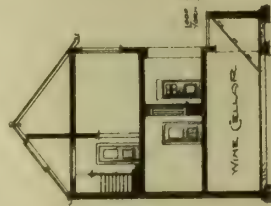
ELEVATION & SECTION THRO' GARAGE ENTRANCE

SCALE OF FEET FOR ELEVATIONS

SCALE OF FEET FOR PLAN

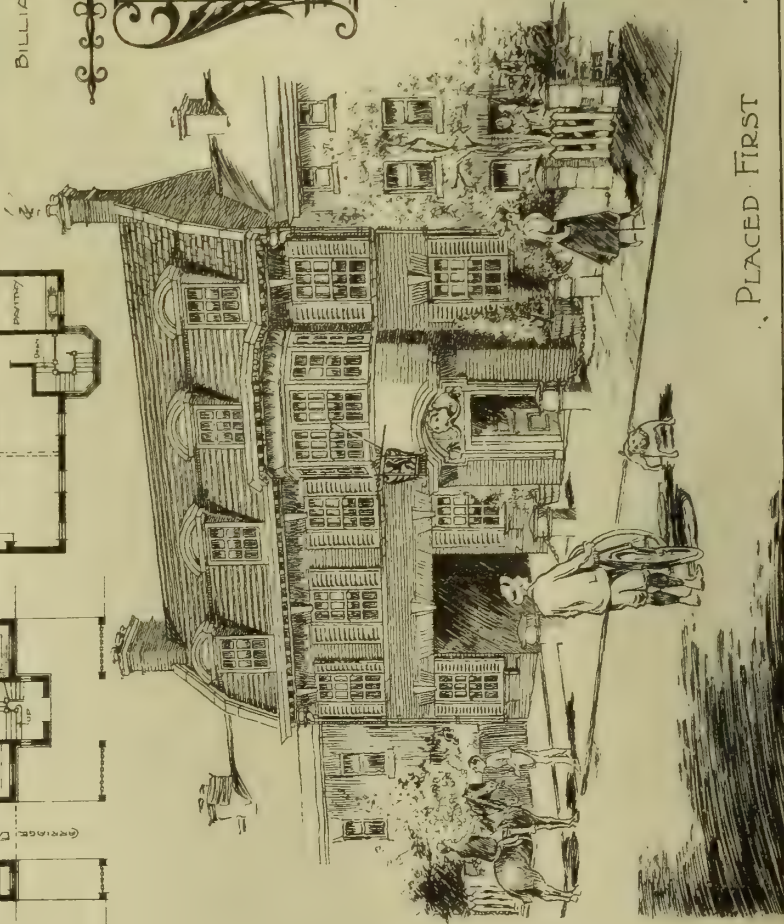


DETAIL OF SIGN  
(LIGHT PAINTED RED)



SECTION THRO' SITTING ROOM

PLACED FIRST

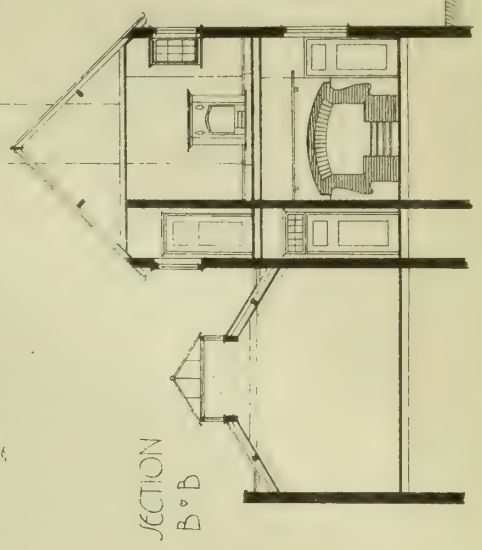
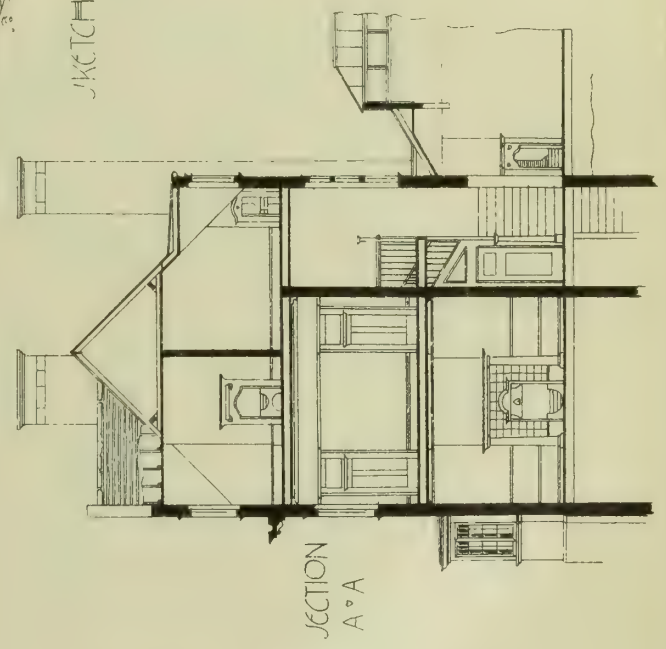
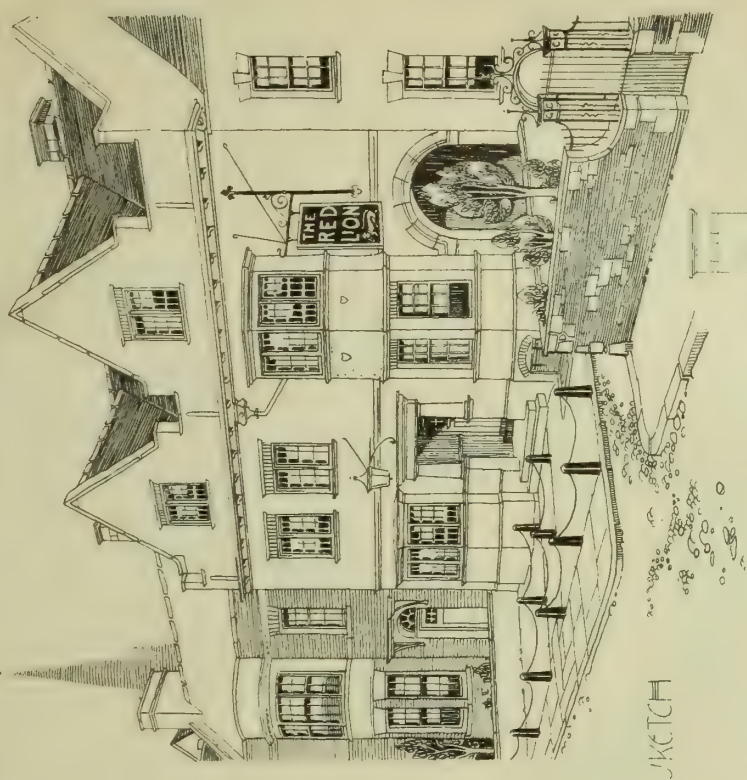
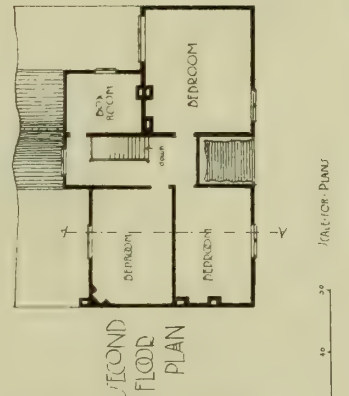
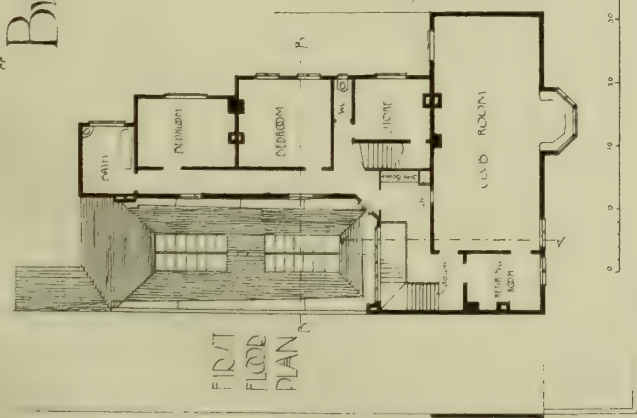
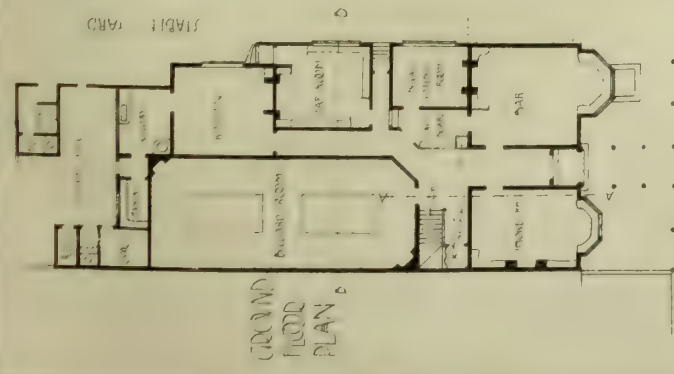


ELEVATION TO MAIN STREET



# "Building News Design Club"A Village Tavern by Mc Gilligan.

• PLACED SECOND •



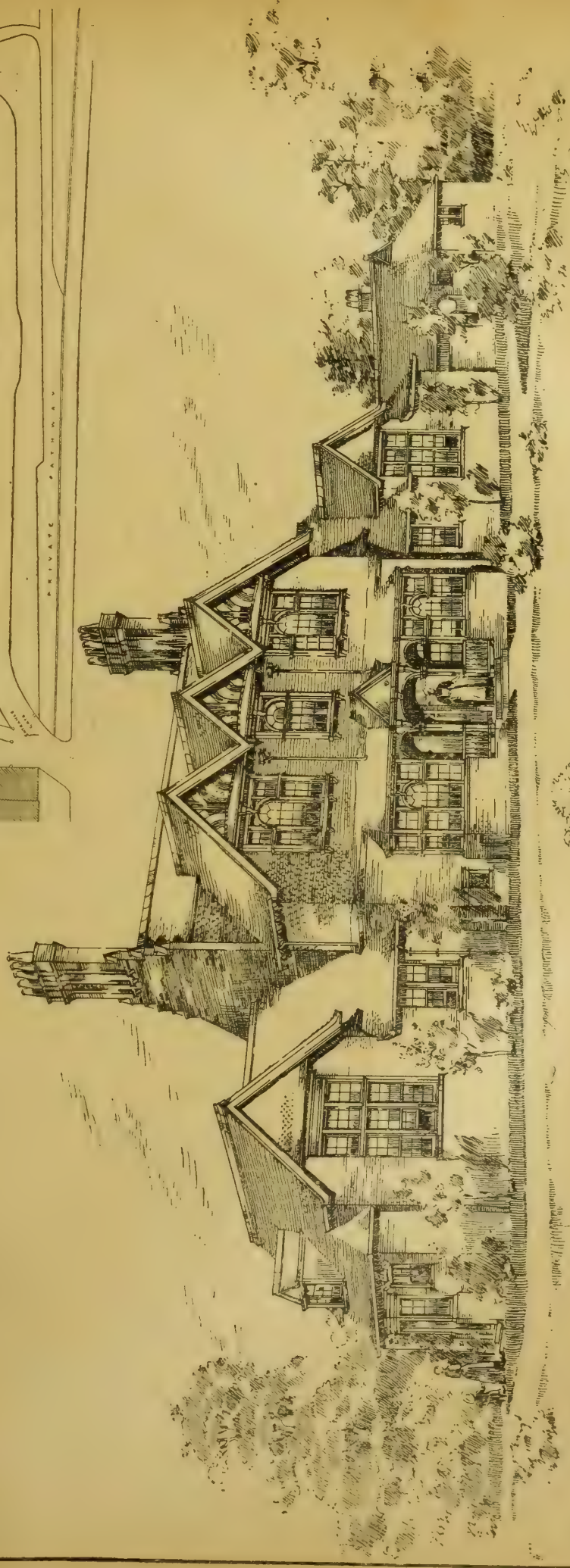
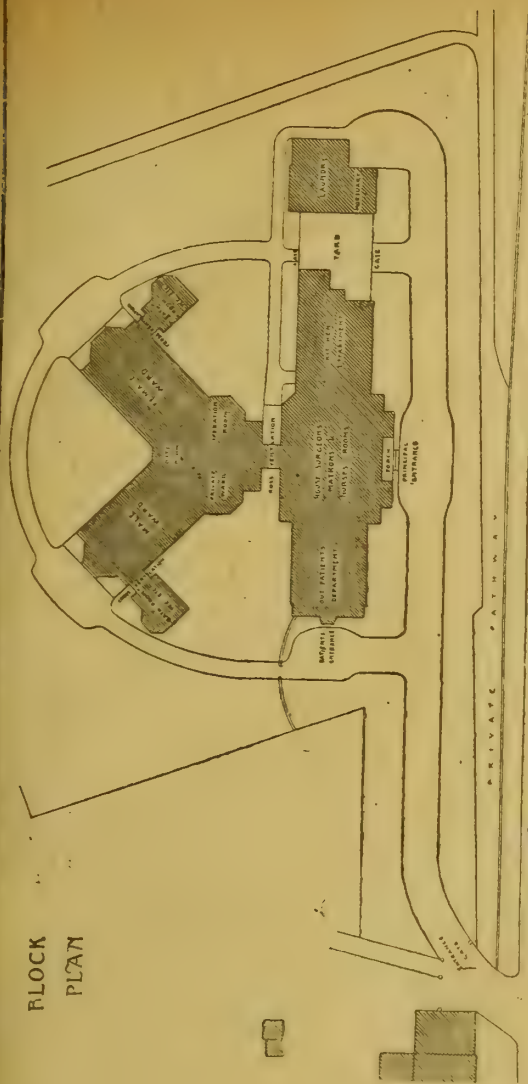
SCALE FOR SECTION ELEVATION AND SECTION







FLOCK  
PLAN



2 feet 6 inches deep

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.

Edward C. H. Maidman, Architect.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 6s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLIX., LI., LIII., LIV., LV., LIX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volumes just ended should order at once, as many of them soon run out of print.

C. B. GORDON. (Usually all jobs would be completed; but it is, of course, entirely a matter in the discretion of the trustee acting under the direction of the Court.)

RECEIVED.—A. N. F.—W. E. C.—M. T. and Co.—W. B. and W. S.—K. G. (Gosport).—R. F. A.

## "BUILDING NEWS" DESIGNING CLUB.

STUDENT. (It is very late in the day to criticise a design published so long since as 1896; but we are glad to know that the Club designs do get studied in this way. We spoke at the time of the failure on the part of the contributors for the particular subject mentioned to submit a really satisfactory solution of the problem. It is a common fault not to provide adequately for the support of chimney-shafts, and we are continually pointing it out.)

## Correspondence.

## OFFICIAL SUPERVISION OF BUILDINGS.

To the Editor of the BUILDING NEWS.

SIR,—I have been expecting that somebody would follow the able letter of Mr. Ellis Marsland on the subject recently discussed at the Surveyors' Institution. Mr. Weaver seems fond of trying to write smartly; but his paper is full of opinions, without arguments or facts. I have always thought that parish surveyors had plenty to do; yet Mr. Weaver seems to think that he would have plenty of time to perform his present duties, and those for many years performed by Mr. A. Fred Williams and Mr. Hart. Surely it would not benefit the public to have Mr. Weaver's clerks carrying out the Building Act in Kensington, and it is a move exactly opposite to that for which the County Council has been striving.

The object of the new system of the Council is to secure the personal attention of the gentleman appointed as district surveyor. The main point in the discussion appears to have been the proper construction of water-closets; that the district

surveyor could not stop their being constructed without a window in an external wall. Surely a simple clause in the Council's General Powers Act could alter this.

Then drains get mixed up with the Building Act. Builders are not infants fresh from the nursery; they know that they have to give notice to both district and parish surveyors for buildings and drains respectively.

Major Isaacs, who has been so fortunate as to make a large practice while acting as parish surveyor, is entirely wrong as to the value of the districts now offered. He states well under £500, whereas it is a fact that they are about £1,000. The last two filled up averaged £1,000, and several of the amalgamated districts amount to very much more.

Major Isaacs should know that many district surveyors have a good office with one or more clerks. A large staff is not required, as the office is personal. Then the office is paid for by the district surveyor: he has not spacious rooms provided in the town hall at the expense of the ratepayers.

I heard the paper read on the Dean of Guild Court, and it appeared to me that there was a great deal of fuss and red tape over a very small matter.

Coroners are independent officers: why should not district surveyors be? They have definite Acts to administer, and during all these years no fault has been found with them, and I cannot conceive how the work could be better done if the local butcher and baker had a finger in the pie. Give the new bodies greater powers, and do something to secure better men to serve on these bodies, as at present many of the members are very inferior men.

London must have a powerful central body which should control sewers, new streets, the Building Act, tramways, gas, water, and many other things.

The present system secures uniformity of practice, as the district surveyors consult and discuss vexed questions, whereas with Mr. Weaver's system we should soon have the Kensington version and the Whitechapel version with points strained for or against friends or enemies of vestrymen. Leave the system of over fifty years alone.—I am, &c.,

HENRY LOVEGROVE.

124, High-street, Shoreditch, E.

## LONDON BUILDING ACT, 1894.

SIR,—On December 17, 1897, a circular was sent to the members of the R.I.B.A. with reference to proposed amendments to the above Act. I believe nothing further has been done. The hardships and difficulties of the Act are well known to all architects, and I venture to appeal to you. If some of the leading members of the profession would take the matter up, a short Bill might be drafted to settle some of the doubtful points.—I am, &c.,

Q. R.

## BRADFORD CENTRAL FIRE BRIGADE STATION COMPETITION.

SIR,—We shall feel obliged if you will allow us to draw the attention of your readers to the most unusual manner in which this competition is being conducted. The sub-committee appointed to make a selection met last Thursday, Feb. 16th. The drawings were exhibited to the public on Feb. 17th and 18th in the Free Library, Bradford. No official notice was sent to the competitors of this exhibition. It therefore appears to us manifestly unfair and unjust that those persons chiefly interested should be kept in ignorance of what is taking place, and thus be deprived of an opportunity of examining the merits of the designs submitted.

Upon a competitor (who, by the merest chance, happened to discover this state of affairs) asking an official at the public exhibition where the three premiated designs were, he took him to the art gallery and pointed out the three selected schemes. He pointed out to the official that the first premiated design embraced three distinct schemes, and asked him which of them had been selected by the sub-committee; he thereupon replied "No single scheme has been selected, but the whole three collectively." How, we would ask, Sir, can three schemes collectively be compared with any one other scheme in a competition? There are other singular features about the actual selection made which would provoke a great deal of adverse criticism and dissatisfaction by those concerned.

The selection made has not yet been confirmed by the corporation, and we therefore suggest to other competitors that they at once combine to enter a strong protest against this method of procedure, and endeavour to prevail with the authorities to appoint the professional assessor alluded to in the conditions, a suggestion under these circumstances they will probably see the wisdom of adopting, and to hold a more extended exhibition of the drawings to enable all competitors to inspect the various designs submitted.

We shall be happy to receive the names of those who competed, and at as early a date as possible.—We are, &c.,

(Signed) FOYNSIE AND MAULE.

H. W. WILLS AND JOHN ANDERSON.  
G. P. ALLEN AND SHIELDS.  
BEST AND CALLOW.  
ERNEST E. FETCH.  
H. INIGO TRIGGS.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS AND TAVISTOCK-ROAD COMPETITION, PLYMOUTH.

SIR,—Herewith I send you copy of letter I received on Saturday last from the secretary of the Royal Institute—a statement quite voluntarily made, the importance of which one cannot overestimate.—I am, &c.,

B. PRIESTLEY SHIRES, A.R.I.B.A.,  
Hon. Sec. Three Towns Branch Devon and Exeter Architectural Society.  
Central Exchange, Whimble-street, Plymouth,  
February 20, 1899.

[COPY.]

Royal Institute of British Architects,  
London, W., 17th February, 1899.

"PLYMOUTH—TAVISTOCK ROAD COMPETITION."

Dear Sir,—I am desired by the Competitions Committee to write to you with reference to Mr. Sidney Smith's, F.R.I.B.A., accepting the assessorship. Mr. Smith acted as assessor entirely without the knowledge of our Council. I wrote to him, expressing regret at his having so acted. I received a letter from him in reply, explaining the circumstance in which he went to Plymouth, and stating that he was entirely unaware—until he had made his award—of the matter having been brought to the notice of the Institute. The committee think that, in fairness both to Mr. Smith and the Council, you ought to be made acquainted with these facts.—I am, dear Sir, yours faithfully,  
B. Priestley Shires, Esq. W. J. LOCKE, Secretary.

## CHIPS.

At the Wesleyan Chapel, Halesford, near Nottingham, a new organ, built by Messrs. Alex. Young and Sons, of Manchester, at a cost of £375, was opened on Thursday in last week.

The senators of St. Andrew's University has resolved to confer the honorary degree of Doctor of Laws upon Mr. David McGibbon, architect, of Edinburgh, the author of various illustrated works on Scottish ecclesiastical and castellated architecture.

Justices Bruce and Ridley on Saturday gave judgment on a special case stated by an arbitrator. Mr. J. Nuttall, a contractor, had constructed the railway between Lynton and Barnstaple, and had executed certain works, for which he sought to be paid "extras." The arbitrator, Sir James W. Szlumper, had awarded him in all nearly £26,000, but the company contended that this was wrong in law, as the contractor, on executing the work, had not fulfilled the conditions of the agreement in writing, which was binding. The Court upheld this view, and entered judgment for the railway company, with costs.

Messrs. Chas. P. Kinnell and Co., of Southwark, as and from Jan. 1, 1899, have resolved themselves into a public limited liability company. The whole of the responsibilities of Chas. P. Kinnell and Co. have been taken over by the new company, and will be discharged by Chas. P. Kinnell and Co., Ltd. No share or debentures in the company have been allotted to the public. The business will be continued, as in the past, under the title of Chas. P. Kinnell and Co., with the necessary qualification "Limited." The alteration in the constitution of the firm has arisen through family reasons only. The responsible working partners of Chas. P. Kinnell and Co. will form the directorate of the new company, which will without doubt continue to deserve and increase the old prosperity and high reputation of the firm.

The only remaining portion of vacant land belonging to the City Corporation on the Victoria Embankment will shortly be let on a building lease by public auction. It possesses an area of 9,000ft., with a 70ft. frontage to the river, and is situated between the land which was recently sold to the Metropolitan Asylums Board for £53,000 and the new offices of the National Telephone Company, who pay a rental of about £2,000 a-year.



# Intercommunication.

## QUESTIONS.

[12192.]-**Sound.**—I should be glad if any of your correspondents could give me the name of a book treating of sound in connection with public halls, &c., and the rules which should govern the planning of buildings to obtain the best results from the point of view of the singer or speaker.—G. T. BASSETT.

[12193.]-**R.I.B.A. Exams.**—Would any reader kindly inform me as to what diagrams are required for the sheet of constructive masonry in the testimonies of study for the final exam. of the R.I.B.A.? Al-o. what is the best book to obtain the necessary information from?—STUDENT.

[12194.]-**Inspection of Buildings by District Surveyor.**—After the completion of a building erected under the London Building Act, can the district surveyor inspect the building? What are the limits of his inspection? I am told it is 14 days after completion.—IN DOUBT.

[12195.]-**Estate Clerk of Works.**—What are the requirements of an estate clerk of works? Is it necessary for him to have all the training and technical accomplishments of the clerk of works engaged in large buildings? I shall be obliged for any information of the studies and books required, and what the duties are generally.—BUILDERS' PUPIL.

[12196.]-**Vagaries in Design.**—In the recent Soane Medallion designs for Concert Hall, there were a few designs of a really astounding character, violating every tradition of style; the details were crude, and shocked one's sense of architectural proportions. Will any reader versed in these extraordinary attempts of the so-called "advanced" school explain the principles upon which these designs are based?—A LEARNER.

[12197.]-**Measurement of Stone Steps.**—Will an experienced surveyor explain the best way of measuring the labour on spandrel steps of the usual kind of Portland stone? One rule given is to take the plain, sunk, or moulded work to the tread, riser, and end of step, and to take the soffit as plain. How are these surfaces to be measured?—A NOVICE.

[12198.]-**Calculating Cubic Space for Ventilation.**—I should like to be informed what space should be allowed per individual in a hall to insure good ventilation. What does an adult in each expiration give out?—authorities differ. One gives 8000 in. per minute, another 1000, another 600, and so on. The question may be put, What quantity of air does an adult require per minute? If this is known, it is easy to decide upon the dimensions of the room to give the required cubic space for individuals to be accommodated. Are there any elementary books on the subject?—A. J. K.

[12199.]-**Re Tithe-Rent Charge.**—If suburban land is taken on a long lease on a ground-rent secured by buildings erected upon it, who is liable for the tithe-rent charge, the lessor or lessee? In any case, has not the lessor to pay it according to "an Act" of 26th March, 1891, "to make better provision for the recovery of tithe-rent charge, &c.," and recharge to the lessee, if the latter is liable? No mention is made of the tithe-rent charge in the lease. Where can the total tithe charge of a parish be obtained, and is all the land in the parish equally liable, or is some land, although built upon, exempt, through being originally moorland, &c.? A little light thrown upon the subject would be esteemed.—A. BEAVER.

## REPLIES.

[12185.]-**Certificate.**—Forms of certificate vary. The following is a usual form:—"I hereby certify that, in my opinion, Mr. Brown, the contractor of ———, is entitled to receive the sum of (say) one hundred pounds, as the first instalment on account of contract dated.

"Contract £ ———.  
"Dated ———. (Signed) A. SMITH, Architect."  
—AN ARCHITECT.

[12185.]-**Certificate.**—Messrs. Sprague used to keep a certificate-book, but it would be easy for "Technical" to draw up a form and have it lithographed.—H. L.

[12186.]-**Certificate.**—A form of certificate sometimes used is:—"No. —. I hereby certify that ———, of ———, may be paid the sum of £ — as a, or the ——— instalment on account of ——— contract for the above.

"Contract ..... £ .....  
Extra works (estimated) £ .....  
"Paid £ .....  
"£ ..... Balance to meet  
this certificate. (Signature) ———"  
—IGNATIUS.

[12188.]-**Quantity Surveying.**—Angles would be measured only for small pilasters or other ornamental work, not for the ordinary angles in ordinary brickwork.—SURVEYOR.

[12187.]-**Wet Granite Walls.**—Whether you have faith or not in anti-damp liquids, the fact remains that you can see in pamphlet of Carbolineum Avenarius, of Peters, Bartsch, and Co., Derby and London, a long statement by the well-known architect William White, of Wimpole-street, dated May, 1899, giving particulars of his own observations on granite rubble walls of Leusden Church, Devonshire, on highest ground in Dartmoor, and speaking highly favourably thereof. Others can be quoted from, and seen at Derby.—BRIGHT'S PARK.

[12187.]-**Wet Granite Walls.**—Try White's "Hygeian" Rock Building Composition. It can be applied to walls internally or externally. Cement is not always reliable. I believe this composition will be effectual if done by the directions of the manufacturer. (See advertisement).—G. H. G.

[12188.]-**Encroachment.**—From the particulars given and sketch, I hardly know what B's objection is, or how A's cornice can encroach on his rights unless it darkens any window; but there may be some grant of

ease. If B. owns the footpath, A's cornice is an encroachment. No opinion is possible unless all the facts are known.—G.

[12189.]-**Encroachment.**—If A's cornice only abuts against B's wall, there cannot possibly be any encroachment, and B's complaint is most trivial.—H. LOVEGROVE.

[12189.]-**Society of Architects Examination.**—The subjects of examination are (1) planning and design, (2) architectural history, (3) construction, (4) materials, (5) specifications, (6) measurements and valuation, (7) contracts, (8) sanitary science. We shall be pleased to send "Phil" a detailed syllabus and any other information he may desire respecting the Society of Architects if he will write to—C. MCARTHUR BUTLER, Secretary of the Society of Architects, St. James' Hall, Piccadilly, W.

[12189.]-**Society of Architects Examination.**—Particulars of the Examination of the Society of Architects are to be obtained from the Secretary of the Society, St. James' Hall, Piccadilly, W.—G. A. T. MIDDLETON.

[12189.]-**Society of Architects Examination.**—"Phil" should apply to the Secretary, St. James' Hall, Piccadilly.—H. L.

[12190.]-**Ornamental Ceilings.**—Wooden moulded ribs can be formed by moulding edges of joists, and forming the panels by ribs scribed to them between; or the ribs may be put on independently of joists, and screwed to them. Plaster slab decorations are fixed to grounds, or screwed to joists with composition screws. It is better to plaster or board the surface.—J. D.

[12191.]-**Architectural Tours.**—For some years past I have conducted Continental sketching tours at Easter and Whitsuntide, and if "A Student" will write to me at 19, Craven-street, W.C., I shall be pleased to let him know what arrangements I am making for this year.—G. A. T. MIDDLETON.

[12191.]-**Architectural Tours.**—"A Student" should himself arrange a tour in a particular district, and after making a careful itinerary he should make notes from standard works on the buildings he proposes to visit.—H. L.

## WATER SUPPLY AND SANITARY MATTERS.

LONDON WATER COMMISSION.—At the meeting of the Royal Commissioners on Monday, Mr. Frederick Tendon, chairman of the Grand Junction Water Company, gave further evidence as to the future probable requirements of his company, and said that its water compared favourably with that supplied by any other company. Mr. Wilkins, secretary to the Lambeth Company, said his company would not be willing sellers of their undertaking. He objected to the arbitration clauses suggested by the London County Council as being confiscatory in tendency, and characterised the sinking fund as most atrocious. At Tuesday's sitting, the witness gave further evidence against the Council's policy of purchase and against any special arbitration clause.

BISHOPSTEIGNOTH.—The new reservoir for the better supply of water to the parish of Bishopsteignoth, near Teignmouth, was opened last week. The reservoir is situated at Ash Hill, and has a capacity of 11,000 gal. The work of erecting the reservoir and laying the mains was carried out by Messrs. Best and Hawking, Teignmouth.

## CHIPS.

Nineteen gold medals in seven years is the record of the Y&T typewriter, the latest addition to this formidable list of honours being the highest award at the Industrial and Art Exhibition recently held at Grahamstown. South Africa is well to the front in recognition of the merits of the Y&T machine.

Colonel W. Langton Coke, C.E., an inspector of the Local Government Board, held an inquiry at the Manchester Town Hall on Friday into an application of the Manchester Corporation for a provisional order to enable them to put in force, with reference to lands at Carrington and Flixton, required by them for purposes of sewage disposal, the powers of the Lands Clauses Act with respect to the purchase and taking of lands otherwise than by agreement. The area in question covers some 213 acres, and it is sought to use it for sewage purposes. It was stated by opponents of the bacterial system that should it be finally adopted, the city will have to spend another £400,000 in carrying out the works.

The annual dinner of the Southampton and District Builders' and Decorators' Association was held at the Swiss Cafe Restaurant, Southampton, on Wednesday evening week, when there was a large attendance. Major Brinton, ex-president of the association, occupied the chair.

Col. A. J. Happer, R.E., one of the inspectors of the Local Government Board, attended at the Town-hall, Ipswich, on Wednesday week, to hold an inquiry into an application by the corporation for sanction to a loan of £1,445, in order to carry out the improvement of Short-lane, St. Helen's. The town clerk, Mr. Wm. Bantoft, and the borough surveyor, Mr. E. Backham, explained the proposals, showing that the thoroughfare will be widened from 7 ft. to 25 ft.

# Our Office Table.

THE spring exhibition at the City Art Gallery, Leeds, was opened on Monday, and is of considerable interest. Among the 266 oil-paintings hung are Watts' well-known portrait of Walter Crane; "The Wind on the Hill," by the late T. Hope McLachlan; Henry Draper's "Lament for Icarus" (lent by the Chantry Trustees); "The Old Guards Cheer Her Majesty," by Professor Herkomer; "The Lonely Church," by A. E. Waterlow; and H. H. La Thangue's "Sussex Cider Press." Landscapes are sent by Leslie Thomson, Austin Brown, Frank Dean, and J. Aumonier, portraits by John Lavery and J. Senior, and the genre works include Edgar Bandy's interior of a meeting house, "The Word"; "Little Mischief," by Gemmell Hutchinson; and A. A. Discow's "Pied Piper of Hamelin."

MESSRS. LONGMANS, GREEN AND CO. are now issuing some admirable folios, at three shillings each, net, of reproductions from specially-taken photographs, and printed by the Swan Electric Engraving Company under the title of "Selected Examples of Decorative Art." The plates are worthy of the occasion, and have the official information taken from the labels set in type under the object represented. French and English coffers, a Spanish chestnut cabinet and stand, an Italian carved wood and gilt stucco frame, some cuir-bouilli work, glass beakers and enamelled glass bottles, bronzes from Florence, brass Flemish Mediaeval ewers in the form of lions, some Italian silver-gilt chalices, and a piece of Venetian brocade in silk and silver threads make up the subjects of the plates of the part just lately issued, and to which we may with confidence draw our readers' attention. The illustrations are to a good size, clearly defined, and well selected.

"GREATER BRADFORD" has now become a realised ambition, the Local Government Board having decided to grant the application of the corporation for the extension of the boundaries of Bradford to include the adjoining districts of Eccleshill, Idle, North Bierley, Wyke, Tong, and Thornton, bringing in an additional area of 12,007 acres, a population of 52,724, and a rateable value of £174,685. The inclusion of Shipley, Baildon, and Clayton, with 10,776 acres, a population of 37,847, and a rateable value of £141,018, is refused. By way of Tong the boundaries of Bradford and Leeds will now meet. Bradford which was incorporated in 1847, and was raised to the rank of a city in 1897, will now have an area of 22,783 acres, a population of 285,724, and a rateable value of £1,305,060.

ANENT the notes by Mr. Harry Hems last week upon West-country stocks, it may be interesting to recall the fact that in the 15th century Sir Amias Poulett—who was knighted for gallant behaviour at the battle of Newark-on-Trent, June 16, 1487, and was a predecessor of the "viscount" of erstwhile organ-grinding fame—put Cardinal Wolsey, then a village schoolmaster, into the stocks for drunkenness, which circumstance, however, the cardinal did not forget afterwards when in power. This occurred at Limington, a Somersetshire village, a mile—it may be rather more—from Ilchester. The (in modern eyes) indignity, however, does not seem to have brought any after-disgrace, as Wolsey's first preferment afterwards was the incumbency of this self-same parish, the living being presented to him by the then Marquess of Dorset. Limington is situated upon the river Yeo, from which the glove-making town of Yeovil takes its name. Its church, dedicated to St. Mary, contains a chapel with a richly-groined stone roof, as well as a sculptured effigy of Sir Richard Gyverney, the founder of the chantry. The cipher of Cardinal Wolsey, cut by him in some oakwork in the chancel, also exists. The edifice was restored in 1870, under the late Mr. Benjamin Ferrey, F.S.A., the well-known architect, by the late Mr. Davis of Langport, one of those good old-fashioned builders of sterling worth, of whom, in these days of shoddy, we very much fear so few genuine specimens remain amongst us. Lord Aldenham, writing upon the subject the other day, says: "I remember the last occupant of the stocks, at Clifton Hampden, Co. Oxon, was the village constable. He was confined there for being drunk."

"IRON FELT" is the name given to a new



insulating substance made at the Adlershof Works, near Berlin. The felt consists of long and strong woollen fibres, impregnated with a by-product of petroleum, and then coated by gelatine rendered insoluble, and also with india-rubber, afterwards vulcanised. After being subjected to considerable pressure, the iron felt assumes the form of plates measuring 2sq.ft. 22sq.in. and upwards, with a thickness varying from  $\frac{1}{8}$  in. to 2 in. These plates are very elastic, being practically imperishable, while they will stand a pressure of 20,736lb. per square inch., and their surface is so hard as not to be cut by the sharp edges of bolt-heads, or of iron girders. Placed as a cushion between rails and their chairs or sleepers, underneath plunger-blocks, or between engines and their foundations, this substance is also stated to prevent vibration.

A MASSACHUSETTS builder has applied a novel remedy for the collection of debts due him. Not long ago a contractor agreed to build a wooden house on a lot in the village of Norfolk Downs. When the house was ready for plastering he applied to the owner for a payment on account. Receiving no satisfactory answer, he concluded to put a lien on the estate for his work and materials, but discovered that the property had been heavily mortgaged, and that his lien would probably bring him no return. Under these circumstances, acting, it is said, on the advice of counsel, he took a rather heroic resolution, and, making his appearance on the ground one evening, with a building mover and sixty men carrying suitable implements, he had the house lifted from its foundations and rolled away to another lot in the neighbourhood. When the other party to the contract arrived on the scene, he was, to say the least, displeased, and proceeded to enter complaint against the builder for larceny of the house, under a provision of the statutes, which applies to the purloining of real-estate the same penalties as those which attach to the stealing of personal property. The contractor and the building-mover have been notified to appear for trial, and the case promises to be an interesting one. Obviously, the important point involved is whether the house, which, although technically attached to the real-estate, had been paid for by the contractor, was the property of the owner of the lot in such a sense as would make it larceny to carry it away; and a good deal of argument can be expended on this question.

#### CHIPS.

A memorial is about to be erected at Mold to the late Daniel Owen, the Welsh novelist, and Mr. W. Goscombe John, A.R.A., has been commissioned to execute the work.

Mr. W. W. E. Fletcher, M.B., one of the Local Government Board inspectors, held an inquiry at Todmorton Town Hall on Wednesday week, for the purpose of hearing evidence as to the application of the town council to borrow £700 for the provision of a disinfectant, &c., at the Fielden Hospital.

At St. Cuthbert's Church, North-road, Durham, built some years since from Mr. E. R. Robson's designs, on Sunday last, the Barnes memorial stained-glass windows in the west end of the church were dedicated by the dean. The two windows have been executed by Mr. T. F. Curtis (Ward and Hughes), of 67, Frith-street, Soho-square, W. One is a large circular window of plate tracery, some 15ft. in diameter, with three lancets beneath it, lighting the nave. The other is a window formed of two lancets, with a sexfoil composition of plate tracery over them, situated at the west end of the south aisle.

The London County Council have considered a recommendation from the improvements committee for the widening of Mansell-street, Whitechapel, in continuation of the scheme authorised by the Act of 1897 for improving the northern approaches to the Tower Bridge. Subject to the corporation agreeing to contribute one-half the net cost of widening the whole of that portion of Mansell-street within the City boundary, the committee's recommendation that steps should be taken to commence the widening of that thoroughfare from 30ft. to 50ft. has been unanimously adopted.

Two alternate plans for the Sedgwick Memorial Museum have been submitted to the Senate of Cambridge University, of which the one providing a larger amount of accommodation than the other at an additional cost of £2,500 has been adopted. Tenders for the building will be asked for forthwith, and the long-delayed new geological museum will soon be an accomplished fact. The present Woodwardian Museum, besides being inadequate to the requirements of the department, is greatly needed as an addition to the University library.

#### MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).**—Edinburgh Architectural Association. Visit to Milton House Works, Abbeyhill, and to Holyrood Palace, Abbeyhill Station. 11.35 a.m.

**MONDAY.**—A.A. Lyric Club. Cinderella Dance, King's Hall, Holborn. 7.30 p.m.  
Society of Arts. "Cycle Construction and Design," Cantor Lecture, No. 2, by Archibald Sharp. 8 p.m.  
Carpenters' Hall Free Lectures. "English Playhouses in the 16th, 17th, and 18th Centuries," by William Poel. 8 p.m.

**TUESDAY.**—Society of Arts. "Persian Trade Routes," by A. Hotz. 4.30 p.m.  
Institution of Civil Engineers. "Improvements in Dioptri: Apparatus for Lighthouses," by W. T. Douglas, M.Inst.C.E., and J. A. Parves, B.Sc. 8 p.m.

**WEDNESDAY.**—Royal Archaeological Institute. "Influence of the Roman Occupation on the Distribution of Population in Cumberland and Westmoreland," by H. S. Cowper; "Knight's Effigy in Warkworth Church," by F. C. Hilton Price. 4 p.m.  
Society of Arts. "Leadless Glazes," by Wilton P. Rix. 8 p.m.

**FRIDAY.**—Architectural Association. "Public Baths," by A. Saxon Snell, F.R.I.B.A. 7.30 p.m.  
Glasgow Architectural Craftsmen's Society. "Half-Timber Work," by James McKissock. 8 p.m.

#### THE ARCHITECTURAL ASSOCIATION.

MARCH 3rd.—ORDINARY MEETING, at 9, Conduit-street, W., 7.30 p.m. Mr. A. SAXON SNELL on "PUBLIC BATHS."  
E. HOWLEY SIM  
G. B. CARVILL Hon. Secs.

#### Trade News.

##### WAGES MOVEMENTS.

**THE PLASTERERS' DISPUTE: A LOCK-OUT DECIDED UPON.**—The National Master Builders' Association resolved, on Wednesday, to declare a lock-out against the members of the Plasterers' Union on Monday week, March 6, to remain in force until the latter should guarantee the cessation of the practices to which the masters take exception as being in their judgment objectionable. The men will take, to-morrow (Saturday), a ballot, previously arranged for, to consider what action shall be taken, and the result is to be made known on Wednesday next. The Plasterers' Union has now about 3,000 members distributed over some 180 branches.

**CRIEFF, N.B.**—Notice has been given to the master masons of Crieff by the local secretary to the Operative Masons' Association of Scotland, that the following by-laws have been adopted for the year from June 1, 1899, to June 1, 1900:—(1) That the standard rate of wages be 9d. per hour; (2) that  $\frac{1}{2}$ d. per hour be paid for travelling time above two miles, and 3s. per week above three miles from the Square of Crieff; (3) that the employers provide hot-plates for tea or coffee. A reply by Friday in next week, March 3, is requested.

**YORKSHIRE PLASTERERS' WAGES.**—The operative plasterers of Spen Valley, Dewsbury, Batley, Morley, &c., have given notice to their employers' representatives of a demand for an advance of 1d. per hour in wages, to take effect on the 1st of July. Their present rate of payment is 8d., and the hours are 49½ per week.

A Local Government Board inquiry was held at Hitchin before Col. Luard, with reference to the application from the urban district council for sanction to borrow £3,500 for the erection of a town-hall from plans by Mr. Lucas, selected in competition on the recommendation of Mr. E. W. Mountford, F.R.I.B.A., the assessor.

The vestry of St. Saviour's, Southwark, have resolved to take steps to oppose the grant of a faculty for erecting an altar-screen with niches and figures, in St. Saviour's Collegiate (Cathedral) Church. The cost of the screen is £1,900, and the statues will be private gifts. In the centre will be the Saviour in Glory, and directly underneath the Madonna with the Child. On one side will be representations of St. Swithin, Prior Aldrod, St. Olave, Bishop Giffard, W. Pont de l'arch, Bishop Henry de Wingham, Cardinal Beaufort, St. Paulinus, St. Thomas of Cantuar, St. Peter, Bishop Fox, and kneeling angels, with the arms of the Prince of Wales and Bishop Thorold. On the other side will be St. Paul, St. Augustine, St. Justus, Gower, Archbishop Boniface, Bishop Andrews, Bishop William, Dr. Henry Sacheverell, St. Magnus, Bishop Peter de Rupibus, W. Duncey, and kneeling angels, with arms of Bishop Talbot and the Bishop of Southwark.

#### LATEST PRICES.

##### IRON, &c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian .....	£8 0 0	to £8 10 0
Rolled-Steel Joists, English .....	6 10 "	" 7 0 "
Wrought-Iron Girder Plates .....	5 15 0	" 6 10 0
Bar Iron, good Staffs .....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square .....	17 0 0	" 17 5 0
Do., Welsh .....	5 15 0	" 5 17 6
Boiler Plates, Iron—		
South Staffs .....	7 17 6	" 8 5 0
Best Sneedhill .....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., 28 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

No. 13 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive gauge .....	£10 15 0
Best ditto .....	11 5 0

Per ton.	Per ton.
Cast-Iron Columns .....	£6 5 0
Cast-Iron Stanchions .....	6 5 0
Rolled-Iron Fencing Wire .....	7 5 0
Rolled-Steel Fencing Wire .....	7 5 0
Galvanised .....	10 10 0
Cast-Iron Sash Weights .....	4 2 8
Cut Clasp Nails, 3in. to 6in. .....	9 0 0
Cut Floor Brads .....	8 15 0
Wire Nails (Points de Paris)—	
0 to 7 8 9 10 11 12 13 14 15 B.W.G.	
9 0 9 6 10 10 11 11 6 12 12 8 13 13 6 14 14 6 15 15 3 16 16 3 17 17 3	per cwt.

Per ton.	Per ton.
Cast-Iron Socket Pipes—	
4in. to 6in. .....	£5 10 0
6in. to 12in. (all sizes) .....	5 5 0
Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.	

Per ton.	Per ton.
Cold Blast, Lilleshall .....	105s. to 110s.
Hot Blast, ditto .....	57s. 6d. to 62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard	

Per ton.	Per ton.
Gas-Tubes .....	75p. 0.
Water-Tubes .....	70
Steam-Tubes .....	62½
Galvanised Gas-Tubes .....	60
Galvanised Water-Tubes .....	55
Galvanised Steam-Tubes .....	45

Per ton.	Per ton.
Zinc, English .....	£30 0 0
Do., Vieille Montagne .....	31 10 0
Sheet Lead, 8lb. per sq. ft. super. 17 0 0	
Pig Lead, in cwt. pigs .....	16 0 0
Lead Shot, in 28lb. bags .....	20 0 0
Copper Sheets, sheathing and rods 81 0 0	
Copper, British Cake and Ingots .....	77 0 0
Tin, Straits .....	108 0 0
Do., English Ingots .....	107 0 0
Spelter, Silesian .....	23 17 6

##### TIMBER.

per load	£13 0 0	to £15 10 0
Teak, Burmah .....		
" Bangkok .....	10 0 0	" 14 10 0
Quebec Pine, yellow .....	4 7 6	" 8 5 0
" Pitch .....	4 10 0	" 8 15 0
" Oak .....	4 0 0	" 6 0 0
" Birch .....	4 0 0	" 5 0 0
" Elm .....	4 12 6	" 5 15 0
" Ash .....	4 17 6	" 5 5 0
Dantaic and Memel Oak .....	2 5 0	" 3 15 0
Fir .....	3 15 0	" 5 15 0
Wainscot, Riga p. log .....	4 10 0	" 5 10 0
Lath, Dantaic, p.f. .....	4 0 0	" 6 10 0
St. Petersburg .....	4 0 0	" 8 5 0
Greenheart .....	4 0 0	" 15 0 0
Box .....	0 1 9	" 0 2 0
Sequoia, U.S.A. per cube foot		
Mahogany, Cuba, per super foot		
lin. thick .....	0 0 5½	" 0 0 7
" Honduras .....	0 0 3½	" 0 0 4
" Mexican .....	0 0 4	" 0 0 4
Cedar, Cuba .....	0 0 14	" 0 0 4
" Honduras .....	0 0 9	" 0 1 9
Satinwood .....	0 0 8	" 0 0 7
Walnut, Italian .....	0 0 8	" 0 0 7
Deals, per St. Petersburg Standard, 120—12½ by 1½		

per ton.	£18 15 0	to £25 5 0
Quebec, Pine, 1st .....		
" 2nd .....	13 15 0	" 17 0 0
" 3rd .....	6 0 0	" 10 0 0
Canada Spruce, 1st .....	8 10 0	" 10 10 0
" 2nd and 3rd .....	7 5 0	" 8 10 0

per ton.	£8 5 0	to £9 5 0
New Brunswick .....		
Riga .....	11 15 0	" 14 5 0
St. Petersburg .....	9 15 0	" 16 15 0
Swedish .....	9 15 0	" 10 5 0
Finland .....	10 15 0	" 18 0 0
White Sea .....	5 0 0	" 18 0 0
Battens, all sorts .....		
Flooring Boards, per square of lin.—		
1st prepared .....	£0 9 6	" £0 16 3
2nd ditto .....	0 8 0	" 0 13 3
Other qualities .....	0 6 3	" 0 7 0
Staves, per standard M.—		
Quebec pipe .....		
U.S. ditto .....	£26 0 0	" £42 10 0
Memel, cr. pipe .....	210 0 0	" 220 0 0
Memel, brack .....	180 0 0	" 190 0 0

##### OILS.

per ton.	£17 7 6	to £17 17 6
Linseed .....		
Rapeseed, English pale .....	22 0 0	" 22 5 0
Do., brown .....	20 10 0	" 20 15 0
Cottonseed, refined .....	15 0 0	" 15 10 0
Olive, Spanish .....	23 10 0	" 29 0 0
Seal, pale .....	21 0 0	" 21 5 0
Cocoon, Cochin .....	23 0 0	" 29 10 0
Do., Ceylon .....	25 0 0	" 35 10 0
Palm, Lagos .....	23 0 0	" 23 5 0
Oleine .....	18 15 0	" 19 15 0
Lubricating U.S. .....	0 6 3	" 0 7 6
Petroleum, refined .....	0 6 3	" 0 0 6½
Tar, Stockholm .....	1 0 0	" 1 5 0
Do., Archangel .....	0 15 0	" 0 18 0
Turpentine, American .....	23 15 0	" 29 0 0



## LIST OF COMPETITIONS OPEN.

Knutsford—Cemetery Buildings .....	£20 and £10 .....	W. J. Downes, Surveyor U.D.C., Knutsford .....	Feb. 28
Beverley—Grammar School Buildings (limit £3,000; Assessor) .....	£25 and £10 .....	F. G. Hobson, Clerk to the Governors, Newbegin, Beverley .....	Mar. 4
Shoreditch—Additions to Town Hall (limit £12,000) .....	£50 and £25 .....	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C. ..	22
Doncaster—House for Grammar School Master (limit £3,500; Assessor) .....	£50 (merged), £25 .....	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster ..	30
Forfar—Isolation Hospital (Assessor) .....	£31 10s., £21, and £15 15s. ..	Henry A. Patello, Solicitor, 1, Bank-street, Dundee ..	31
Swindon—Additional Fever Pavilion (24 beds) .....	District Hospital Board .....	W. H. Kinneir, Clerk, High-street, Swindon ..	31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor) .....	£150, £100, £50 .....	The City Surveyor's Office, Bradford ..	April 14
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff .....	£50, £20, £10 .....	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate ..	30
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50 .....	The City Engineer, Municipal Buildings, Leeds ..	June 1
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair) .....	£100 (merged), £60, £40 .....	F. Moggridge, 18, King's-place, Portman-square, W. ....	—
Wandsworth, S.W.—Guardians' Board-room, Offices, &c. ....	£20 .....	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W. ....	—
Hexham—Vagrant Wards at Workhouse .....	£20 .....	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham .....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Warminster—Vagrant Wards at Workhouse .....	Guardians .....	Wm. Merrick, Clerk, The Lindens, Emwell-street, Warminster .....	Feb. 25
Tullaroan—Repairs to Parish Church .....	H.M. Commissioners of Works .....	Rev. Father Downey, P.P., Parochial House, Tullaroan .....	25
London—Works and Repairs to Public Buildings (Three Years) ..	Halifax Brewery Co. ....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate ..	25
Ashton—Dwelling-House and Shop .....	J. H. Moore .....	L. J. Eustice, Ashton, Breage, Cornwall .....	25
Hebden Bridge—Hole-in-Wall Hotel .....	D. Evans and Son .....	W. Clement Williams, Architect, 29, Southgate, Halifax .....	25
Shipley—Eighteen Cottages and Two Houses & Shops, Valley-rd. ....	Tregarthen's Hotel Co., Ltd. ....	J. W. C. Atkinson, 1, Ivegate, Bradford .....	25
Bramhope—Four Houses .....	U.D. School Board .....	W. H. Reever, A.R.I.B.A., Architect, 26 & 27, Bond-street, Leeds ..	25
Westport—Post Office .....	A. H. Smith and Co. ....	H. Williams, Sec., Office of Public Works, Dublin .....	25
Armley—House, &c., Moorside .....	Corporation .....	C. F. Wilkinson, Architect, 35, Park-square, Leeds .....	25
St. Mary's, Scilly—Wing, &c., to Tregarthen's Hotel .....	Aske's Haberdashers' Sch. Managers ..	Oliver Caldwell, Architect, F.R.I.B.A., Penzance .....	25
Briercliffe—Extension of Queen-street Mill .....	U.D. School Board .....	S. Keighley, Architects, 25 and 27, Nicholas-street, Burnley .....	25
Burton-on-Trent—Alterations at Boys' School, Grange-street ..	Dr. E. E. Duffy, L.S.A., London ..	Reginald Churchill, Architect, St. Paul's-square, Burton-on-Trent ..	25
Clayton—House and Two Shops at Nursery .....	United District School Board .....	S. Spencer, Architect, 344, Great Horton-road, Bradford .....	25
Sheffield—Rebuilding Greyhound Inn .....	Town Council .....	Walter J. Sykes, Architect, Hoyland, near Barnsley .....	25
Burton-upon-Trent—Extension of Electric Light Buildings .....	U.D. School Board .....	F. L. Ramsden, Electric Light Works, Burton-upon-Trent .....	25
Egremont—Four Dwelling-houses, Out Offices, &c., Main-street ..	Lighting Committee .....	Clement Mossop, Butcher, Main-street, Egremont .....	25
Acton, W.—School .....	Z. Jaggard .....	Widnell and Trollope, 20, Tothill-street, S.W. ....	25
Manningham—Twelve Houses and Three Shops, Lilycroft-road ..	Guardians .....	J. W. C. Atkinson, 1, Ivegate, Bradford .....	25
Burton-on-Trent—Alterations at Wetmore-road Board School ..	Urban District Council .....	Reginald Churchill, Architect, St. Paul's-square, Burton-on-Trent ..	25
Llantwit Major—Repairing Parish Church .....	London County Council .....	G. E. Halliday, F.R.I.B.A., Architect, Cardiff .....	27
Maasborough—Residence, Station-road and Albert-street .....	Urban District Council .....	G. Handley Johnson, Architect, 35, High-street, Rotherham .....	27
Culsh—Double Cottage .....	Dockyard Workmen's Dwellings Co. ....	John Annand, Castle Cottage, Kildrumny .....	27
Woodhouse—Police Station and Branch Free Library .....	School Board .....	The City Engineer's Office, Municipal Office, Municipal Bldgs., Leeds ..	27
Hastings—Additions, &c., 18, Wellington-square .....	Urban District Council .....	Alfred Dray, Architect, Town Hall Chambers, Hastings .....	27
Penwortham—Classroom and Cloakroom at Middleforth School ..	Great Western Railway Co. ....	J. Swindells, 3, Cannon-street, Preston .....	27
Croydon—Engine-House and Cottage, Norbury Sewage Works .....	Local Board of Health .....	Thomas Walker, C.E., Borough Engineer, Town Hall, Croydon .....	27
Auchmullan—Dwelling-house .....	Brightside & Carbrook Co-op. S., Ltd. ....	John Annand, Castle Cottage, Kildrumny .....	27
Hastings—Alterations to Silverhill Board School .....	Water Committee .....	Elworthy and Son, Architects, London-road, St. Leonards .....	27
Malt Croft—Dwelling-house .....	Committee of Management .....	John Annand, Castle Cottage, Kildrumny .....	27
Wolverhampton—Extension of Electric Lighting Station .....	Urban District Council .....	J. W. Bradley, C.E., Boro' Engineer, Town Hall, Wolverhampton ..	27
Castleford—House and Shop, Roundhill-road .....	Standing Joint Committee .....	R. M. McDowall, Architect, Carlton-street, Castleford .....	27
Earlsheaton—Extension of Weaving Sheds .....	North-Eastern Railway Co. ....	F. W. Ridgway, F.R.I.B.A., Architect, Dewsbury .....	27
Macclesfield—New Piggeries at Workhouse .....	Guardians of Rathdown Union .....	The Workhouse Master, Macclesfield .....	27
Thornhill Lees—House and Shop .....	J. Irving Richardson .....	Frank Douglas, Brewery-lane, Thornhill Lees .....	27
Croxdale—Alterations to Primitive Methodist Chapel .....	General Omnibus Co. ....	Geo. Graham, Rogerson-terrace, Croxdale .....	27
Weston-super-Mare—Alterations to Slaughter-House .....	Congleton Union Guardians .....	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	28
Sheffield—Additions, &c., at the Park School .....	Docks Committee .....	C. J. Innocent, Architect, 22, High-street, Sheffield .....	28
Devonport—Four-Roomed Houses .....	Agricultural Society .....	W. N. Richards, Architect, 29, St. Aubyn-street, Devonport .....	28
Drighlington—Wagon and Horses Inn .....	School Board .....	Fredk. Fielding, Architect, 7, Fountain-street, Halifax .....	28
Leeds—College Superstructure .....	Midland Railway Co. ....	J. M. Bottomley, Architect, 13, Bond-street, Leeds .....	28
Weston-super-Mare—Fire Brigade Station .....	Edinburgh & Leith Gas Commisnrs. ....	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	28
Battersea, S.W.—Two Cottages, Heathwall Pumping Station ..	Guardians .....	The Engineer's Department, County Hall, Spring Gardens, S.W. ....	28
Halifax—Barn, &c., at Stone Farm, near Triangle .....	General Omnibus Co. ....	B. Horsfall and Son, Architects, 22A, Commercial-street, Halifax ..	28
Weston-super-Mare—Shelters, Railings, and Seats .....	Congleton Union Guardians .....	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	28
St. Erth—Two Cottages at Station .....	Docks Committee .....	The Company's Engineer, Plymouth Station .....	28
Woolwich—Stabling and Horsekeeper's Residence, Callis-alley ..	Agricultural Society .....	J. O. Cook, Architect, 14, Eleanor-road, Woolwich .....	28
Thurscoe—Clubhouse, &c. ....	School Board .....	Athron and Beck, Architects, Doncaster .....	28
Sheffield—Branch Stores, &c., Alfred-road and Pelham-street ..	Edinburgh & Leith Gas Commisnrs. ....	H. Webster, Architect, St. Marie's Chambers, Norfolk-row, Sheffield ..	28
Birmingham—Enlargement of Pumping Station, Dalton-street ..	General Omnibus Co. ....	E. A. Lees, Secretary, Water Offices, 44, Broad-street, Birmingham ..	28
Lisbellaw—Creamery at Lisbellaw .....	Congleton Union Guardians .....	H. White, Secretary, Farmanagh Library, Lisbellaw .....	28
Butterknowle—Four Houses .....	Docks Committee .....	Michael Craggs, Pinfold-lane, Butterknowle .....	28
Weston-super-Mare—Telephonic Communication, Fire Station ..	Agricultural Society .....	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	28
Tettenhall—House and Alterations to Police Station .....	School Board .....	Walter H. Cheadle, Architect, Stafford .....	28
Ulverston—Wesleyan Church .....	Edinburgh & Leith Gas Commisnrs. ....	John Willis, Architect, St. Peter's Churchyard, Derby .....	Mar. 1
Hull—Twelve Cottages, Lonsdaleborough-street .....	Guardians .....	The Station Master, Paragon Station, Hull .....	1
Bradford—Store Warehouses and Alterations at Brewery .....	General Omnibus Co. ....	Milnes and France, Architects, Bradford .....	1
Portsmouth—Rebuilding Store .....	Congleton Union Guardians .....	G. C. Vernon-Inkpen, F.S.I., Whitlington Chambers, Southampton ..	1
Newcastle-on-Tyne—Stables and House, Cookson's-lane .....	Docks Committee .....	Wm. Bell, Company's Archt., Central Station, Newcastle-on-Tyne ..	1
Camborne—Two Five-roomed Dwelling-Houses at Barrister ..	Agricultural Society .....	James S. Pearce, Barrister-road, Camborne .....	1
Langhaunstown—Three Labourers' Cottages .....	School Board .....	Carter Draper, C.E., 25, Grosvenor-road, Rathfriland .....	1
Bangor, County Down—Buildings .....	Edinburgh & Leith Gas Commisnrs. ....	Graeme-Watt and Tulloch, Architects, 77A, Victoria-street, Belfast ..	1
High Casterton—Pair of Semi-Detached Villas .....	Guardians .....	John Kassel, Architect, Kirkby Lonsdale .....	1
Thwing—Church Restoration .....	General Omnibus Co. ....	Temple Moore, Architect, 46, Well-wall, Hampstead, London, N.W. ....	1
Morecambe—Stables, &c., at Sandylands .....	Congleton Union Guardians .....	S. Wright, Surveyor, Townley-street, Morecambe .....	1
Neath—Villa Residence, Cymle-road .....	Docks Committee .....	Sam Cym Jones, Great Western Chambers, Neath .....	1
Arelid—Infirmary at Workhouse .....	Agricultural Society .....	Alfred Price, Architect, Elworth, 10, Waterhouse-street, Halifax ..	2
Halifax—Reconstruction of 23 and 25, Bull-green .....	School Board .....	Utey, Hebblethwaite, and Utey, 10, Waterhouse-street, Halifax ..	2
Bristol—Avonmouth Granary Electric Generating Station .....	Edinburgh & Leith Gas Commisnrs. ....	T. A. Peace, Acting Engineer, Cumberland Basin, Bristol .....	2
Senghenydd—Baptist Chapel .....	Guardians .....	Owen Thomas, 163, Commercial-street, Senghenydd, Wales .....	2
Nottingham—Shedding, Grand Stand, Offices, &c. ....	General Omnibus Co. ....	H. H. Bradwell, Secretary, Thurland-street, Nottingham .....	2
Sowerby Bridge—Public Elementary Schools .....	Congleton Union Guardians .....	Horsfall and Son, Architects, Lord Street Chambers, Halifax .....	3
Liverpool—Bacon Warehouses, &c., at Sandon Dock .....	Docks Committee .....	The Company's Architect, Cavendish House, Derby .....	3
Leeds—Alteration of 33 to 46, Great George-street .....	Agricultural Society .....	Smith and Tweedie, F.R.I.B.A., 12, South Parade, Leeds .....	3
Norton—Additions to Girls' School .....	School Board .....	The Rectory, Northern Cranes, near Cannock, Staffs .....	3
Birmingham—Timber Goods Shed at Sell Oak .....	Edinburgh & Leith Gas Commisnrs. ....	The Company's Architect, Cavendish House, Derby .....	3
Granton—Chimney Stack (105ft. high) at Gasworks .....	Guardians .....	W. R. Herring, Gasworks, Edinburgh .....	4
Omagh—Keeper's Lodge and Offices at New Cemetery .....	General Omnibus Co. ....	J. L. Donnelly, Architect, 2, Bridge-street, Omagh .....	4
King's Lynn—Classrooms, &c., All Saints' Schools .....	Congleton Union Guardians .....	Louis F. Eagleton, Architect, Bank Chambers, King's Lynn .....	4
Knaresborough—School Buildings, &c. ....	Docks Committee .....	Barrowcliffe and Alcock, Architects, Mill-street, Loughborough ..	4
Omagh—Church and Casual Vault at New Cemetery .....	Agricultural Society .....	H. Howard, M.S.A., Architect, Town Offices, Littlehampton .....	4
Littlehampton—Alterations to Steam Laundry Gloucester-road ..	School Board .....	J. Siddalls, Architect, Tipton .....	4
Tiverton—Hospital Buildings .....	Edinburgh & Leith Gas Commisnrs. ....	Hugh Clarke, Clerk, Billisborough .....	4
Bailieborough—New Wards at Infirmary .....	Guardians .....	Horsfall and Son, Architects, 22A, Commercial-street, Halifax .....	4
Ripponden—Shop, &c., Hollins Estate .....	General Omnibus Co. ....	G. T. Wilson, Architect, 121, Durham-road, Blackhill .....	4
Low Westwood—Six Houses and Additions to Premises .....	Congleton Union Guardians .....	Robert Neil, Architect, 9, Grimshaw-street, Burnley .....	4
Foulridge—Rebuilding Hole-in-the-Wall Inn .....	Agricultural Society .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate ..	6
Putney, S.W.—New Sorting Office .....	School Board .....	E. Goldie, Architect, 31, Upper Putney-place, Kensington, W. ....	6
Thornaby-on-Tees—Infants' School .....	Edinburgh & Leith Gas Commisnrs. ....	Hon. J. R. B. Engineer, 21, Backbury, London, E.C. ....	6
Shoeburyness—Gasholders, &c. ....	Guardians .....	W. H. Hill and Son, Architects, 29, South Mall, Cork .....	6
Rochestown—Pair of Semi-detached Villas .....	General Omnibus Co. ....	Jackson and Fox, Architects, 7, Rayson-st., Sowerby Bridge, Yorks ..	7
Sowerby Bridge—Four-Storey Warehouse at Mearclough .....	Docks Committee .....	O. Panton Lambert, Architect, Bridgend .....	7
Abergwyndol—Additions to Schools .....	Agricultural Society .....	The Irish Lights Office, Dublin .....	9
Knightsdown, Valencia Island—Shore Dwellings for Light-keepers at Terengh and Skellig Lighthouses .....	School Board .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	13
Magh—Additions to Station .....	Edinburgh & Leith Gas Commisnrs. ....	Mar. T. Green, Engineering Inspector, Dublin Castle .....	13
Maryborough—Block of Buildings and Wall at H.M.'s Prison ..	Guardians .....		



## BUILDINGS—continued.

Dublin—Electric Power House, Amiens-street .....	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	Mar. 13
Rawtenstall—Alterations to White Horse Hotel .....	John Kenyon, Ltd.	Robert Neill, Architect, 9, Grimshaw-street, Burnley .....	" 13
Hereford—Electricity Station, Wildmarsh-street .....	Town Council	John Parker, A.M.I.C.E., City Engineer, Hertford .....	" 13
Omagh—Station-master's House .....	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	" 13
Bala, Merioneth—County Intermediate School for Girls .....	Managers	H. Teather, Architect, 83, Wylie Cop, Shrewsbury .....	" 14
Bridlington Quay—Residence .....	Dr. E. Hall Batchelor	Brodrick, Lowther, & Walker, Archts, Catrill Chambers, Bridlington Quay ..	" 14
Glasgow—Exhibition Buildings, Kelvingrove Park .....	Board of Guardians	H. A. Hedley, Secretary, 141, Buchanan-street, Glasgow .....	" 15
Kingston-on-Thames—Female Infirmary, &c., at Workhouse .....	Asylum Committee	W. A. Hope, C.E., Architect, Portsmouth-rd., Kingston-on-Thames ..	" 28
Ipswich—Alterations and Additions to Borough Asylum .....	Committee of Visitors	E. Buckham, Borough Surveyor, Town Hall, Ipswich .....	April 1
Rauceby, near Sleaford—Superstructure of Lunatic Asylum .....	Thos. Cromack	F. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W. ....	" 4
Holbeck—Ten Through Houses .....	Miss Duckworth	Frederick W. Rhodes, Architect, Upper Wortley, Leeds .....	"
Southampton—Twenty-Nine Houses on Old Jail Site .....	W. Spong	William Burroughs Hill, F.S.I., Southampton .....	"
Southport—Laundry, &c., Meols Cop-road .....	Worthington and Co., Ltd.	F. W. Dixon, Architect, Trevelyan Buildings, Manchester .....	"
Earlshaton—Extension of Weaving-Sheds .....	F. Mitchell	F. W. Ridgway, F.R.I.B.A., Architect, Borough Chambers, Dewsbury ..	"
Higham Ferrers—Three Dwelling-Houses .....	Thomas Moy, Ltd.	H. Adnitt, Architect, High-street, Rushden .....	"
Dewsbury—Two Shops and Houses, Halifax-road .....	Ecclesall Indus. & Prov. Soc., Ltd.	F. W. Ridgway, F.R.I.B.A., Architect, Dewsbury .....	"
Barrow-in-Furness—Queen's Arms Inn, Rawlinson-street .....	Harper Bros.	E. M. Young, Architect, 90, Duke-street, Barrow-in-Furness .....	"
Reading—Two Shops, Oxford-road .....	E. Bulley	W. Jane, 17, Market-place, Reading .....	"
Armagh—Alterations to Premises, Scotch-street .....	Industrial Co-operative Society	J. F. Gilchrist, A.I.C.E.I., M.R.I.A.I., Scotch-street, Armagh .....	"
Sheffield—Two Pairs Semi-Detached Houses, Ecclesall-road .....	Richard Leadbetter and Sons	The Princess Works, Shoreham-street, Sheffield .....	"
Colchester—Stables, &c., at The Hythe .....	R. M. English	Chas. E. Butcher, Architect, 3, Queen-street, Colchester .....	"
Morecambe—Alterations to National Schools .....	Withington Urban District Council	Marshall Bros., Architects, Back-crescent, Morecambe .....	"
Broomhill—Additions to Property, Glossop-road .....	Storry, Smithson, and Co., Ltd.	Hall and Fenton, Architects, 14, St. James's-row, Sheffield .....	"
Manningtree—Shop and House, High-street .....	Freehold Land Society	R. W. Downing, Brook-street, Manningtree .....	"
Starbeck—New Stores and Premises .....	A. M'Clelland	A. A. Gibson, Architect, Yorkshire Bank Chambers, Harrogate .....	"
Chudleigh Knighton—Repairs to Ten Cottages and Outbuildings at Underhayes .....	John May and Co., Ltd.		
Walthamstow—Twelve Houses .....			
Poynton—Drapery and Boot Shops, Offices, &c. ....			
Kendal—141 Working Men's Dwellings, Long Fields .....			
Fleetwood—Restaurant, North Albert-street .....			
Ballinamallard—School .....			
Pocklington—Residence .....			
Halstead—Additions to Industrial School .....			
Cheshire—Sanatorium (100 beds), &c., Baguley Lodge .....			
Sheffness—Alterations, &c., to Premises, Derby-road .....			
Hull—Colour Mill, Sculcoates .....			
Manningtree—Shop and House, High-street .....			
Bradford—Prospect Inn, Bolton-road .....			
Higham Ferrers—Three Dwelling-Houses .....			
Sheffness—Detached Villa .....			
Carmore—Dwelling-House .....			
Todmorden—Additions to Unitarian Sunday School .....			
Belfast—Alterations to Premises, Short Strand & Anderton-st. ....			
Old Colwyn—Church .....			
Hurst Brook—Methodist New Connexion Sunday School .....			
New Deer—Bank House .....			
Swadlincote—Foundations at Gasworks .....			
Osley—Villa Residence .....			
Morecambe—Three Houses and Shops, Battery Estate .....			
Glendoean—School .....			
Overton—Additions to Red Lion Inn .....			
Eccleshill—Stabling and Out-building at New Inn .....			
Belfast—Dwelling-houses, Brown's-square and Gardiner-street ..			
St. Mellon's—Three Cottages .....			

## ENGINEERING.

Chertsey—Rebuilding Durnford Bridge .....	Rural District Council	W. Durrant, Surveyor, Addlestone .....	Feb. 25
Bromsgrove—Girder Bridge and Urinal, &c. ....	Urban District Council	G. H. Gadd, Architect, New-road, Bromsgrove .....	" 25
Hovingham—Rebuilding Bridge .....		Walker Stead, M.I.C.E., County Surveyor, Northallerton .....	" 25
Christiana—Porcelain Telegraph and Telephone Insulators .....			" 27
(140,400) .....			" 27
Treharris—Service Reservoir (350,000gal.), Dwelling-House, &c. ....	Merthyr Tydfil Urban Dist. Council	Norwegian State Telegraph Administration, Christiania .....	" 27
Craig—Filters and Clear-water Reservoir, &c. ....	Commissioners	Thos. Fletcher Harvey, Engineer, Town Hall, Merthyr Tydfil .....	" 27
Edinburgh—Steam and Exhaust Pipes, Pumps, Tanks, &c. ....	Magistrates and Council	Belfrage and Carfrae, C.E., 1, Erskine-place, Edinburgh .....	" 27
Patterdale—Bridge over Griesdale Beck .....		The Resident Engineer, Dewar-place, Edinburgh .....	" 27
Sheffield—Electric Light Plant at Workhouse, The Edge .....	Eccleshall Bierlow Un. Guardians	Joseph Bintley, County Surveyor, 7, Lowther-street, Kendal .....	" 27
Alnwick—Repairing Denwick Bridge .....	Urban and Rural District Councils	J. D. Webster, Architect, 19, St. James-street, Sheffield .....	" 27
Burton-upon-Trent—C.I. Water-tank (6,000 gallons) at Baths .....	Corporation	Geoffrey Wilson, Town Surveyor, Alnwick .....	" 27
Huddersfield—Mechanical Coking Stokers .....	Electricity Committee	G. Lynam, Boro' Engineer, Town Hall, Burton-upon-Trent .....	" 27
Huddersfield—Switchboard .....	Corporation	The Electricity Engineer, St. Andrew's-road, Huddersfield .....	" 27
Wrexham to Rhos—Railway (3½ miles) .....	Great Western Railway Co.	The Office of the Engineer, Paddington Station, S.W. ....	" 29
Gloucester—Condensers, &c. ....	Electricity Supply Committee	R. Hammond, M.I.C.E., M.I.E.E., 64, Victoria-street, London, S.W. ....	" 29
Belfast—Steel Roof at Station .....	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-street, Dublin .....	" 28
Oldham—Two Lancashire Steam Boilers (28ft. by 8ft.) .....	Corporation	Arthur Andrew, Gas and Water Offices, Oldham .....	" 28
Barry Dock—Locomotive Engines (10 to 20) .....	Barry Railway Company	W. Mein, Secretary, Barry Dock .....	" 28
Glenarm Harbour—Harbour Repairs .....	Commissioners	J. H. Scaife, H.M. Quit Rent Office, 3, Lower Ormond Quay, Dublin ..	" 29
Llandilo, Bynen, and Pembrey—Bridges, &c. ....	Great Western Railway Co.	The Company's Engineer, Neath Station .....	" 28
Buxton—Rebuilding Bridge, St. John's-road .....	Urban District Council	The Surveyor to the Council, Town Hall, Buxton .....	" 28
Wakefield—Waterworks .....	Corporation	C. C. Smith, A.M.I.C.E., Waterworks Eng., Town Hall, Teignmouth ..	" 28
Linthwaite—Tramways (3½ miles) .....	Urban District Council	Abbey and Hanson, C.E.'s, 20, Ramsden-street, Huddersfield .....	" 28
Pyecombe—Water-Mains and Covered Service Reservoir .....	Cuckfield Rural District Council	J. Johnston, 12, Bond-street, Brighton .....	Mar. 1
Llanidloes—Storage Reservoir (6,000,000gal.), at Nant-y-Geifr ..	Town Council	Arthur Davies, Town Clerk, Llanidloes .....	" 1
Manchester—Passenger Lift at Town Hall .....	Corporation	J. Rison, Town Hall Steward, Manchester .....	" 1
London, E.C.—Bridge Work .....	Bengal-Nagpur Railway Co., Ltd.	The Company's Office, 132, Gresham House, Old Broad-street, E.C. ....	" 3
Darwen—Two Twin-lute Purifiers, &c. ....	Corporation	A. H. Smith, Gas Engineer, Darwen .....	" 3
Edinburgh—Aqueduct, Bridges, &c. ....	Edin. and Dist. Water Trustees	James Wilson, Engineer, 72A, George-street, Edinburgh .....	" 3
East Molesey—Footbridge over River Ember, Sumner-road .....	Urban District Council	John Stevenson, Surveyor, Walton-road, East Molesey .....	" 3
Greenock—Electric Lighting Plant .....	Board of Police	S. E. Fedden, Municipal Buildings, Greenock .....	" 3
Kirkcaldy—Tramline (2ft. gauge) along the County Highway ..			
Road, from High-street to Thornton Junction Station .....	District Council	Alex. Beveridge, Clerk, 220, High-street, Kirkcaldy .....	" 4
Buckie—Bridge .....	Urban District Council	James Barron, M.I.C.E., 1, Bon Accord-street, Aberdeen .....	" 4
Ashford—Excavating for and Laying Cast-Iron Main Pipes .....	Improvement Committee	Stevenson and Bursell, Engineers, 35, Parliament-st., Westminster ..	" 4
Sheffield—Bridges over River Sheaf .....	Waterworks Company	C. F. Wike, C.E., City Surveyor, Town Hall, Sheffield .....	" 4
Bristol—Pumping Engines, &c. ....	Magistrates and Council	T. and C. Hawksley, Engineers, 30, Great George-street, S.W. ....	" 4
Edinburgh—Condensing Plant, &c. ....	County Council	The Resident Engineer, Dewar-place, Edinburgh .....	" 6
Clayton-le-Dale—Stone Bridge .....	Trinity House Corporation	The County Bridgemaster's Office, County Offices, Preston .....	" 6
Cornwall—Lantern for Penden Lighthouse .....	Gas and Electricity Committee	Chas. A. Kent, Secretary, Trinity House, E.C. ....	" 9
Stockport—Dynamos (Two 140kw) .....	Trinity House Corporation	S. Meunier, Portwood, Stockport .....	" 9
Bristol Channel—Lantern for Foreland Lighthouse .....	St. Mary (Islington) Guardians	Chas. A. Kent, Secretary, Trinity House, E.C. ....	" 9
Highgate, N.—Hot-Water Arrangements at New Infirmary .....	Corporation	William Smith, Architect, 65, Chancery-lane, London, W.C. ....	" 9
Letchworth—Plant for Electricity Works .....	Urban District Council	E. Radcliffe, C.E., 24, Clooney-terrace, Londonderry .....	" 13
Biglis Moors, near Cadoxton—Sinking Well, &c. ....	Gas Co., Ltd.	J. Y. F. Cooke, C.E., St. Columb's, Londonderry .....	" 19
Roscommon—Retort Bench, &c. ....	Gas Commissioners	R. J. Weaver, C.E., Guildhall, King's Lynn .....	" 14
Dundee—Electrical Plant at Station, Dudhope Crescent-road ..	Government of Pará	Robert Hammond, M.I.C.E., Engineer, 84, Victoria-street, S.W. ....	" 14
Belem—Waterworks .....		E. W. Waite, A.M.I.C.E., Gas and Water Offices, Barry .....	" 15
Poplar, E.—Well, &c., for Supply of Water to Union Workhouse Buildings, High-street .....		The Manager, Gasworks, Roscommon .....	" 15
Pernambuco to Olinda—Electric Tramway (3 miles) .....		W. H. Tittensor, Dudhope Crescent-road, Dundee .....	" 15
Shanghai—Electric Trolley Tramways (23 miles) .....		The Treasury of Pará .....	" 15
	Guardians	F. J. Warden-Stevens, Engineer, 34, Victoria-street, S.W. ....	" 17
	Municipal Council	Secretaria da Industria, Pernambuco .....	" 15
		Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....	June 30

## FENCING AND WALLS.

Keswick—Wall, &c., Station-road .....	Urban District Council	William Hodgson, Surveyor, Town Hall, Keswick .....	Feb. 25
Wester Tullyfergus—Wire Fencing on Farm .....		D. I. M'Walter, Wester Tullyfergus, near Aylth, Scotland .....	" 25
Handsworth—Vertical Hurdle Fencing and Gates (1,600 yards) and Dwarf Fencing (2,000 yards) .....	Urban District Council	E. Kenworthy, Surveyor, Council House, Handsworth .....	" 27
Devonport—Boundary Wall at Stoke Church Burial Ground .....	Council	John F. Burns, Borough Surveyor, 30, Ker-street, Devonport .....	" 27
Iford—Iron Fencing (2,074 yards) and Entrance Gates for Public Park .....	Urban District Council	H. Shaw, A.M.I.C.E., Surveyor, 7, Cranbrook-road, Iford .....	" 28
Moresby—Wall, &c., Churchyard Extension .....		Rev. H. J. Allen, The Rectory, Moresby .....	" 28
Upper Sydenham, S.E.—W.I. Boundary Fencing and Gates, Well-road Recreation Ground .....	London County Council	The Parks Department, 9, Spring Gardens, S.W. ....	" 28



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, MARCH 3, 1899.

### PROFESSIONAL SERVICES.

THE public appreciation of the services of the architect is dictated more by a sense of their commercial worth than by other considerations. Both in private practice and in dealings with public bodies his work is undervalued, or regarded too much in the light of "showing his goods" to men able to accept or reject. The man who can turn out a number of designs on the shortest notice, who is always ready with estimates, and can obtain tenders to suit all pockets has the best chance of doing business. Praiseworthy or not, this kind of business aptitude fails to commend itself to men who have mastered their profession, and are not willing to sell their services to the lowest bidder. In the mean time the scrimmage to get commissions goes on, much to the advantage of the former class.

The attitude of the lay mind towards the art and services of the architect is a source of much heart-burning to many sensitive members of the profession. The looking at a thing from a practical or commercial standpoint has, no doubt, something to do with the matter. Another thing is, the average client and committeeman who engages an architect, or advertises for designs, take a very superficial and unjust view of the professional man. He thinks he knows all about building, as he does, or professes to do, about many other subjects—law, medicine, theology, and the rest. With a mind so preoccupied with his own ideas, so ready to pass opinions or criticise, and with entire disregard for the real facts, can it be surprising that he underrates the services rendered in preparing designs for buildings which take years to study? He orders his architect to make a design and prepare specifications, and then with a *sangfroid*, that is very provoking, changes his mind, and expects all the labour to be borne by the unfortunate designer, as if he were choosing a pattern of a grate or a wall-paper. Education, professional training, and skill appear not to enter into the considerations of people of this sort. How often we hear of a committee, about to erect a church, a school, or some other building, coolly inviting architects to send in designs without the slightest intention of selecting any of them, with the object of eliciting information, to be placed at the disposal of their own official. Even the premium is withheld, if none is selected. Only lately we heard of a case in which the clerk to a board wrote to an architect to ask him if he would kindly send him the plans of a library for their avowed guidance, as they were about to erect a similar building. Such instances are not uncommon. In another instance, one of the committee, personally a friend of an architect, offers to obtain plans without any idea of pledging himself, though privately he holds out a vague promise to his friend that he may be retained. Of course the architect acts on this promise, prepares a design, plans of which are submitted to the committee. They discuss the matter and suggest alterations. These are promptly attended to, and an amended set of plans is sent in. The committee now decide to appoint their own official, and the clerk is instructed to write to the committeeman's friend, returning his plans and thanking him for his trouble. It is needless to say this is not quite satisfactory, and a charge is made; but the committee not having given instructions officially, the architect's claim is repudiated.

These irregularities ought not to be possible in private practice; nor would they be if the profession agreed to make their own terms, or conformed to a code of rules. What would a lawyer or medical practitioner do under these circumstances? Offers of assistance or services to those from whom no direct instructions came would not be tolerated for a moment. It would be not only irregular, but contrary to professional etiquette, for a lawyer to push himself before an individual or committee and offer his professional aid.

In competitions as they are still conducted the architect gets the worst of it all round. Our Correspondence columns have been occupied of late with several grievances which could not be possible if a general code of regulations were in existence and indorsed by every member of the profession. In one case, that of the Leeds Market Hall competition, a correspondent (Mr. Sidney Smith) called attention to the unnecessary and unusual condition that four perspective drawings should be sent in, in addition to  $\frac{1}{2}$  in. scale drawings. We do not object to the scale, though, the site being extensive, the drawings would be very large, and, as our correspondent says, a  $\frac{1}{2}$  in. scale would have been big enough for the purpose. But why the four perspectives? In another case, a numerously-signed letter appeared in our last issue, protesting against the manner in which the competition for the Bradford Central Fire Brigade Station is being conducted. No official notice was sent to the competitors of the public exhibition of the drawings. The first premiated design, it is alleged, embraced three distinct schemes, and the reply as to which of them had been selected was that "no single scheme had been adopted, but the whole three collectively." We can hardly imagine so vague a decision has been actually made, and we hope, with our correspondent, the corporation will appoint a professional assessor to assist the committee in their selection. Of course, it is hardly fair to other competitors that a double or treble-barrelled scheme should be selected. A set of designs with alternative arrangements should only be chosen because one of them fulfils the requirements more satisfactorily than other designs; to select the two or three schemes collectively is rather an admission that the committee have not quite made up their mind as to which scheme is best—an admission also that implies their inability for the task of selection. Other designs may be found that would give more satisfactory results. In fact, there is no definite issue or selection possible under this system. We see here the absolute importance of a properly-conceived and drawn-up programme. No conditions of competition are worth anything at all unless the instructions are of a definite kind. In this connection we may call attention to the "General Code Governing Competitions in Design" that has been just adopted by the Architectural League of New York, the National Sculpture Society, and the National Society of Mural Painters. The joint committee have been engaged in formulating this code over a period of two years. Definitions are first given, and it is affirmed that "a competition may be either (A) 'Premiated,' in which remuneration is provided only for those to whom an award is made; (B) 'Paid,' in which remuneration is provided for each competitor." After defining the "promoter" as the party who undertakes responsibility for fulfilment of the competition according to its terms, &c., we come to the chief rules as to the programme, or agreement, which must be carried out in good faith by all parties. We here quote them: "The terms of the programme are to be concisely stated, and must be mandatory. The programme shall (A) Be headed substantially as follows:—Under the general code governing competitions in design of the

Architectural League of New York, of which a copy is subjoined. . . .

(Name of promoter), invites competitive proposals upon the following programme:— (B) Contain a definite statement as to proposed cost; (C) Contain a definite provision as to anonymity; (D) Name the jury which must include experts upon the subject; (E) Fix uniform requirements for drawings, models, or other forms of proposals; (F) Fix a definite time and place for receipt of drawings, models, or forms of proposals; (G) Fix the nature or amount of the awards or prizes; (H) Fix the period of time within which decision will be rendered." Other rules relate to the requirements for drawings, models, &c., which are to be of the simplest kind, so as to reduce labour in their preparation; and to the adjudication by the vote of the jury, which include disinterested experts. It is provided under this section that if the subject requires expert knowledge, the jury may call in additional experts and the promoter to advise with them. The order of procedure of the jury is given, and the jury may decide whether the "object of the competition is to select a design, or whether it is a means of test, having for its object the selection of an artist." The last rule is important, and has not been considered as it ought to be. As we have all along contended, the assessor or judges should have the option of judging beyond the mere literal facts submitted to them in every case, to see if there is not a design which, while it fairly fulfils the requirements, is artistically arranged in other respects. To select a man well capable of doing the work is often more to be desired than to choose a design of inferior quality because the plan has been made to order, or conforms rigidly to the requirements.

### MODEL SPECIFICATIONS.—LIV.

PAPERHANGER—DECORATOR—GASFITTER.

IN specifying the paperhanging it is usual to describe in order of value, the least costly being described before the more expensive papers. State name of manufacturer, and quote the list price; how hung, if the walls are to be lined, stopped, pumiced, or prepared; if the papers are machine papers, block damasks, chintzes, embossed flocks; if to be painted over or varnished, and how many coats. The descriptions of machine-printed papers and hand-printed papers, and their prices, may be obtained of well-known makers like Messrs. Jeffrey and Co., Islington, Woollams and Co., Manchester-square, or of wholesale houses, such as Messrs. Young and Marten, Stratford, or Nicholls and Clarke, Shoreditch. The machine-printed papers range in price from 6d. per piece, or from  $\frac{1}{2}$ d. to 5d. per yard, the hand-made papers from 2s. to 30s.; raised flock papers from 7s. per piece to 30s., or from 1s. per yard. The embossed leather papers are handsome for dining-rooms, halls, &c., and can be obtained from 4s. per yard.

We noticed a few of the more expensive relief or embossed fabrics in our last issue. As a ground for embossed paper, a lining of brown paper is recommended, and all papers should be butted at the joints, not overlapped. It is necessary to line damp walls with tinfoil, or Willesden paper, thin sheet lead, or indiarubber. The Willesden waterproof paper is recommended, and affords a better ground than the other materials.

It is a good plan to insert a clause to the effect that the papering is to be delayed for three (or six) months after completion of work if so ordered. Unless the walls are quite dry, the most expensive papers will be damaged.

In the design of wall papers special artists are employed. The main thing is that the pattern should repeat itself without any



awkward break or repetition. The design is regulated by the width of paper; thus 21in. by 21in. is the normal square or standard of width. This space may be divided into squares of different dimensions. If there are the same number of squares in depth as well as in width, the alternate pattern will not repeat correctly if the number of squares be "odd" or uneven, but this is not necessary; the depth of square may be greater. To prevent the recurrence of pattern or diaper in horizontal lines, "stepping" the design is resorted to, a plan which gives more play and freedom.

For ordinary dwellings:—

1. *Papering*.—Prepare and size walls, and supply and hang papers (approved) to all the rooms to be papered of an average price of 3s. or 5s. per piece net p.c. All papering to be cut close and truly hung. Or—

Properly stop, rub down, size with "double-size," and prepare walls and ceilings, and hang papers, to be selected at the p.c. value of 3s. (or 5s.) per piece, to rooms (state which).

2. *Bedroom Papers*.—Hang walls of bedrooms with hand (or machine-printed) papers, of the p.c. value of 2s. 6d. per piece. Or—

Hang bedroom walls with machine-printed (or sanitary papers), supplied by Jeffrey and Co. (quote price from list).

3. *Principal Rooms*.—Hang walls of drawing-room, dining-room, &c., with hand-printed papers, selected by architect, to be supplied by Jeffrey and Co. (or other well-known firm), of the p.c. value of 5s. per piece. The drawing-room to have a frieze 15in. deep, of the p.c. value of 1s. per yard.

For superior paperhanging:—

4. *Prepare Walls*.—Rub down, stop cracks, and size with double size, and prepare walls to receive paper. Or—

Strip off all old paper, stop walls where necessary.

5. *Materials*.—Provide clean fresh paste of best wheat flour and alum, and all trestle boards, &c., for the proper execution of work. The papers to be selected or approved by the architect (or the papers to be supplied by Jeffrey and Co., Islington) (or Woollams and Co.), and of the prices stated below (or quote the price according to list per piece or yard).

6. *Hanging*.—Hang the papers in the best manner, with butt joints, excepting those in attics, where the joints may be lapped. The paper to be hung true to pattern, and to be well dressed into all angles.

7. *Dining-Room*.—The walls of dining-room to be hung with hand-printed paper. A dado 3ft. high, of the p.c. value 2s. per yard, with border 4in. wide, a "filling" of the value of 3s. 6d. per piece, and a frieze 18in. deep of the p.c. value of 2s. 6d. per yard. Or—

Hang on all walls to be papered lining paper at 1s. per piece.

Hang on walls of dining-room paper of the value of 3s. 6d. per piece, the pattern to be approved by the architect.

8. *Drawing-Room*.—Hang on walls of drawing-room paper of the value of 5s. (or 18s.) per piece, with frieze 15in. or 18in. deep to match, 2s. 6d. per yard, selected by architect. Or—

The walls of drawing-room, library, and morning room to be lined with stout lining-paper, and papered with raised block paper, of the p.c. value of 18s. per piece, with frieze to match, 5s. per yard, to be selected by the architect. Or—

The walls of drawing-room, library, and morning room to be lined with stout lining-paper, lapped at joints and rubbed down, sized, and papered with satin (or hand-printed paper selected) of the p.c. value of 5s. (or 18s.) per piece. Hang frieze-paper (selected) 18in. deep of the p.c. value of 2s. 6d. per yard.

9. *Bedrooms*.—Hang walls of first-floor bedrooms with hand-printed papers, of subdued or quiet colours (or to be selected), and of the p.c. value of 3s. per piece.

The upper bedrooms to be hung with machine-printed papers of neat patterns of the p.c. value of 2s. per piece.

For old work and repairs specify: Strip off old paper, stop all cracks in Parian cement, pumice down, and paper.

10. *Bath Room, &c.*—The walls of bath-room and lavatory to have a Jeffrey and Co.'s sanitary paper (or a varnished tile-paper, selected, and to be according to list-price), or 3s. per piece.

11. *Staircase Paper*.—Prepare, stop, and rub smooth with pumicestone walls of staircase, coat same with size, and hang a dado-paper of the value

of 7s. per piece filling, and 2s. 6d. per yard for dado.

12. *Relief Paper*.—Prepare, stop, and rub down walls of staircase, and hang a "relievo" paper, p.c. 5s. per yard, with dado of the p.c. value of 3s. per yard, or specify pattern of the Anaglypta Co., Ltd., according to price-list.

13. *Relief Decoration*.—The staircase to be lined with thick brown paper, sized, and covered with "Anaglypta" (or Lincrusta-Walton), of the p.c. value 3s. per yard, the same to be painted two coats in oil-colour, picked out in tints to the satisfaction of the architect. Or—

The staircase to be lined as before, and covered with a panelled pattern of the United Asbestos Salamander decoration, selected, and of the p.c. value 1s. 6d. per yard, and with dado 21in. by 42in., p.c. 2s. 6d. per panel.

14. *Relief Wall Materials*.—The ceilings and walls of drawing-room, dining-room, hall, and staircase to be prepared for "Anaglypta" or other relief material. Renaissance or Persian design. (Name firm, quote pattern and prices.) Hang the decoration in the best manner, to be fixed to wall by a strong paste or glue. The decoration to be carefully trimmed and joined, and leave perfect.

The ceilings and walls of drawing-room, hall, or buffet to be hung with "the United Asbestos Patent Salamander Decorations," trimmed carefully and fixed with a strong paste with a small quantity of glue. The ceiling to have pattern No. 1038, strapwork design, 21in. wide, or the Old English pattern, No. 1024. The dado to be covered with pattern Louis XV., 24in. by 29in. (No. 1015), and the filling to be Louis XV., No. 1053. Or—

The walls of hall and buffet (or reception rooms) to be covered with "Lincrusta" or "Anaglypta" (describe No. of pattern from list), painted two coats of oil-colour, and picked out in tints to be chosen (or gilded) to the satisfaction of architect.

Prepare ground with first-class putty, and ground with oil-paint (or white zinc if white), finish for last coat, until a hard, smooth surface is obtained. Apply one or two coats of ripolin "mark B.L.T." Or—

Prepare ground with putty composed of ripolin of same quality and tint which will serve for finishing coat, white-lead, and turps, rub with pumice-stone in oil or water, and apply two coats of ripolin.

NOTE.—Instead of paperhanging, painting the walls is sometimes preferred. A valuable new material for external or internal wall-painting is "Ripolin," manufactured by Ripolin, Limited, Fenchurch-street, E.C., which combines a highly-glossy porcelain lake surface with great hardness, and resists atmospheric agencies, heat, steam, and vapours, does not crack or scale off, and can be washed. For lavatories and bathrooms, hospitals, public baths, restaurants, kitchens, &c., this enamel-like material will supersede the ordinary papering or painting.

#### GASFITTER.

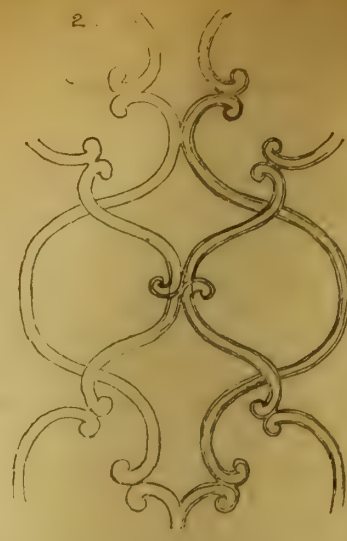
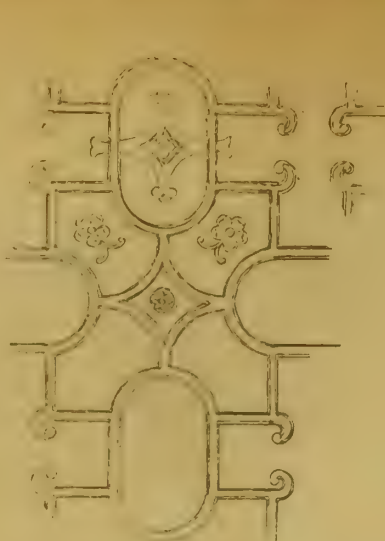
In some cases this trade is better dealt with as a provision. Specify the description of pipes, whether wrought-iron tubing (if galvanised), as Russell's patent welded

tubing, with necessary bends, angles, and tees, jointed in red-lead; "composition" tubing, or block-tin tubing. These should be specified of the required sizes and weights. Great care is necessary to prevent inferior materials and dishonest workmanship in this as in the plumber's trades. (See "Laxton" for weights, &c.) Gas-tubing will weigh, for  $\frac{1}{2}$ in. diameter, 41lb. per 100ft.;  $\frac{3}{4}$ in. tubing, 60 $\frac{1}{2}$ lb.;  $\frac{1}{2}$ in., 87lb.;  $\frac{3}{4}$ in., 117lb.;  $\frac{1}{2}$ in., 179lb., and so on.

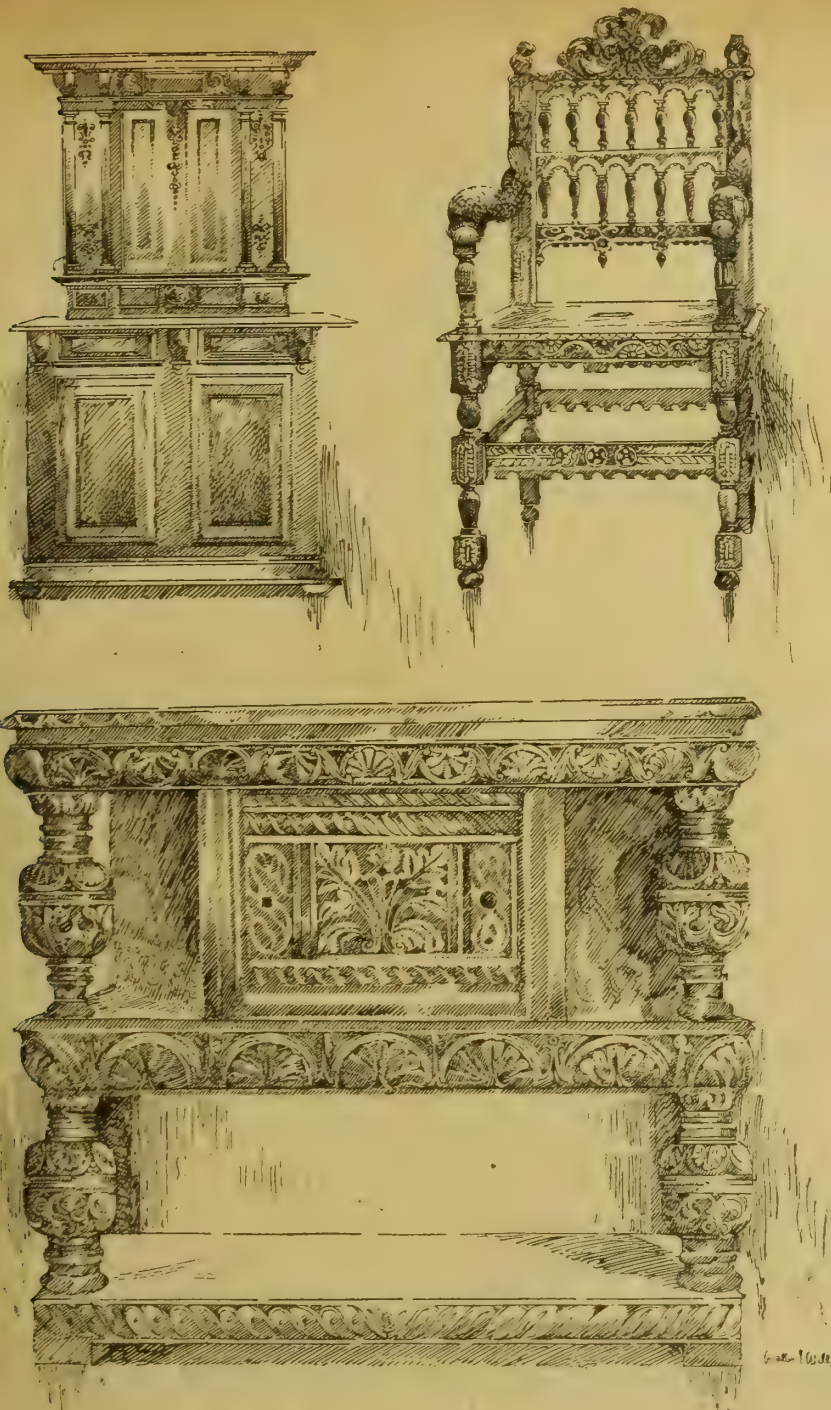
Gas-tubing should always be accessible or be in sight; and, if under floors, the boards above should have brass cups and screws, and small trap openings ought to be provided. Tubing is fixed with wall-hooks or patent clips. Provide casings to pipes (see "Carpenter"). All the tubing to be laid to certain falls to allow the condensed water to be drained off at convenient points, and for this purpose screwed plugs are provided, especially below vertical main near meter, by a T-piece. We recommend the student to peruse the treatise on "Gasfitting" by Black in Lockwood's Series. In some specifications the length of piping and fixing of different sizes and weights are given; in others the branch pipes of each size to the several positions are stated. These should first be carefully fixed, and the points marked on plan.

#### FIREPROOF BUILDINGS.

IN view of the fire risks in the States, the Chamber of Commerce of New York has ordered a paper by Mr. R. W. Gibson to be printed on a special feature of the fire risks of high buildings. The author assumes a type of building as a basis, one of 50ft. frontage towards a wide street 150ft. deep, and 16 stories in height, built under the New York building law for fireproof buildings. On one side is a similar fireproof structure, and on the other a six-story ordinary building, non-fireproof. There are shutterless windows on all sides. There is a common court between the adjoining fireproof building recessed into both buildings. The rear windows open on a yard. The other windows open over the roof of the combustible building. The building is insured at a premium of 16 cents on 100dol. The structure is supposed to be of brick and stone, partly filled in on a steel skeleton, floors of steel beams with terracotta arches, wood floors and exposed beams, without concrete filling up to bottom of sleepers, or any mineral wool below flooring to prevent fire entering; the soffits of beams are only covered with 1in. of plaster on suitable laths, instead of in two thicknesses—one close to metal, the other furred out, with an air-space between the two. The steel or cast-iron columns are covered with 2in. of terracotta covering, but not well bonded, and pipes are admitted beneath. The partitions are of terracotta, but the doors and sashes are of wood and glass with wooden posts built in the partitions. Window sashes and frames are of wood. The stairs have iron strings and risers







FURNITURE FROM HEAVITREE HOUSE, EXETER.

## COLOUR DECORATION.\*

(Concluded from p. 261.)

IN colouring your studies from nature do not attempt more than giving the local colours, and only showing enough to express this. For the mingling and blending of colour you cannot do better than get hold of a piece of polished agate, marble, alabaster, or other richly-veined stone, note their qualities of line and colour; these studies will require great attention in the execution and, *en passant*, the employment of body colour will be found useful in making them. Then make sketches of birds, beasts, shells, and fishes which present features of decoration, and draw the same object from different points over and over again, till you have driven it into your brain and learnt something of what they have to teach. Note carefully the lines of decoration and colour and the value of contrast. Butterflies, beetles, and gorgeous insects convey a great deal of teaching, and train the eye to the beautiful harmonies and daring contrasts to be found everywhere in nature, which brings colours together in contrasts of ever-varying beauty. Any dogmatism upon the harmony of colours, and what colours may or may not be used together, is silenced when one sees how Nature employs her palette. In making these studies from nature, do not forget the need of written memoranda, descriptive of what you have before you, and figure the dimensions upon the drawing; in short, give as much information as you can find space for. Bear in mind they are studies, and not pretty drawings. You will find it useful to acquire the art of

## SKETCHING IN PERSPECTIVE.

You can in less space show so much more of your subject, and if you can readily and easily sketch in perspective, it conveys the intention much better to the lay mind. It has, besides, a commercial value, as you may convince a client the more readily if you can show him how a work will look when executed. At the same time, do not let this kind of sketching take too great a hold upon you to the neglect of careful and figured details drawn either by eye or to scale. Drawing in perspective becomes so fascinating that the temptation is to make a picture, and you will learn your lesson better by a hard matter-of-fact diagram. In making studies of ornament in monochrome, it is most useful training to do so with a brush. You cannot get anything like the freedom or effect by using pencil or pen, and you will come nearer to the Greek and the Japanese if you copy their painting direct with a brush. With a little practice you will find no great difficulty; besides, it is excellent training, and it will let you into the secret of how they produced their effects and why their ornament takes certain forms. If you wish to study the ornament as practised by the ancient Greeks, go to the British Museum, make your way to the vase-rooms, and you will see how, by the employment of simple yet lovely forms, they have produced designs in endless variety and mostly with the use of a single pigment. We frequently hear a great deal about the accuracy displayed by the Greeks in their treatment of ornament. Many of the examples which have come down to us are anything but well drawn, and all show an absence of mechanical accuracy, being obviously executed by the eye and hand only. It is the fashion in employing Greek ornament in decoration of all kinds to do so with geometrical precision, with the result that it is all "Faultily faultless, icily regular, splendidly null." It does not pulsate with life, and to employ Greek ornament thus is to miss half its beauty—which does not consist in perfect accuracy of parts, but in that charm which the trained eye and hand alone can give to all work, and which is lost in mechanical execution. In the repetition of ornament, where the same pattern is employed over and over again,

## STENCIL PLATES

are generally used, and a few remarks upon stencil plates and their use will not be out of place. The great objection to them, where the pattern to be repeated cannot be cut without leaving "ties," which are used to hold the stencil together, is that it is seldom possible to touch in these "ties" afterwards without their being apparent. The whole art of stencil-plate cutting has a rather narrow margin of limitation, and work carried

\* Abstract of a paper by COLE ALFRED ADAMS, F.R.I.B.A., read before the London Architectural Association, Friday, Feb. 17, 1899 (see p. 264 *post*).

is considered the total premium of 16 cents is made up of 7½ cents on account of building's exposure, and 8½ on account of the internal risks, and the author says the results of improvements in both directions reduce the premium to 4½ cents—2 cents for exposure risks, and 2½ cents for internal risks. These particulars, summarised from the *Engineering Record*, are of interest to all concerned in buildings of this description.

## FURNITURE FROM HEAVITREE HOUSE, EXETER.

THIS week we conclude our sketches of furniture from the collection of the late Sir Clare Ford, G.C.B., for many years Ambassador at Rome, and a most enthusiastic collector. The Oak Cabinet stands 5ft. 9in. high, having carved and panelled front, with drawers and cupboards. The grand old Oak Chair is beautifully carved with open work back and quaint arms, and is of much interest. The Sideboard is also of oak, boldly carved with foliage designs, and has pillar supports with a central cupboard. The whole collection has successfully been disposed of by Mr. A. Bramley Sanders, of The Close, Exeter.

and marble treads, but exposed beneath without a ceiling of metallic lath and plaster or terracotta. The elevator shafts are open to every floor. Mr. Gibson shows the effect of partial improvements on the above maximum rate of insurance. These consist of metallic sashes, wire glass, the abolition of all wood wainscots, base-boards, wood partitions, jambs, &c., except door and partition sashes; distinct flues; fireproof doors in fireproof frames, all partitions standing in on fireproof elements of floors; sashes glazed with wire glass in fireproof frames, &c.; wood floors packed with asbestos or fire-stop solid up to top of sleepers; iron construction covered with terracotta or plaster or concrete including tops of beams; all floors solid fireproof, of concrete or tile, and all partitions the same, without wood studs or frames, and no glass sash or transoms; all covering to girders and columns properly bonded and anchored, and independent of pipes, &c.; stairs and elevators rendered fire-resisting, or closed to every floor, &c. The author says the result of all these improvements is to reduce the rate from 16 cents to 10½ cents on 100dols. Another set of improvements affecting the vulnerability of the building to fire originating outside is considered also, which reduces the premium to 10 cents. It



out with the extensive use of stencilling is anything but pleasing. It has a thin, starved, stiff, mechanical appearance. We may borrow a hint from the Japanese method of employing stencil-plates as practised by them at the present day. Having quoted at some length from Andrew Tuer, F.S.A., on the technique of the Japanese stencil-cutter, Mr. Cole Adams added: The Japanese employ stencil-plates for the decoration of their textile fabrics, and produce most artistic effects; whether they have any like method in use for wall or ceiling decoration I do not know, but I throw out a suggestion for adapting the principle employed by them, and applying it in a modified sense to our use. Let the design to be employed in repetition be drawn on fairly stout cartridge paper, and it may be designed without any care for the "ties," which it should be the object to dispense with, so that the plate shall leave the stencil brush finished. Then give the paper a coating each side of patent knotting, and with three or more similarly prepared blank sheets secured together at all available points, place on a sheet of plate-glass, cut out the parts through the several sheets with a sharp knife. Then when you have cut out the pattern, liberate the sheets and insert between two of them a network of very fine wire, which may be made taut by attaching it to a frame (a trifle larger than the paper stencil-plate) of stout wire. The two plates, being exactly adjusted, should then be pasted together, and when dry given another coat of knotting. It may be objected that the wire which takes the place of the "ties" will be objectionable, and will show in the colour; but with skill in manipulation it may be made, if you will, to become part of the design. It will not be any detriment, and, at all events, the plan will admit of a much wider, artistic, and more extensive use of stencilling. By having on your palette several mixings of the colour of varying tints, and two or more stencil-brushes in use, it is very easy to blend the colours of the stencilling in executing it, and to remove the harsh, mechanical appearance one so often sees. By a series of plates effects can be produced, on the same principle as wall-papers or printing in colours are done, and much of the objection to stencilling will vanish by adopting this method of the Japanese.

#### THE DIFFICULTIES THAT HESITATE A DECORATIVE ARTIST

are very great, and he must be ever studying so as to store his brain and keep abreast of the times. A student can hardly do better than commence his studies of decoration of the different styles with copying from the decoration of savage tribes, of which the British Museum—and most museums—contain a goodly collection. I advise this as affording illustrations of what the untutored man does in ornament and colour, and there is a marked likeness in the early efforts of different nations or tribes—lines, circles, dots, zigzags, herring-bone, and the employment of the primaries of colour. Then the styles should be taken, commencing with the Egyptian as the earliest. Let me suggest a visit to the Crystal Palace at Sydenham, where an object lesson may be learnt from the courts decorated in the different styles. Unfortunately in this country we have but few examples of ancient decorated buildings to study from, and have to be content with the fragments in our museums and the various objects to be found there. However beautiful the various fragments are, they have not the teaching that applied decoration to a building possesses; to obtain this you will have to go abroad and study the style you wish to become acquainted with in its own home, with all the surroundings which so influence the art. Much and most useful information is to be gathered from the splendid works which have been published, and which you may see at the museums and in the library of the Institute and Architectural Association. As it is hardly possible to study all the styles in the land where they have had their birth, you must study from those specimens which we possess and from books. One of the uses of possessing a knowledge of the styles is that you never know when you may be called upon to make use of this knowledge, and you should look upon it as part of your education, remembering there is no better way of familiarising yourself with them than by such study. Your sketch-book studies should include all the information you can acquire from books, and let that information be culled from the best writers on the subject; but bear in mind, a closer

and more thorough study will have to be made of those styles in which you are thinking of working.

#### WHAT IS THE BEST STYLE

to adopt for *fin de siècle* decoration? asks the bewildered student. The hum from the battle of the styles fought in the "sixties" is now at rest, and we are content to admit in the nineties whatever is the fancy of the day, until maybe, at no long future, an Architectural Association student will be found, sketch-book in hand, lost in admiration of the severe simplicity of Gower-street architecture. Yes, all is changed, and we are agreed that there is now no style in architecture which is worth dying for. For some years past men's faith in 13th-century work as the *ne plus ultra* has been rudely shaken, and the influence of a younger school of clever architects, led by Sedding, changed our faith, or, say, admitted into it greater latitude, and in the Church of the Holy Redeemer, Clerkenwell, and Holy Trinity Church, Sloane-street, we feel this force of Sedding's power, and recognise what his teaching was; that we were free to adapt from the various styles what seemed most fitting, and to cast aside the bonds of formalism, which required chapter and verse for every feature introduced into a building. Under Sedding's inspiration we feel the influence of his magic; and even though we refuse to go all the way with him, we cannot but recognise the power and that something which it is difficult to define, but which we call genius. What Sedding's status will be in the hierarchy of art we must leave to the future; with the restraint that his genius imposed, what we feel, perhaps, inclined to condemn, we are compelled to condone. It is in his followers that we have to look for results, and we have not had to wait long for them; the illustrations published in the professional journals are many of them strange and eccentric. They exhibit a likeness to the work of the master, but the spirit is wanting in them. But though these efforts may fail, are they not the outcome of the cry for freedom from the shackles of formalism? As Architecture is the mother of arts, so she must influence for good or evil her daughter Decoration. No longer will men tolerate a cold, lifeless revival of the past. Sedding's gospel of freedom is heard and felt, and what he taught finds many disciples. Who shall say that we are not to make use of ornament, no matter where we find it, if we have the wit: not a mere copying, but ideas worked out from it. Evolution is at work now as it ever was and ever will be. And what a perplexing state of things exists in our midst, and what difficulties it creates. The artist-decorator may, in the course of his practice, be called upon to decorate a church built in the Classic style, the Renaissance, the Romanesque, the Byzantine, the Mohammedan, or the Gothic; he will be required to do so in the correct style, as it is called, of the period of which the particular church is an example. Another time it will be a theatre, a concert or ballroom, or mansion, where, maybe, particular rooms are to be decorated in particular styles. Is it not, however, appalling, this demand upon the artist? No wonder if he bewails the age in which he has been born, and, from sheer weariness, closes his eyes and dreams of a time in which one style was in vogue, and one only. Surely it is wiser not to be troubled over much about what style to adopt—i.e., any of the various styles of decoration; more important surely to cultivate a good style—to study the old styles and try to absorb the principles to be found in them. Then if you elect to study any one style in particular, try to do so in the spirit in which it is conceived, and not to attempt the impossible or to revivify the past.

#### ONE OF THE PROBLEMS

in colour decoration is to employ only those colours which will look well both by daylight and artificial light. These will be influenced again by the amount of daylight which is obtainable in the place which is to be decorated. Here only experience will guide you correctly, and very difficult is it to prepare any sketch or drawing to show what you propose. Some artists positively refuse to do so, and no wonder. Still, there are clients who insist on having an idea of what the design is to be, and who will see a sketch first, and to a young artist just starting on his career, not to show what he is going to do may be fatal to his employment. Therefore, if it is insisted on, show as little colouring as possible, enough to give the general scheme, and guard yourself by saying that circumstances may compel you to alter as you go along. When the client has

approved of a scheme, the best thing that can happen for both client and artist is that the former shall go abroad for a time and not see the work through all its stages until finished. Now interiors have to be used by daylight or by artificial light, and by both day and artificial light. Under these conditions of lighting come others, and in the way in which they are met will depend largely whether the decoration is successful or otherwise. If the place is used by daylight, note what amount you have at your disposal, or will have when the windows are upholstered; what is the aspect. Then for what use the apartment is to be put, and whether it is wanted for summer or winter use. Then, again, at what time of the year you see it, so as to judge of the amount of light; if a sombre and subdued effect is sought for, or a bright and cheery one. If, again, the apartment is to be used at night, obviously your colours must be tried by artificial light, and make your experiments by that kind of light which is to be adopted. If for day and night use, you must use those colours which look well by day and night. The design thought out, you must first try the colours you are proposing to use upon the walls or ceiling. This

#### TRIAL OF COLOURS UPON THE SPOT

is of the first importance, as many are the changes that take place, and what looks well in one place looks bad in another. The experiments may be in colour only, without any design upon them, or you may, better still, put up full-size coloured cartoons *in situ*, and judge of the effect. It is a good plan to leave them up for a day or so; frequently it happens that after an interval you come upon the design with a fresh mind, and can form a better judgment than at first, and decide in what points you think they need amendment, and whether, as is very probably the case, you may omit some of the detail, strengthen and accentuate those parts which require it, and send back or bring forward others. Do not hurry over this stage of your work; it may take you hours only trying the colours and effects. When you get the colours and the design settled somewhat to your liking, you may consider yourself happy; vigilance will still be required, but the worst is over. If you have a good, intelligent, and honest foreman of painters, another great weight is taken off your shoulders. It may be that you have to collaborate with some figure or landscape artist, and then your whole scheme of colour has to be subservient to his work. And the payment for all these years of study spent upon decorative work? Your payment must be, in the first place, the delight of doing colour and design, for it is seldom you are paid adequately for the labour and time it involves. You will sometimes find clients who are under the impression that the 5 per cent. will cover your expenditure of brains and time, and be genuinely surprised when you tell them that such payment is totally inadequate. A gentleman connected with a large firm of decorators once told me that they reckoned 20 per cent. in their estimates for the "brains," and for good work requiring special skill and much time this is not excessive. Perhaps the best advice, from a purely commercial view, is to get what you honestly can, acquire a name and fame by judicious self-advertisement, strive to cultivate a manner, to become the fashion, by letting it be known far and wide by the blast of the sound of your own trumpet, that you are the artist to employ, and then Society will pay you anything in reason—and out of reason—you like to ask.

#### SOIL-PIPE VENTILATION.

AS, in accordance with the by-laws of the London County Council, traps are prohibited from being fixed at the bottom of single soil-pipes, but must be placed at the sewer end of the drain, it has become more imperative than ever that exhaust ventilators be employed on the tops of soil-pipes to maintain a constant upward current, as, should any downward current occur, a compression of the air would arise in the soil-pipe through the current coming from the drain in the opposite direction meeting it. This current might also be reversed, the air from the soil-pipe and drain passing out through the ventilating trap at the ground level.

The diagrams and description on next page explain Messrs. Robert Boyle and Son's double-action and single-action methods of soil-pipe ventilation, which have been extensively and successfully employed in this country.



# THE "BOYLE" DOUBLE AND SINGLE ACTION SYSTEMS OF SOIL PIPE VENTILATION

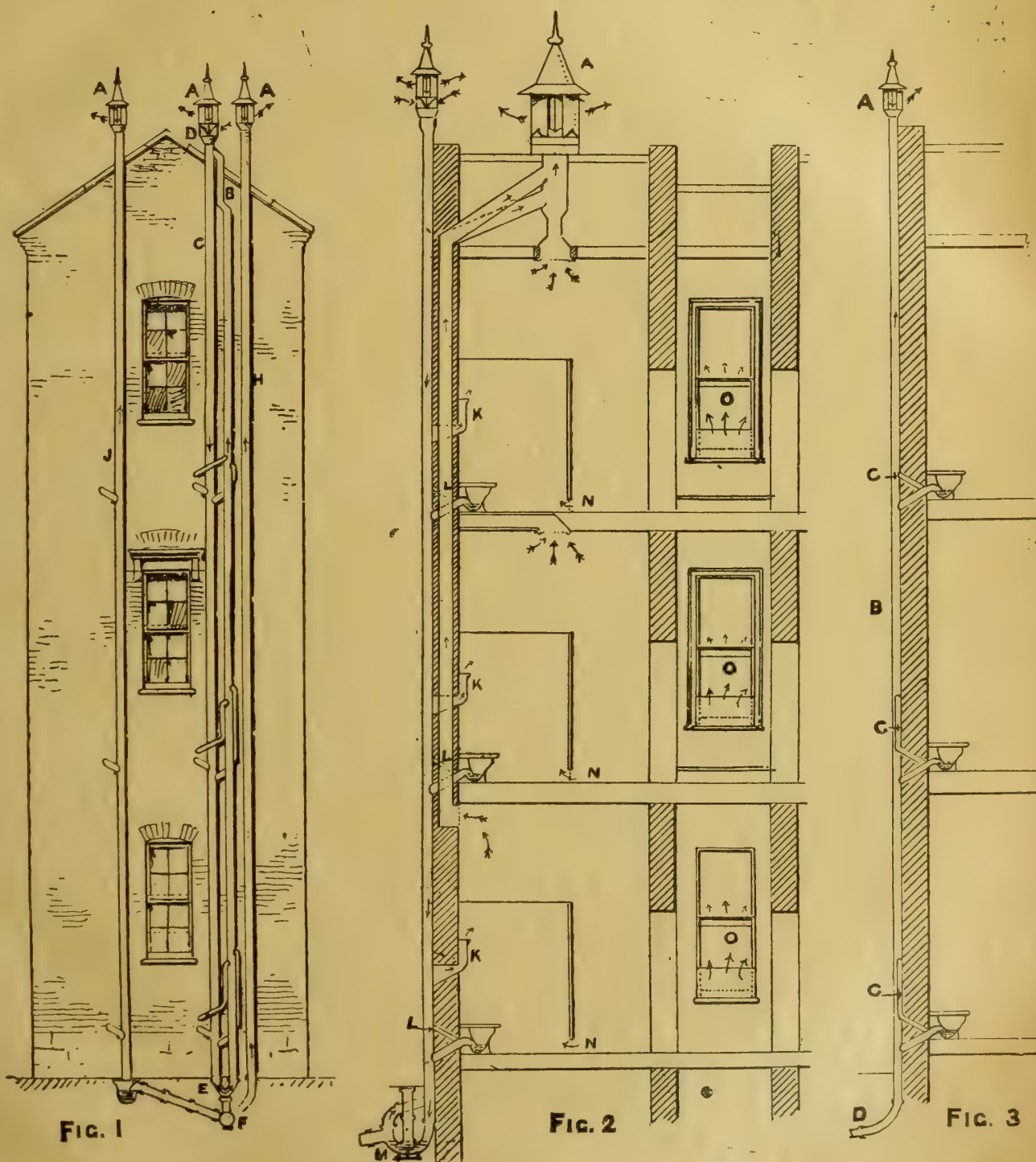


FIG. 1.—Elevation of Double-Action System. With this system a double power is obtained, the aspirating force of the "Air-Pump" Ventilator A acting upon the up-cast pipe B, and the pressure of the air down the soil-pipe C as it enters through the down-cast Ventilator D attached to the bottom of the "Air-Pump" Ventilator, and which catches the wind from every quarter, maintaining a through current at the junction E immediately above the Disconnecting-Trap F. The air inlet being above the roof, there is not the same danger from escaping noxious gases as when the inlet is at or a little above ground level. H Ventilating-Pipe connected with drain. J Waste-Pipe running into open gully connected with drain.

FIG. 2.—Section showing the ventilation of soil-pipe with the "Boyle" Double-Action System, also ventilation of W.C.'s with Boyle's Patent "Air-Pump" Ventilator A and air inlets K K. L L, 2in. pipes connected with upcast shafts for the ventilation of discharge pipes, and to prevent siphoning of traps. M, Disconnecting-Trap with inspection chamber.

FIG. 3.—Section of Single-Action System. A, Boyle's Patent "Air-Pump" Ventilator (upcast). B, Soil-Pipe. C C, Ventilating-Pipes connected with discharge pipes to prevent siphoning of traps. D, Drain-Pipes.



## "RIPOLIN."

**A**MONGST the many new decorative materials of value to architect, builder, and decorator, Ripolin deserves a high place. It is a paint ready for use, adapted for all architectural and engineering purposes, which, on drying, presents an exceedingly glossy, rich, and porcelain-like surface. It is supplied in all shades of colours, and is well adapted for external as well as internal surfaces, being applicable to metals, wood, plaster, stone, glass, &c. We have some samples of work done with Ripolin which speak for themselves. One is a white paint on plaster of Paris, which keeps its colour well, and has a highly-enamelled porcelain surface very suitable for indoor decoration, as well as a surface to reflect light in areas or courts. We have seen nothing more perfect as a white. Another slab on plaster backing is a delicate shade of salmon pink, but the surface is flat, not glossy—an excellent paint for internal wall decoration.

The other samples show the paint on wood and metal. To show its elasticity the metal can be bent double without cracking the painted surface. We have inspected the paint as applied to the offices of the Company Dominion House, 110, Fenchurch-street. The walls of one office are painted a light shade of grey flatted, with a darker shade in the dado; this has a glossy surface. The doors and architraves are also painted with Ripolin, cream or white on the framed work and mouldings with red panels. The inner room is finished with a delicate shade of pink, flat, and the dado is a green glossy surface. Other parts of the office show a number of tints of the Ripolin, all equally good and highly satisfactory. The floor of one office is also painted with this material, proving that it can be used for any surface, and is an excellent substitute for oil-painting or staining. As varnishing is not necessary where Ripolin is used, there is a distinct saving in this respect. Five different paints are made. The Ripolin "mark B.L.T." is suitable for both indoor and outdoor work, dries in 8 hours, resists the action of sun and weather, and does not scale off even under great heat. It has proved itself durable under Tropical suns. The surfaces are prepared in the usual manner with putty, and ground with oil-paint until a smooth, non-porous surface is obtained. One or two coats of ripolin B.L.T. is sufficient. The "ripolin floor-paint" is another useful sort, and is prepared for rapid setting. Ripolin "mark A" sets very quickly, in two hours, and becomes as hard as stone, and is used as an indoor paint for walls of lavatories, hospitals, prisons, &c. For fresh cement plaster Ripolin "cement paint" is used, and for painting baths, &c., another kind is made. Ripolin can be washed. It should be applied in thin coats with a firm but soft brush. For full particulars and prices, we recommend our readers to apply at one of the offices of Ripolin Limited, 110, Fenchurch-street; 8, Pembroke-square; or 175, Cromwell-road, S.W. Furniture, ironwork, girders, machines, and apparatus, ships, park-seats, carriages, &c., can be painted with Ripolin.

## THE SOCIETY OF ARCHITECTS.

**T**HE monthly meeting of the Society of Architects was held on Thursday evening in last week, Mr. E. Gard-Pye, member of council, in the chair. Four nominations for membership having been received, Mr. E. L. Clare, 61, Duke-street, Chesham, and Mr. W. A. Scott, Paradise House, Drogheda, were unanimously elected as members. Numerous donations to the library were announced by Mr. C. McArthur Butler, secretary, and were acknowledged with thanks.

## LINCRUSTA WALTON.

A paper on this subject, written by Mr. F. FORDHAM SCRUBY, was read for the author, who was present, though suffering from indisposition, by Mr. Norris. In his introductory remarks Mr. Scruby referred to the painted mural decorations of the Egyptian tombs and temples, to the veneers of richly-coloured marbles employed by the Romans, and to the use of stamped and glazed bricks by the Egyptians, Assyrians, Sassanians, and Moslems. He also referred to the hard polished stucco, of the colour of ivory, employed by both the Greeks and Romans, the secret of which was now lost. Coming down to the 16th and 17th centuries, he dealt with the decorative use in that period of stamped leather. Skins of goats and calves were,

Mr. Scruby remarked, employed; but that was a very expensive manner of decoration. These skins were pressed out with metal dies—one in relief, and the other sunk—and were also painted in various brilliant colours. Italy and Spain were the important centres of this manufacture. Before this time—in the 15th century—a wall-hanging was made of canvas to imitate tapestry. Wall papers did not come into common use until the 18th century, and then they were printed on small square pieces of hand-made paper, difficult to hang, disfigured by various joints, somewhat costly and unsightly. For these reasons a long time elapsed before wall-paper superseded such dignified decoration as carved-wood panelling, painting, tapestry, painted cloth, and stamped leather. It was very expensive, and was chosen only by those who could afford it. About the year 1857 a Mr. Frederick Walton made the discovery that linseed-oil exposed to the atmosphere oxidised. Now, that was a very simple thing to discover; but it was a very important discovery. Mr. Walton observed that a patch of linseed-oil became quite firm. While he experimented he made the discovery that he was able to produce something; but of course he did not have all his own way at the outset. By the use of what Ruskin calls the "most durable oil" he thereby gave us the linoleum of to-day, which is in itself a great achievement, and we are indebted to him for it. He thereupon founded the Staines Linoleum Company, which has paid 20 per cent. for over 20 years. One day, in 1878, whilst watching the machinery, he noticed an impression had been made on the linoleum. He saw that this indentation in the linoleum was caused by a screw which had got loose in some part of the machinery. A trifle like that no doubt some of the workmen had seen, but they had let it go by; but this little incident had struck the mind of a keen observing man, and this was the origin of Lincrusta-Walton. Through Mr. Walton's keenness, originality of thought, and determination, we are indebted for the possession of a process which enable us to beautify our homes and decorate the public buildings of the country with all the ancient designs of the most beautiful kind ever worked in leather, thus immortalising art by handing these examples down to posterity. One very great advantage in using this material, Lincrusta-Walton, is that most of the warlike insects leave it alone. Now, one of the worst we know anything about is the white ant, but he cannot fill his belly with it, so he leaves it alone; beetles and worms find nothing in it, so Lincrusta-Walton is not only beautiful, but it is enduring. It is also a positive proof against dampness. It is used in a large number of public buildings, including the Queen's Hall, Langham Hall, the Tivoli Palace of Varieties of Leeds, the Cambridge Palace of Varieties, London; the Coburg Hotel, Grosvenor-square, London; the Tivoli Palace of Varieties, Manchester; the Mosley Hotel, Manchester; the Belfast and Northern Counties Railway Hotel, Belfast; and all the chief flats and mansions in Kensington; a very large number of hotels, and most of the railway companies in the United Kingdom, as well as some of the chief liners to Australia and the United States, and the new baths at Harrogate, where there is plenty of moisture. A few of the difficulties of the manufacture of Lincrusta-Walton may be indicated. In the first instance, the material used gave considerable trouble, and though it was the same as linoleum, yet it was quite a failure. An ordinary man would have stopped there; he would, in fact, have thrown it up in disgust. Although everything seemed to point to failure, after working nearly two years Mr. Walton produced a composition of wood fibre, oxidised oil, and gum, and the result is that to-day those materials in combination are still used in the manufacture of Lincrusta-Walton. This was not his only difficulty; after having proved to his own satisfaction that this material would do, the next difficulty was the machinery. There was no machinery suitable in existence; he had, therefore, another task. He first tried the use of impressed composition for his rollers. This and other materials were experimented with; but owing to the excessively high pressure, steel rollers had to be used, which, after being used some time, were useless, and new rollers had to take their places. In addition to this £50,000 was spent before the company was ready for business, and but for the security and monopoly that a patent gives, this capital would not have been sub-

scribed at all, nor the enterprise carried out. The many fine examples of wood-carving of the 15th and 16th centuries that still exist give us some idea of the wealth of the country in this branch of art. The rich oakwork of England was no exception to the universal application of coloured decoration, and nearly every screen, roof, and choir-stall was covered with minute painting in gold and colours. The modern idea that oak should be unpainted was unknown to our Mediaeval forefathers, and they, as a rule, preferred a simple coating of paint of different colours to the natural tint of the oak. In most cases, however, the woodwork was not left with its uniform ground of paint, but delicate and graceful patterns were added on to the main lines of the work. Many of the Norfolk screens still retain much of their painted ornament in good preservation, and great richness of carving is to be seen on the church roofs of both Norfolk and Suffolk. This wood carving is usually of very high artistic merit, combining delicacy of detail with strength of decorative effect in a way that has never been surpassed by the Mediaeval artists of any country of the Continent. Norfolk, Suffolk, Devonshire, and other counties are rich in elaborate chancel-screens carved with delicate foliage. The tracery which fills in the upper part of these screens is of wonderful beauty, and executed with most minute finish. In the sixteenth and seventeenth centuries there was very little good wood-carving produced. The oak panelling and other fittings of the Elizabethan and Jacobean periods were largely enriched with surface relief, coarse in execution, but often decorative in effect. Towards the end of the 17th century a very realistic style of wood-carving came into use in which there was great technical skill but little real artistic feeling. Between the years 1648 and 1721, Grinling Gibbons and his pupils produced the most elaborate works of this class, such as wreaths, scrolls, and friezes carved in high relief, or in the round, with fruit and flowers modelled and carved with wonderful skill. These clever groups of foliage and fruit were carved in pear or lime wood, and fastened on to the surface of wall panels, mantelpieces, and other wood fittings. The stalls and screens in St. Paul's Cathedral are some of Gibbons's best works; and a great deal of his realistic carving still exists in the Oxford colleges, at Trinity College, Cambridge, at Chatsworth, Pepworth, and in many of the great country houses of that time. Since then wood-carving has not taken an important position among the lesser arts of the country. It is a matter of great gratification at the present that all these beautiful designs in wood, which have been produced by great labour and skill, are capable of being reproduced in Lincrusta-Walton, no matter how intricate or apparently difficult. Lincrusta-Walton is solid in relief, and the designs cannot be obliterated, or the artistic effect marred by workmen. In fixing Lincrusta-Walton to a new wall, time must be given sufficiently long to permit the exudation of lime to pass off by exposure to the atmosphere.

## DISCUSSION: OUTSPOKEN CRITICISMS.

Mr. J. R. MANNING, in proposing a vote of thanks to Mr. Scruby, said he must differ from the author in his advocacy of some applications of Lincrusta-Walton, such, for example, as the imitation of carved woodwork, and he certainly should object to reproducing in modern houses the beautiful oak screens to be found in Devonshire and Norfolk. That the material had a proper use all would agree; it was very effective when employed for ceiling decoration, but not for the panels of doors, for there was a want of sharpness about the material. He had, indeed, been in several houses where the doors had been spoiled in appearance by filling in the panels with Lincrusta. Another objection to it, in his mind, was that it was a sham. Mr. Scruby had stated that Lincrusta-Walton had been used in hospitals, and he should like to know which hospitals they were. For railway carriages, music-halls, and public-houses it was, he would admit, a very useful and even a valuable material, and one which afforded an excellent ground work for further decoration by painting. It required discrimination to use the material aright, and it should certainly not be utilised to represent woodwork, but ought to be restricted to its proper place as a decorative feature.

Mr. WILLIAM COOPER, of Hastings, seconded the vote of thanks, remarking that Mr. Frederick Walton was a pioneer of relief decoration as used



at the present day. His own experience in the employment of Lincruston-Walton was that it stood and matched well, and was impervious to damp. On one occasion the contractor for some of his work had put some Lincrusta-Walton on a wall before it was thoroughly dry. The result was that the plaster was drawn off the wall, but not the slightest sign of dampness was observable on the surface of the Lincrusta, and except at the joints he could perceive no mouldiness. As to the imitation of woodwork, architects would one and all wish to banish it from use; but as a commercial firm, he supposed the makers were obliged to cater to the public taste for cheap imitations.

Mr. ELLIS MARSLAND, hon. secretary, considered that while Lincrusta-Walton was confined to its legitimate purposes of decoration, nothing could be said against it. It merely resembled the leather hangings of former days, only instead of the stamping being executed on leather, it was done upon the material invented by Mr. Walton. He must, however, enter a vigorous protest against the imitation of oak-work and carving, such as they saw hung on the walls. It was taking the material out of its rightful province and making it a sham. Such imitation was very distasteful to architects, and he would urge the firm not to attempt to copy oak-work.

The CHAIRMAN agreed with Messrs. Manning, Cooper and Marsland as to the ill-effects of imitation oak panelling. There were new buildings, such as music-halls and public-houses, in which the owners were glad to have recourse to such decorations as those exhibited. He had personally had a good deal to do with the alteration of public houses and the erection of new ones, and he had employed Lincrusta-Walton with every satisfaction to his clients. It was a good wearing fabric, could be easily cleansed, and wore a long time, while it was satisfactory to be assured that insects would not attack it. In putting the vote of thanks, which was carried with applause, he coupled with the name of Mr. Scruby that of the reader of the paper, Mr. Norris.

Mr. SCRUBY said he was glad to find that a body of architects were so outspoken in their criticism of the Lincrusta panels. They all knew they were a sham, but they were much in request, and some fine specimens could be seen at the Holborn Restaurant. The general public required such a material, and the company were obliged to comply with that demand.

Mr. NORRIS also acknowledged the vote of thanks, and held that imitation was necessary, as so long ago as five thousand years the ancients had faced their walls with marble veneers, and it was rather late to attempt at the present day to put down shams. Lincrusta-Walton was admittedly an imitation; but it was far more beautiful than a veneer of marble.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE annual general meeting of the above society was held on Feb. 28. Mr. W. H. Parker, in vacating the chair of the ordinary monthly meeting of the committee, expressed regret at the unavoidable absence of the outgoing President, Mr. R. C. Foster, and introduced the incoming President, Mr. Alf. F. Randall.

Mr. Randall, who was much applauded on rising, said that the report showed the past year to have been a record one, and, whilst congratulating the committee on such a successful period, thought a fairly hard task had been set him. However, he would do his best, and hoped support would be given him "all along the line" for such a deserving cause.

The report and balance sheets as read were adopted.

The report showed an income for the year of £888 14s. 9d., the donations and subscriptions amounted at the annual dinner amounting to £519 9s.; also that there were 20 recipients of the pension, two children at the orphan working school, and the committee was prepared to receive applications for a builder's clerk's orphan as an intending candidate.

In proposing the election of the incoming officers, Mr. E. Brooks reminded the committee that it was just 15 years ago the president's father occupied the same chair, and, taking his services as a criterion, they could expect good work from the son.

The Holborn Board of Guardians have decided to expend £5,000 on new drainage work for the Highgate infirmary.

## Building Intelligence.

BRADFORD.—The plans by Messrs. Mawson and Hudson, of Bradford, have been accepted for the new fire-brigade station in that city. The engine-house, to accommodate five engines, is placed in the centre of the principal front towards Nelson-street, and is 84ft. long, 35ft. wide, and 16ft. 6in. high. Immediately behind it are the stables for eight horses ready for immediate duty. The doorways to the engine-house are framed in four leaves, so that an engine can pass out at full gallop. Over the engine-house and duty room is placed the gymnasium, 45ft. 6in. by 35ft., and a dormitory or single men's quarter, 40ft. by 18ft., for the men on night duty. The workshop, 50ft. long, will be fitted with engine, lathe, drill, forge, grindstone, and work-bench. The cost of the building is estimated at £15,000.

EALING.—A theatre is being erected on the site of the old Lyric Hall in the Broadway. Entering by one of four spacious doorways is an outer vestibule, 32ft. by 21ft., on the right of which is the grand corridor, leading up to the reception lounge, which will run at the rear of the grand circle across the entire breadth of the theatre. From either side of the grand circle access is obtained to the stalls, and to the balcony or family circle access is likewise gained from the outer vestibule. A corridor direct from the Broadway will lead to the pit. The theatre is being constructed to seat 1,400 persons, and is being built without columns. The stage has a superficial area of 2,700ft. The building is to be of entirely fireproof construction, and electricity will be solely employed for illumination and stage effects. The dressing-rooms are in a self-contained block, and separated from the main building by fireproof doors. The entrances to every portion of the theatre are to be duplicated by a similar number of special exits to be used in case of emergency. The internal fittings and decorations will be ornate in character. The saucer-domed ceiling and the fronts of the grand and upper circles will be treated in the Early Greek style. Panels of Wedgwood, representing Thespian subjects, divided by small Corinthian columns, are to be introduced in the grand circle front; whilst Greek vases alternate with the upper circle panels, the figures of which, in low relief, will represent the fine arts. The proscenium frame, being square and gilded solid, will resemble a huge picture frame, and a representation of a tapestry from the well-known Baranth collection for an act drop will complete the scheme. On the eastern side of the theatre is planned a wide corridor leading direct from the Broadway to the Lyric Restaurant. At the end of this corridor is reached the reception-hall, surmounted at a height of 50ft. by a glass dome and surrounded by a marble balcony on the first-floor level, and from which ascends the grand marble staircase to the principal rooms on the first and second floors. From the ground floor is entered the Montagu Rooms, the principal ball-room suite. The ball-room will have a dancing space of 65ft. by 35ft., exclusive of a permanent orchestra platform at the north end and ante-rooms on the east side; the floor will be laid on springs, and the walls are lined with fitted mirrors. The Perceval Rooms at the end of the building measure 54ft. by 20ft., and are arranged for small social gatherings. The Leopold Rooms occupy the entire Broadway frontage on the first floor, the largest room measuring 40ft. by 35ft. Adjoining this is a reception-room, 29ft. by 16ft., and the ante-rooms. French casement windows connect with an open balcony overlooking the Broadway. The Masonic Temple occupies the second floor of the Broadway frontage, which will be fitted in high wainscot oak, with its organ-chamber and domed ceiling. In addition to the suites mentioned there will be included a grill-room (30ft. by 20ft.), a café, a billiard-room, a buffet, and a reading-room. The kitchens, larders, glass and silver pantries, services, &c., will be in the central port portion of the building and connect with service and wine-stock rooms on each floor, whilst the basement will contain cellars. The building is being erected from plans by Mr. G. H. Pargeter and Mr. Walter Emden, P.S.A., who is the consulting architect for the theatre portion, and Messrs. Beer and Gash, of Wharf-road, City-road, are the contractors for the whole block. The Broadway elevation is being built in biscuit-coloured

terracotta by Messrs. Doulton, and the back elevation is treated in brickwork. The north-west corner will be capped by an open-domed turret. The building will be opened in October next.

#### CHIPS.

New schools are being erected at Littlehampton, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

Tenders are being sought by the Leeds County Council for the erection of a new police-station and branch library at the junction of Woodhouse-lane and Reservoir-street, Leeds. The new building will be set back, and will contain not only a police-office, a branch free library, and newsroom, but also an inspector's-room and a waiting-room for tramway passengers. At the junction of the two thoroughfares the building will be surmounted by a small tower, in which the Corporation will place a two-dial clock. The total cost will be about £6,000.

At the last meeting of the city council of Truro, it was stated that the arbitrator had decided that £925 was the price to be paid by the corporation for the Swan Inn, stable, outhouses, yard, and a small dwelling-house in Kenwyn-street, which it had been decided to acquire for purposes of street improvement. The town council's valuer mentioned £700, and the price given for the disposing party was £975.

At the Llandrindod Wells County-court, last week, a jury awarded the plaintiff £100 in an action for damages, brought by Richard Rickards against the firm of David Jenkins and Sons, builders, of Swansea. The plaintiff was engaged at work in connection with the building of a new hotel at Llandrindod, and in consequence, as he alleged, of defective arrangements for the safety of the workmen, he fell through a well-hole and was seriously injured.

Mr. E. A. Sandford Fawcett, an inspector of the Local Government Board, held an inquiry at the Manchester Town Hall recently into an application of the Lancashire and Yorkshire Railway Company to purchase 187 houses, to be demolished in connection with the extension of the goods-yard of the company at Oldham-road, and to provide new dwellings for the 900 residents therein. Mr. Henry Sheldermine, architect and estate agent of the Lancashire and Yorkshire Company, said the houses to be built were on a plan approved by the Local Government Board and by the corporations of Manchester and Salford. Many of the houses to be pulled down had been condemned by the sanitary authority of the city. The average rental of the new flats would be 6s. for the ground and first floors, and 5s. 6d. for the second and third floors. The company had carried out four other schemes of the same character, but on a smaller scale, in Manchester and Salford.

The engineer to the Weston-super-Mare, Clevedon, and Portishead Tramways Company has prepared the Parliamentary estimates of the cost of constructing the proposed light railway extension which are being sought this session by this company. The total length of these extensions will be six miles one furlong, and the new line will be single throughout, and will run from the termination of the company's existing tramroad at Clevedon to the siding of the Great Western Railway in Portishead. The cost of these extensions is put down at £20,258.

The Duke of York, who was accompanied by the Duchess, opened at Portsmouth on Monday four new wings, which have been added to the local hospital as a memorial of the Queen's Diamond Jubilee. Two blocks, comprising the four wards just opened, have been erected, at a cost of £15,000, from the designs of Messrs. Keith D. Young and Henry Hall, of London, the contractor being Mr. J. H. Corke, of Portsmouth. Two other blocks will be added when funds are forthcoming.

Fire broke out on Saturday afternoon in a warehouse of five floors at 9, Farringdon-road. The premises were tenanted by four firms, including Messrs. T. Hyatt and Co., manufacturers of pavement lights. The warehouse was saved from total destruction, but serious damage was caused by fire, smoke, and water to the ground floor, and the upper part of the building suffered by smoke, and the basement and its contents by water.

In the case of the application for discharge from bankruptcy of Christopher Barton, Winsford, builder and contractor, trading with Henry Barker as Barker and Barton, the discharge has been suspended for three years, ending Feb. 2, 1902. In that of Evan Bracey and Isaac Bracey, trading in co-partnership as Bracey Brothers, Staple Hill, Gloucestershire, builders, Isaac Bracey's discharge was granted conditionally; Evan Bracey did not appear, and his application was dismissed.



## PROFESSIONAL AND TRADE SOCIETIES.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—The members of this association visited on Saturday the works of Messrs. James Milne and Son, Ltd., and were received by Messrs. Milne, Lumsden, and Macfie, the managing directors, who conducted the party in sections over the works, and afterwards entertained them to luncheon. Holyrood Palace was next visited, and over it they were conducted by Mr. W. Wybrow Robertson. By special permission of Her Majesty, the private apartments were open on the occasion, and over these they were shown by Mr. Robertson and by Mr. Sands, of the Lord Chamberlain's department.

**"INFLUENCE OF ATMOSPHERE ON BUILDINGS AND DECORATIONS."**—At a meeting of the architectural section of the Philosophical Society of Glasgow on Monday night, Mr. P. Macgregor Chalmers presiding, a paper was read by Mr. Oscar Paterson, glass stainer, on the subject of "Atmospheric Influence on Architecture and Decorations." The paper was illustrated by chemical demonstration and a large number of lantern-slides. The lecturer pointed out that the very offensive and noxious condition of the atmosphere of Glasgow was the resultant of the free escape of factory smoke and the subsequent oxidation of the sulphur in the coal into sulphuric acid. The immediate result of the dissemination of this corrosive and virulent compound was observed in the erosion of the stone of the public buildings in the city, and the destruction of vegetation, while the free molecules of carbon carried over in the soot of factory smoke settled on stonework, turned the natural brightness of the material into a gloomy and sombre grey, destroying at once the precision, fineness, and quality of the architecture. Mr. Paterson dwelt on the condition of the statuary in Glasgow's public squares, and, while deploring the offensive condition of its surface, where all the intrinsic quality of the material was entirely destroyed by the coating of oxy-sulphides and other impurities which had formed or been deposited there, he suggested a mode of treatment based on experiments adopted by the municipality of Berlin. The stonework of the Municipal Chambers of the city was beginning to succumb to the effects of the atmosphere. Referring to the action of the atmosphere on decoration, the lecturer pointed out that sulphuric acid and hydric sulphide were the principal factors in the change of colour that takes place in certain decorations. It was also suggested that by a due attention to an efficient medium and method of painting the most fugitive colours almost could be rendered permanent. Glasgow ranked next to London itself in the impurity of its atmosphere, and however high a position the city might have acquired as an art centre, there was probably no other town in the kingdom where public buildings and decorations had so uncertain a condition of stability.

The rural district council of Billericay have requested Mr. G. Maxwell Lawford, M.Inst.C.E. (Messrs. Bailey-Denton, Son, and Lawford), of Palace Chambers, Westminster, to report to them upon a scheme of sewerage and sewage disposal for the growing town of Billericay, which is being largely developed owing to the Great Eastern line to Southend, which runs through it.

Colonel Sir Francis Marindin, R.E., on behalf of the Board of Trade, inspected last week the tram-lines which have been recently laid by the Moss Side urban district council, under the supervision of Mr. W. R. Acton, the engineer of the scheme. The route taken was from Brooks's Bar, *via* Raby-street and Moss-lane East, to Wilslow-road; thence along Upper Lloyd-street and Monton-street, *via* Burlington-street, to Greenheys-lane and Denmark-road, and along the Princess-road and Bradshaw-street sections. The whole of the lines received the approval of the inspector, and he sanctioned their immediate use.

The Bishop of Oxford dedicated, on Sunday week, a chancel-screen in St. Mary's Church, Mortimer, Berks, erected as a memorial of the late Mr. Richard Benyon, and designed by Sir Arthur W. Blomfield, A.R.A. The screen is of English oak, surmounted by a border of tracery, from the centre of which rises a cross.

The new Welsh Congregational chapel to be erected in Trinity-road, Bootle, has been intrusted to Mr. T. Taliesin Rees, A.R.I.B.A., Birkenhead. The design was selected from a number sent in a limited competition. The building will be erected in red brick and terracotta.

## COMPETITIONS.

**TOTTENHAM.**—The urban district council have received competitive schemes for the erection of a dust destructor as follows:—"Algebra," £22,976; "Smokeless," £16,200; "Intensifier," £12,355. The premiums offered were £25, £15, and £10 only. The plans have been referred to a committee.

**NELSON, LANCS.**—At a special meeting of the building committee of St. Philip's Church, Nelson, plans of a new church which it is proposed to erect in place of the present iron buildings were submitted. The successful competitor was Mr. Preston, of Manchester. The cost of the new church is estimated at £5,000.

## CHIPS.

The town council of Ayr, after a protracted discussion, have decided to purchase as a site for the new town hall a site in Sandgate Park, measuring 135ft. by 200ft., for £4,200.

After seven months' consideration the electric lighting committee of the Hackney Vestry have issued a report prepared by Mr. R. Hammond, and the committee recommend the vestry to adopt an electric-lighting scheme therein set out, which will cost, exclusive of charges for the site of the works, £242,367.

The new intermediate schools, Bülth, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The death is announced of Mr. William Todd, architect, of Abbey-road, St. John's Wood. The deceased was one of the senior members of the London Architectural Association, his membership dating from 1871.

At a general meeting of the Royal Institute of Painters in Water-Colours, Piccadilly, held on Tuesday evening, Messrs. Alexander M'Bride and Edward C. Clifford were elected members.

Lieutenant-Colonel Frederic Bailey, R.E., Edinburgh, held an inquiry within the Municipal Buildings, Ho'ness, N.B., on Monday, with regard to an improvement scheme which the town council of the burgh as local authority propose to carry out under the Housing of the Working Classes Act, 1890, from plans by Mr. J. P. Laurie, the burgh surveyor. The area to be dealt with extends to about one acre, and is situated between North-street and South-street West from the post-office and market-square. On this are situated about 100 dwelling-houses, 12 shops, and two public-houses, valued at £6,300. Nearly all this property is in a ruinous condition, huddled together with very little light and air-space, and in a very bad state from a sanitary point of view.

The town council of Devonport adopted, on Monday, a scheme by Mr. James Diggle, C.E., of Manchester, for dealing with the drainage of the St. Badaux and Camel's Head districts. The estimated cost of the undertaking is £36,409.

A destructive fire occurred on Monday morning in the timber-yard of Messrs. Garland and Roger, Dumfries. The fire broke out in a small store, erected of timber, and occupied by a grocer, and from there it spread to the stacks of timber in the yard, some thirty of which were burnt out. The loss is estimated at £5,000.

The alterations in converting the premises for the National Provincial Bank of England, Hove, into a branch bank have been done by Messrs. Pells Bros., architects, 185, Church-road, Hove. The work generally has been carried out by Messrs. Parsons and Sons, contractors, Hove.

Sir Hugh Owen, G.C.B., the late permanent Secretary to the Local Government Board, was presented on Friday with the freedom of the Plumbers' Company, which carries with it the freedom of the City. Mr. Alderman Hinde, the Master of the company, presented Sir Hugh with the freedom inscribed on vellum. Mr. Chaplin (president of the Local Government Board), the Lord Mayor, and Mr. T. McKinnon Wood all spoke of the value of Sir Hugh's service, who, in reply, paid a tribute of praise to the local authorities for their efforts in the direction of the saving of human life by better sanitary administration.

Col. A. G. Durnford, R.E., Local Government Board Inspector, attended at the town-hall, South Shields, on Friday, for the purpose of inquiring into the application by the corporation for powers to borrow £20,000 for electric lighting purposes, and £17,250 for purposes of public walks and pleasure grounds.

A new elementary school erected in George-street by the Dumfries School Board was opened on Monday. It has cost (with the site) nearly £10,000, and provides accommodation for 500 pupils. The architect is Mr. Crombie, of Dumfries.

## PARLIAMENTARY NOTES.

**METROPOLIS MANAGEMENT ACTS AMENDMENT (BY-LAWS) BILL.**—Lord Monkswell, in moving the second reading of this measure on Monday in the House of Lords, said that the Bill was one to enable the London County Council to make by-laws "requiring persons about to construct, reconstruct, or alter drains in connection with buildings to deposit with the sanitary authority of the district such plans, sections, and particulars as may be necessary for the purpose of ascertaining whether such construction, reconstruction, or alteration is in accordance with the statutory provisions relative thereto, and with any by-laws made under the said sections." The Bill passed its second reading in their lordships' House last year, but in the Standing Committee an amendment was made at the instance of the Prime Minister, and a further amendment was introduced on behalf of the Government. By inadvertence he had had the Bill printed in the form in which it was introduced last year. He undertook on the third reading to make the measure precisely as it passed through Committee last Session, and under such circumstances their lordships might not think it necessary to send the Bill to the Standing Committee. The Lord Chancellor remarked that he was jealous of plans being put before the London County Council. Only recently a case came under his notice in which a very slight alteration was to be made, and yet the cost of the work was run up to £450. Lord Monkswell said it was not proposed that the plans should be put before the County Council, but before the local authorities, and he imagined that the latter bodies would show discrimination in enforcing the by-law. The Bill was then read a second time.—On going into Committee on the Bill on Tuesday, the Earl of Morley complained that one of the provisions of the Bill was that a plan of the simplest alteration of the drain, or part of a drain, must be submitted to the local authority. It would thus be seen that the provision might operate very oppressively. He thought the Bill should go before the Standing Committee, where it would be examined a little more minutely than it would in the House itself. Lord Monkswell pointed out that the previous day he had undertaken to introduce amendments in committee which would put the Bill in the position in which it left the Standing Committee last year. Under such circumstances he did not think it necessary to send the Bill to the Standing Committee. The House went into committee, and Lord Monkswell moved an amendment, adopted in the Standing Committee last Session, to the effect that persons about to construct, reconstruct, or alter drains in connection with buildings should not be required to deposit plans, sections, and particulars of the work with the sanitary authority in cases of emergency. The amendment was agreed to, and the Bill passed through committee.

**THE NEW PARLIAMENT-STREET.**—In reply to Mr. Gladstone (Leeds, W.), Mr. Akers Douglas (Kent, St. Augustine's) said the width of the new Parliament-street between the buildings will be about 140ft., and the width between the kerbs about 95ft. The front of the new buildings will be set back from 10ft. to 15ft. from the corner of the Home Office. The approximate height of the new public offices will be 78ft., the tower at the south-east angle being about 106ft. The arrangement of the refuges will follow those already in existence in Parliament-street, which have been found most convenient for traffic purposes. The width of the new Charles-street will be 80ft.

**THE STRAND-HOLBORN AND HOLYWELL-STREET IMPROVEMENTS.**—In the House of Commons, on Tuesday, a discussion occurred on the order for the second reading of the London Improvements Bill. Sir H. Fowler moved, but subsequently withdrew, a motion for the rejection of the Bill, his contention being that the construction of the new street between Holborn and the Strand, which was sanctioned by the measure, ought not to be proceeded with before the demolition of the houses between the Strand and Holywell-street had been effected. The Strand improvement, he maintained, ought not to be deferred. Mr. Stuart explained that the London County Council hoped to save a considerable sum of money if priority was obtained for the scheme which this Bill sanctioned, and after remarks from Mr. R. G. Webster, Mr. Burns, and Mr. J. W. Lowther, who hoped the progress of the measure would not be impeded, the second reading was agreed to.

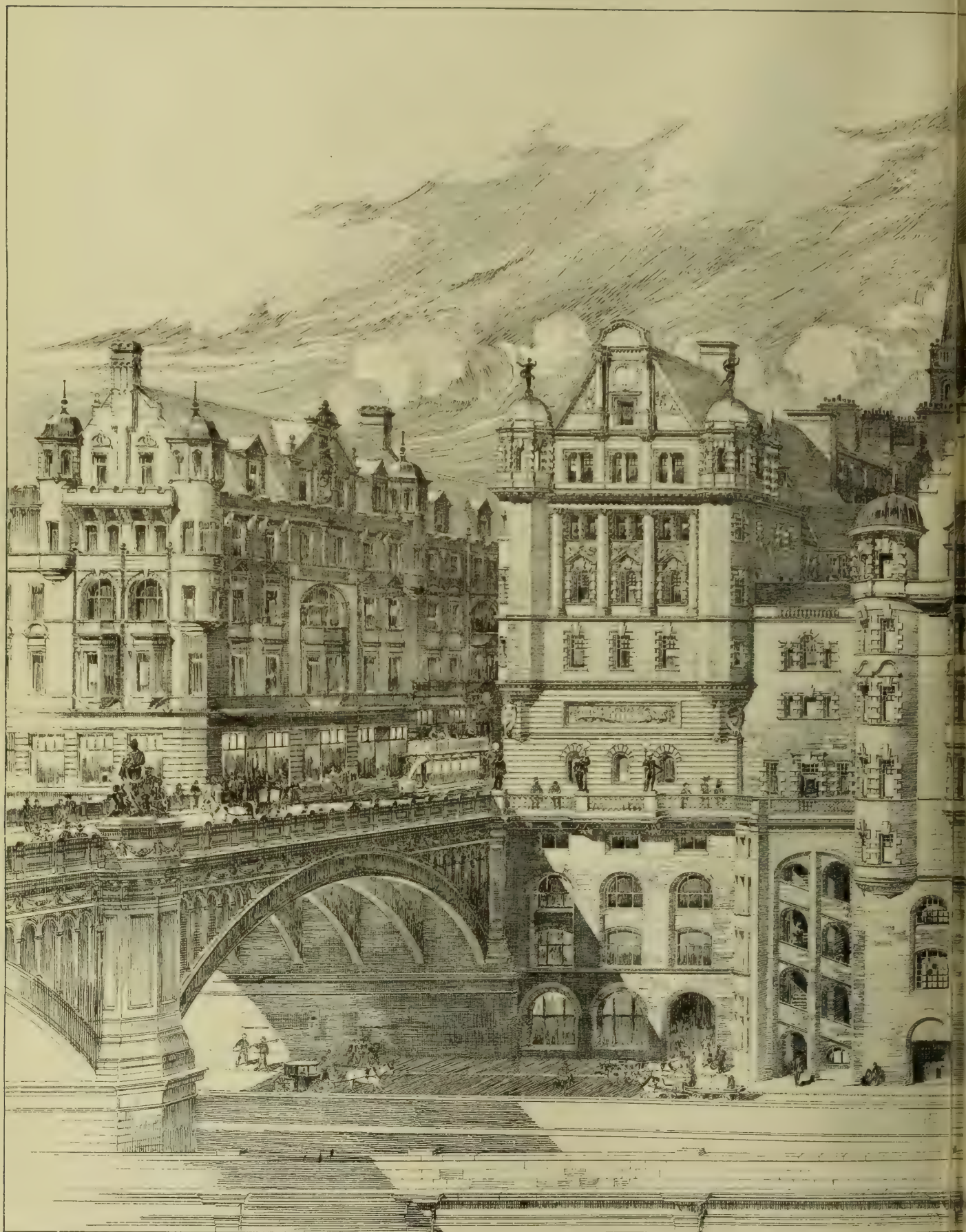
Sir Edward Green, Bart., heads with £1,000 a list of subscriptions amounting to £8,000, in response to an appeal by the Dean of York for £50,000 for the further repair of the Minster, recommended by Mr. G. F. Bodley, A.R.A., in his report as architect to the Dean and Chapter.

The Department of Greek and Roman Antiquities in the British Museum has recently obtained a number of relics of various kinds, including many small panels painted in encaustic for the decoration of a villa at Boscoreale.





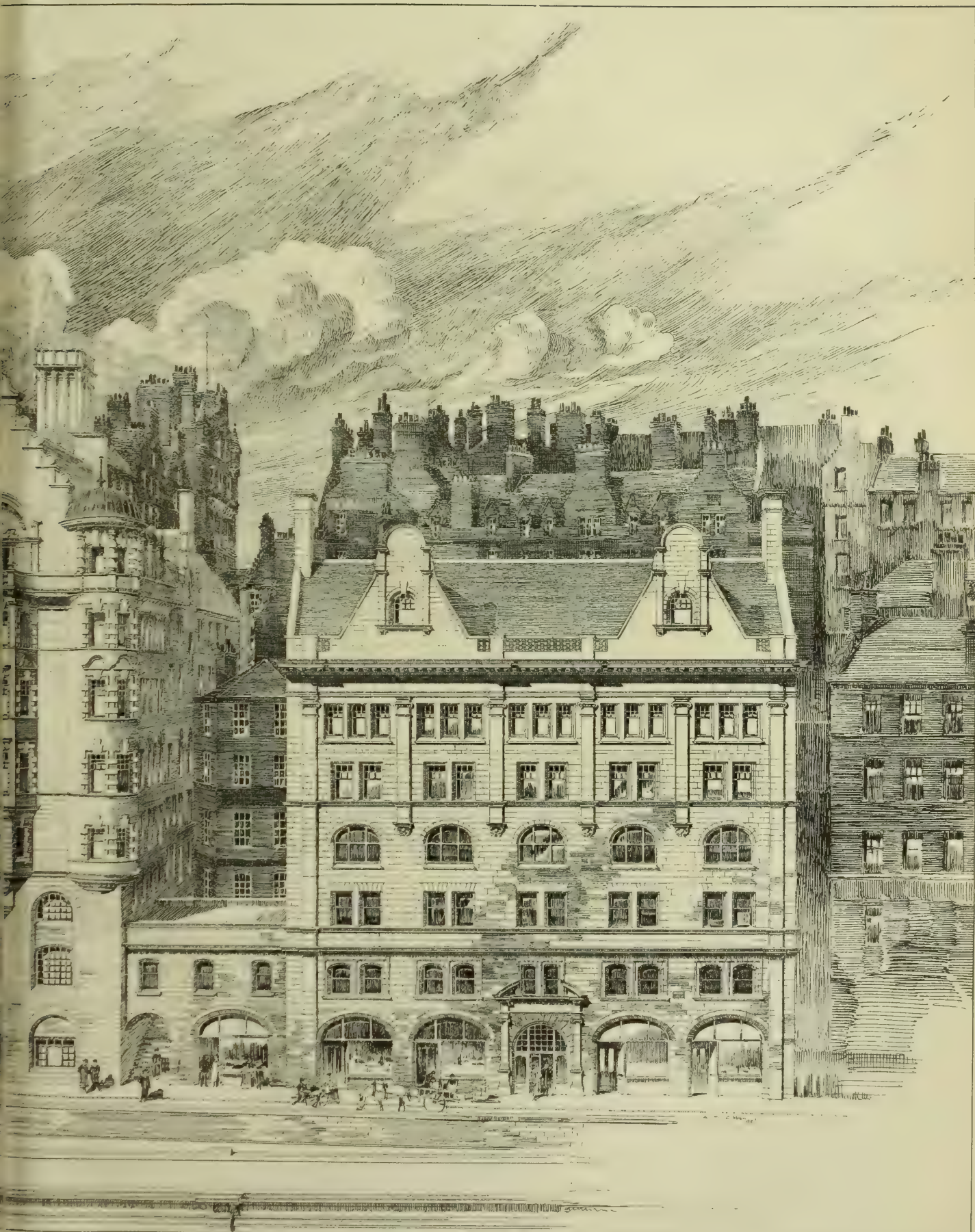




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MAR 3. 1799.



MESSRS DUNN & FINDLAY ARCHTS

Edinburgh

N BUILDING.

ARCH.

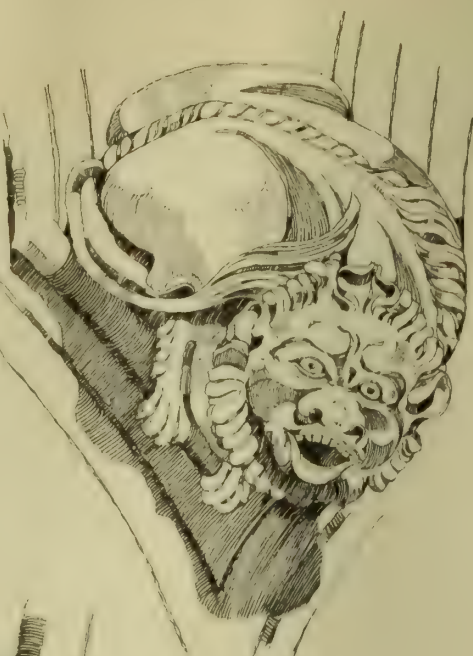












THE MINSTER  
BEVERLEY

SKETCHES OF GROTES-  
QUES FROM ADCADING  
IN SOUTH AISLE OF  
NAVE. ALSO FROM  
DECEY TOMB IN CHOR.

HERVEY RUTHERFORD  
JUNE 1898.











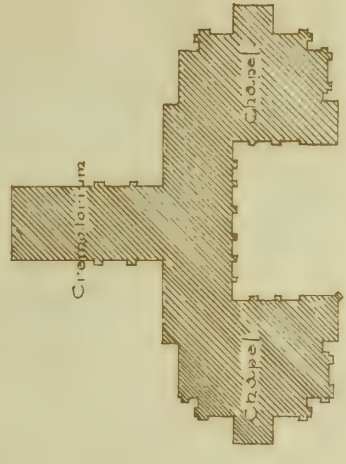
Scale of feet and inches.

12 9 6 3 0 1 2 3



THE BUILDING NEWS, MAR 3, 1889.

NEW CEMETERY CHAPELS & CREMATORIUM.  
FOR THE  
CORPORATION OF NOTTINGHAM.  
ARTHUR E. MCKEWMAN & SONS } ARCHITECTS.  
ALFRED J. DUNN & SONS }  
BIRMINGHAM.



Scale.  
0 10 20 30 40 50 Feet

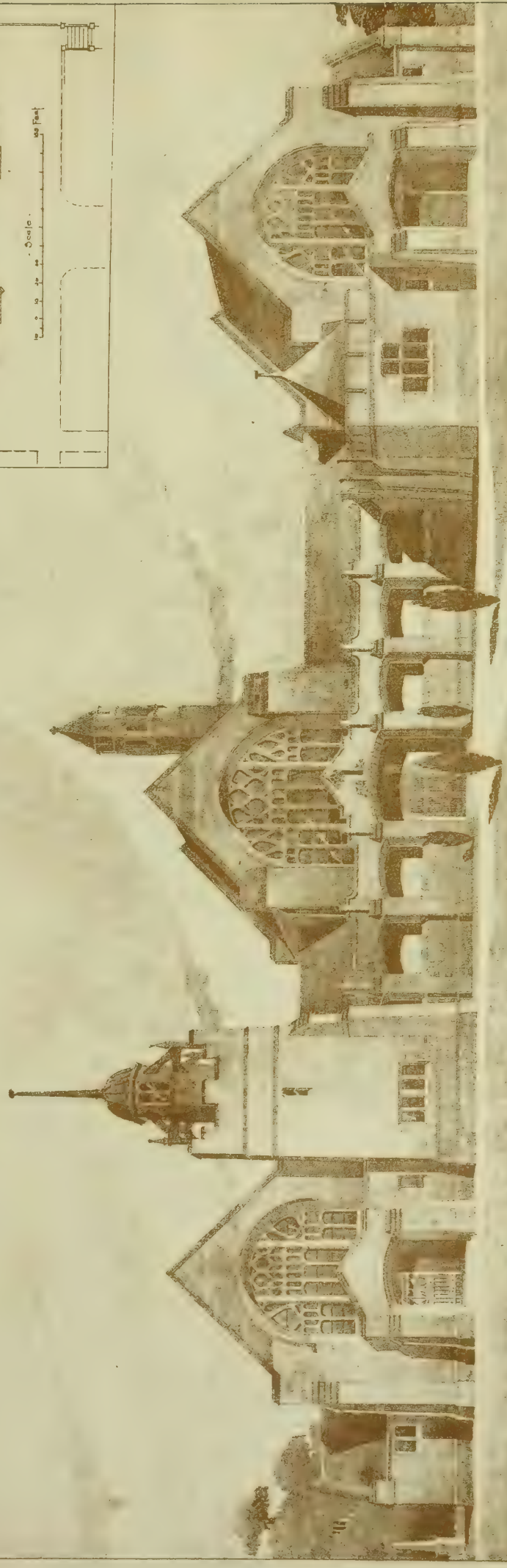


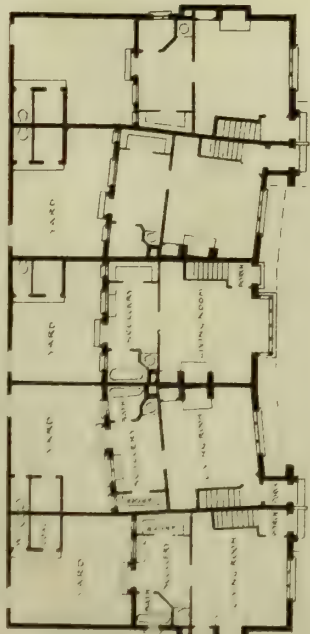
PHOTO TINT







GROUND PLAN

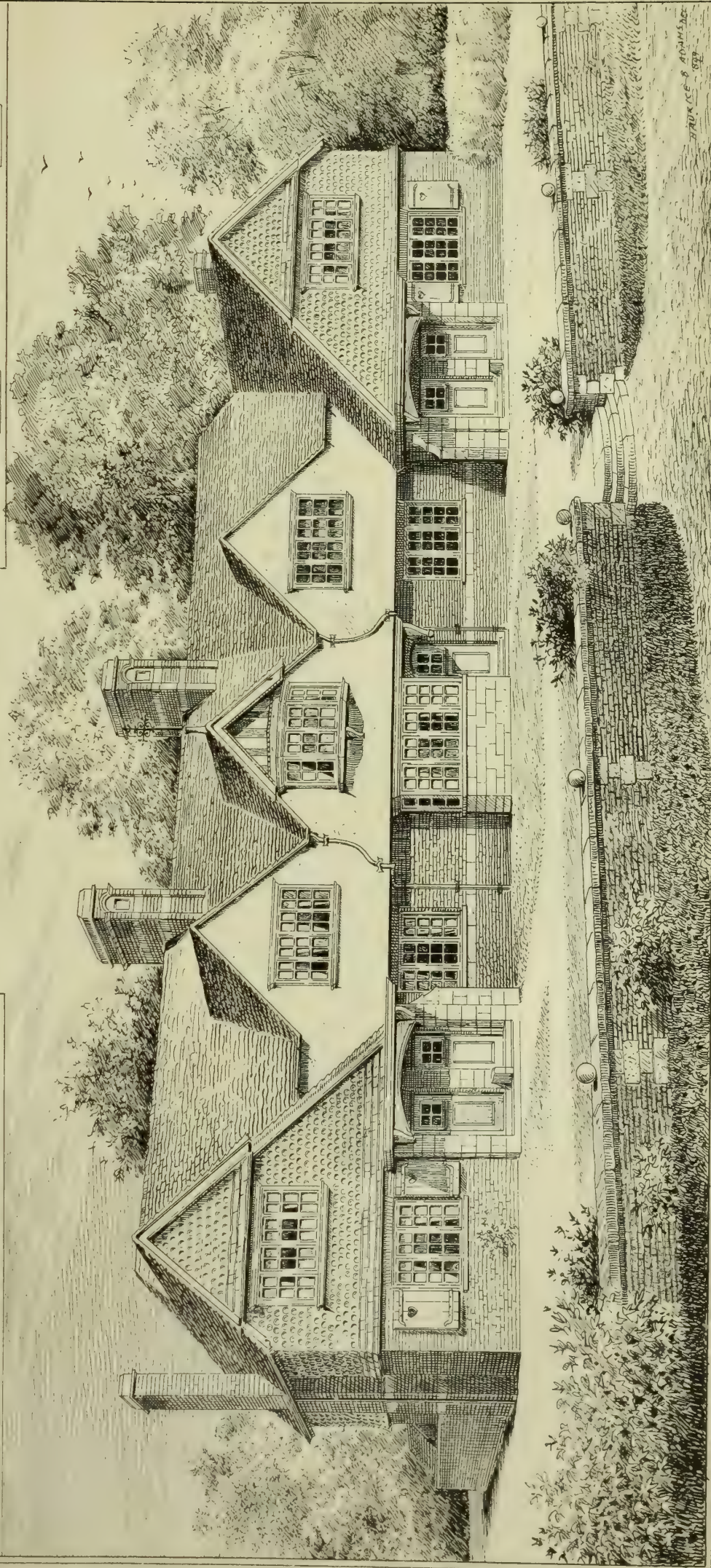


A GROUP OF  
FIVE WORKMEN  
COTTAGES

MESSRS  
LEVER  
BROS

PORT SUNLIGHT  
CHESHIRE  
MAURICE B ADAMS  
ARCHITECT

FIRST FLOOR













• NATIONAL BRONZE MEDAL



THE GARDEN FRONT.



ELEVATION



PLAN OF GROUND FLOOR.

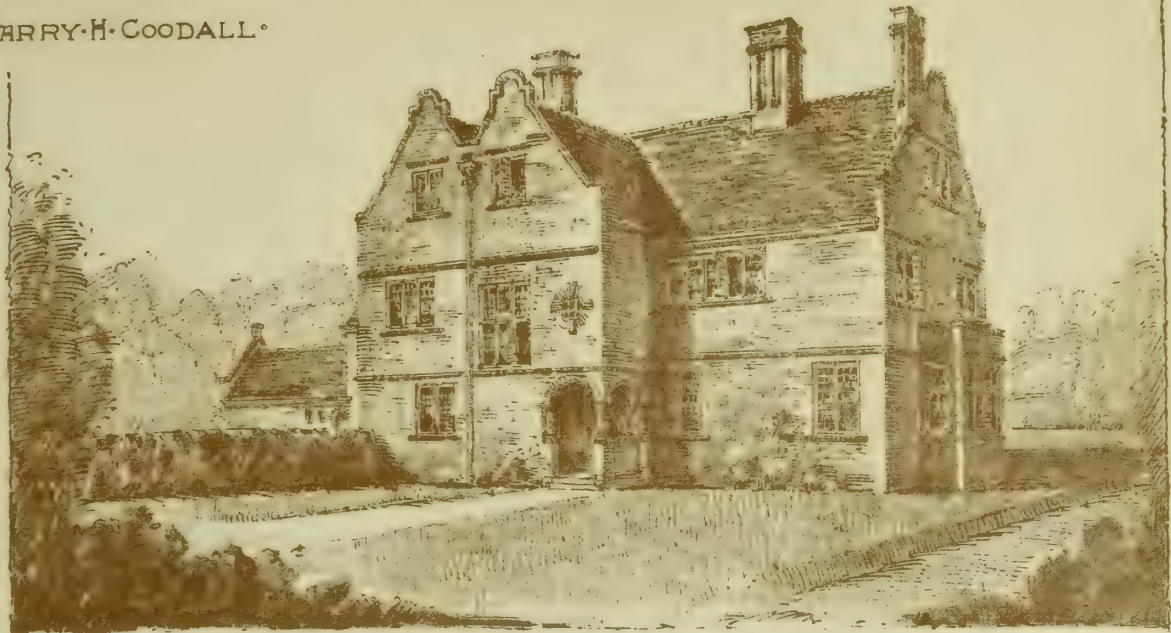


ELEVATION OF GARDEN FRONT.

A COUNT



DESIGN ° BY HARRY H. COODALL °



OF END.

THE ENTRANCE FRONT.



PLAN OF FIRST FLOOR.

30 40 50

HOUSE



ELEVATION OF ENTRANCE FRONT.







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## ILLUSTRATIONS.

NATIONAL BRONZE MEDAL DESIGN FOR A COUNTRY HOUSE.

—THE "SCOTSMAN" BUILDING, EDINBURGH.—ORIGINAL DRAWING BY GRINLING GIBBONS OF DR. HOLDEE'S MONUMENT IN ST. PAUL'S.—GROTESQUES IN BEVERLEY MINSTER.—A GROUP OF FIVE WORKMEN'S COTTAGES AT PORT SUNLIGHT.—NEW CEMETERY CHAPELS AND CREMATORIUM, NOTTINGHAM.—FRAGMENTS OF SIXTEENTH-CENTURY WOODWORK.

## Our Illustrations.

BRONZE MEDAL DESIGN FOR COUNTRY HOUSE.

THESE drawings were prepared last winter at the Nottingham School of Art by Mr. Harry H. Goodall. Materials would be red sand-bricks for walls, strings, sills, &c., and red tiles on roofs. The exterior woodwork generally would be painted white, and leaded lights fixed to all windows. All the principal rooms on ground floor open out of a roomy hall, in which the staircase is situated, and the kitchen and offices are separated from this part of the house by a ventilated passage.

THE "SCOTSMAN" BUILDING, EDINBURGH.

THE architects of this building, which is the office of the well-known Scottish newspaper, are Messrs. Denne and Findlay, of Edinburgh. Some accident has delayed the detailed description, which shall appear next week.

ORIGINAL DRAWING BY GRINLING GIBBONS OF MONUMENT IN ST. PAUL'S CATHEDRAL.

SIR CHARLES ROBINSON has kindly lent us this very interesting drawing, which Grinling Gibbons made for a monument he executed to the memory of Dr. Holder, who married Susanna, the sister of Sir Christopher Wren, the architect. We have also been favoured by the loan of the original contract, of which we give a copy *in extenso*. It will be seen that the sculptor undertook to carry out the work to the satisfaction of Wren for the sum of eighty pounds. The design is enriched with festoons and a mantling elevated by two winged figures, over which arrangement in the centre is an heraldic shield. The inscriptions are on two fields divided by a ribbon. The legend on the first table runs:

H. S. E.

Gulielmus Holder, S.J.P. Sacelli Regalis Subdecanus Sereñi Regis Majestati Subelemosinarius Ecclesie Sti Pauli, &c. Eliens Canonice. Societatis Regie Lond. Sodalis, &c. Amplius quidem Titulus donatus amplissimis dignus Vir per elegantiam, &c., ameni ingenii Scientias Industriam sua Illustravit liberalitate promovit, Egregie Eruditus Theologicis, Mathematicis, &c. Arte Musica, Memoriam Ecclesie Posteris, &c., à Lucubrationibus suis editis Loquelse Principia agnoscite, &c. Harmonie Obiit 24 Jan., 1697. 82.

On the second table these words are carved:

Susanna Holder, late wife of William Holder, D.D., Residentary of this Church, Daughter of Dr. Christopher Wren, late Dean of Windsor, and sister of Sir Christopher Wren, Kt.

Among other, her excellent Endowments of Prudence, Virtue, and Piety. Her charities were no small blessing to the neighbourhood where she resided, having in comparison to the poor applied herself to the knowledge of Medicinal Remedies, wherein God gave so great a blessing, that thousands were happily healed by her, and no one ever miscarried. K. Charles II., 2 Catherine, and very many of the Court had also experience of her successful hand. After 45 years happily and honourably passed in conjugal state and cares, at the age of 61 she

piously rendered her soul to God the last day of June, Anno Dom 1698.

The arms of Holder: sable a chevron between three anchors argent, impaled with her paternal coat—viz., argent a chevron, three lions' heads, erased sable, on a chief gules, three cross crosslets or.

[COPY.]

Articles of Agreement made and concluded this fifteenth day of January, in the year of Our Lord 1696-7, between Dr. William Holder, residuary of the Cathedral Church of St. Paul's, London, of the one part, and Grinling Gibbons, statuary, of the parish of St. Paul's, Covent Garden, of the other part. And the said Grinling Gibbons, his executors and assigns, for and in consideration of the summe of twenty pounds to him in hand paid at the sealing and delivery hereof, the receipt of which he doth by these presents acknowledge; and the further summe to be hereafter paid as in these articles is hereunder expressed doth covenant and agree with the said Dr. Holder his executors administrators and assigns to make a monument of white marble of one entire stone, excepting the Coate of Arms, which is also of one other stone of marble according to a designe approved and signed by the said Dr. Holder, and of such dimensions as expressed by the seal of the said designe to which these articles particularly referre, and to put in and engrave of sufficient depth all the letters of two such inscriptions or epitaphs as may well be contained in the tables of the same in letters of about halfe an inch, in such manner and after such copy as shall be delivered him by the said Dr. Holder, his executors or assigns. And the said Gibbons doth further agree the said monument shall be made of good white statue marble and wrought and carved workmanlike, according to the best of his skill and judgement, and firmly fixed and set-up at his own charge in the place appointed, or that shall be appointed, by Sir Christopher Wren, his successors, or assigns in the vaults under the quire of the cathedrall church of St. Pauls, at or before the fifteenth day of May next ensuing the date hereof. And, if any difference arise concerning the well performance of the aforesaid work according to these articles, the said Grinling Gibbons doth referre and submitt himself to the approbation and final determination of Sir Christopher Wren, surveyor of the workes of St. Pauls, or the surveyor for the workes for the time being. And the aforesaid worke being finished, set up, and approved according to the true intent and meaning of these articles, the said Dr. Holder doth for himselfe, his executors, administrators, and assigns, covenant and agree to pay to the said Grinling Gibbons the further summe of sixty pound. In witness whereof we have hereunto interchangeably set our hand and seals the day and yeare above written.

(Signed) GRINLING GIBBONS (Seal).

Signed, sealed, and delivered in the presence of

THOS. HADO.

WILLIAM DICKINSON.

PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS: GROTESQUES FROM BEVERLEY MINSTER.

THIS sheet of spirited sketches is by Mr. Harvey Rutherford, and it belongs to the series for which the Pugin Travelling Studentship was awarded him this year. The carvings shown in the upper part of the plate are from the arcading in the south aisle of the nave, and the lower drawing of the lion and the dragon was made from the Percy tomb in the choir of this famous and beautiful church.

WORKMEN'S COTTAGES, PORT SUNLIGHT.

THE housing question, now so prominently before the public, imparts a special interest to projects such as that realised at Port Sunlight, Cheshire, where the proprietors, Messrs. Lever Bros., have built one of the most picturesque villages to be found anywhere, and in many ways it is unique. We have already illustrated the schools and village shop, as well as some of the dwellings designed by leading architects. The examples we have given are by Messrs. Ernest George and Yeats, Messrs. Douglas and Fordham, Messrs. Grayson and Ould, Messrs. Lockwood and Sons, and Mr. Ernest Newton. The group of five cottages published to-day takes its place in the same colony. The walling of these houses is executed in Ruabon red thin bricks, tile hanging, rough-cast and timber work being sparingly used. The roofs are covered with Ruabon tiles. The whole effect depends upon picturesque outline and a broad treatment of the parts, rigid economy being essential. This group forms one of the blocks designed for Messrs. Lever by Mr. Maurice B. Adams, F.R.I.B.A., architect.

SELECTED DESIGNS, NEW CEMETERY CHAPELS AND CREMATORIUM, NOTTINGHAM.

THE Corporation of Nottingham held a competition recently, and Mr. Aston Webb, F.S.A., acted as assessor, when he selected the design now illustrated, the authors being Messrs. Arthur E. McKewan and Alfred J. Dunn, A.A.R.I.B.A., joint architects. The group consists of two chapels, one for the Church of England and one for the use of the Nonconformists. Each have waiting-rooms and vestries. In the centre is located a crematorium chapel, the furnace to same being placed to the rear. The cloister,

extending along the façade and binding the three chapels into one composition, is planned with niches to take a series of urns containing the ashes of cremated persons. Mansfield stone is intended for the walling throughout, with Westmoreland slates for the roofs. The block plan shows the arrangement of the scheme, which is the first complete establishment of its kind promoted by a municipal authority in this country.

FRAGMENTS OF SIXTEENTH-CENTURY WOODWORK.

THE fragments of 16th-century French woodwork are all executed in oak, and I gathered them together just to show the refinement of the mouldings and turning about that date. The old Chair in Holyrood Palace, Edinburgh, is a splendid example of the old oak stiff-back chair, of which there are several in Holyrood Palace, together with some fine old tables and tapestries. The colour of the chair is a very dark brown, and it is in very good condition.

J. DOUGLAS TRAIL.

\*\* THE photographic processes of reproduction are now so available that we venture to suggest that in many cases it is hardly worth while to send us drawings for reproduction. For measured work, for details, competitions, and the like, the services of the draughtsman will, of course, always be indispensable; but for average executed buildings, statuary, furniture, &c., a photograph is frequently in every respect as useful; and as, generally speaking, it would occupy less space, we should be able to give more subjects—especially in cases where the indifference of the drawing not infrequently influences the rejection—of churches, chapels, villas, &c.

ROYAL ACADEMY ARCHITECTURAL DRAWINGS, 1899.

THE days for sending in drawings and paintings this year have been fixed for March 24 and 25, the last day being Monday, the 27th. Sculpture will be received on the 28th.

Our friends and contributors who are willing to allow us to reproduce their drawings before they are sent to Burlington House, so that their works may be included in our series of illustrations from the Royal Academy Exhibition, to be published after the opening day, are invited to let us have them as soon as convenient for this purpose. We will return the drawings quickly, or, if desired, we are willing to forward them to the Academy direct, provided the necessary labels and letters to the Secretary are attached; and we will do this free of charge.

## CHIPS.

The death occurred in Paris last week, at the age of 69, of M. Jules Cousin, for many years curator of the Carnavalet or Municipal Museum of Paris, to which on his appointment he presented his own valuable collection of 6,000 books and 10,000 engravings. M. Cousin was the author of several antiquarian works.

The chancel of Axminster Church has recently been enriched by the addition of choir-stalls, altar-rail, and credence table, from designs by Mr. W. D. Caroe, M.A., of London. The work throughout has been executed in English oak, very finely carved and traceried, and was carried out by Mr. Wm. Dart, Ecclesiastical Art Works, Crediton.

The new pier question was before Yarmouth Town Council at its last meeting. The Bill of the Britannia Pier Company for the reconstruction of that pier at a cost of not less than £60,000 was approved by the piers committee, who also recommended that plans be prepared for a new pier on the jetty site at a cost not exceeding £35,000. After a long discussion the entire report was carried, with the addition of a proposal to instruct the surveyor to prepare separate plans for a pavilion, to cost £10,000, at the entrance to the jetty. The council also adopted a scheme for a public abattoir.

The Tramways Committee of Aberdeen Town Council unanimously adopted on Friday the report of the deputation to Glasgow on the best method of equipping the Woodside route for electric traction on the overhead trolley system. Mr. Dyack, burgh surveyor, and Mr. Bell, electrical engineer, recommended, as a method of suspending the overhead conductors, the span wire system for the section from Union-street to Kittybrewster, supporting the span wires as far as possible from ornamental rosettes fixed to the houses along the route. Where this was impracticable, the erection of side poles was suggested which would also be available for the purpose of lighting the street by means of arc lamps. The estimated outlay on equipment is £35,300.





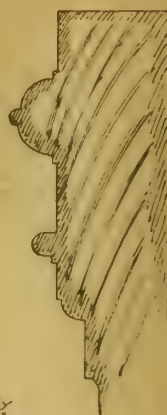
Cupboard Door: french:  
2<sup>nd</sup> half of 16<sup>th</sup> Century:



Section at A

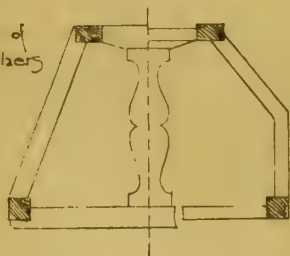


Cupboard Door  
french 2<sup>nd</sup> & 16<sup>th</sup> Cent<sup>y</sup>



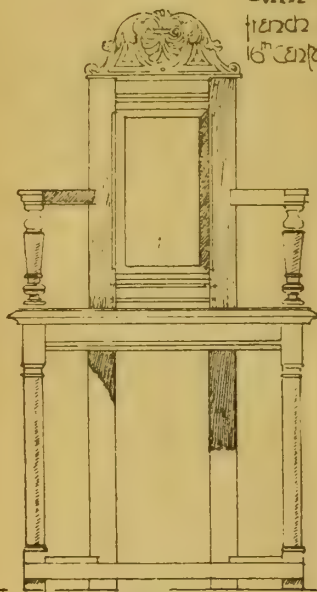
Section at B

Plan of  
Stretchers

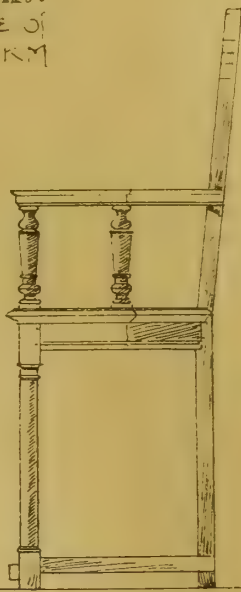


Plan of seat  
and arms:

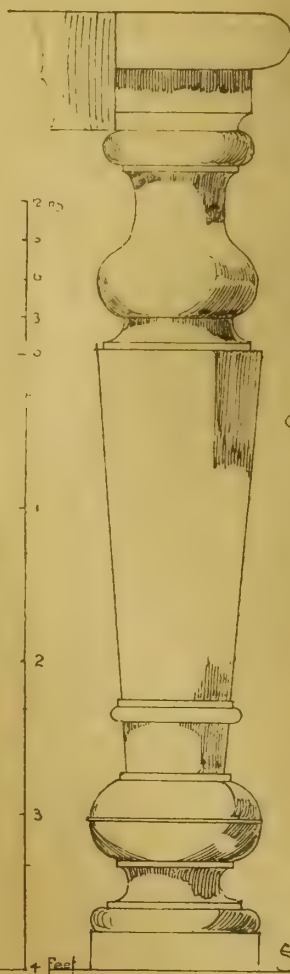
arm chair:  
french middle of  
16<sup>th</sup> century S.K.M.



• Front •



• Side •



Chair leg:

Greatest thickness  
of leg: 12 1/2

Arm pillar:

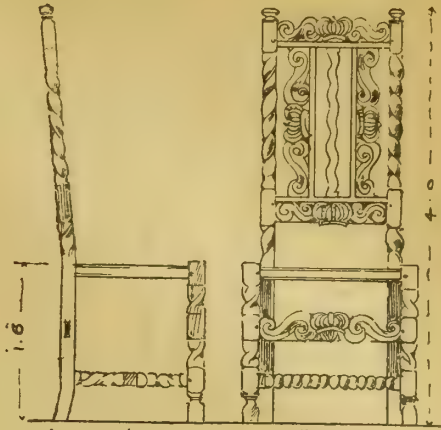
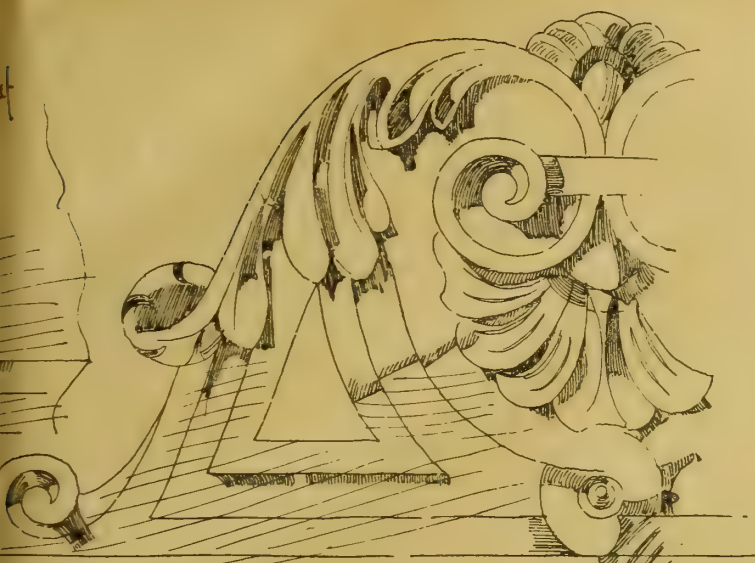
Seat

• FRAGMENTS OF 16<sup>TH</sup> CENT<sup>Y</sup> WOODWORK AT  
SOUTH KENSINGTON MUSEUM •

SCALE to enlarged DETAILS

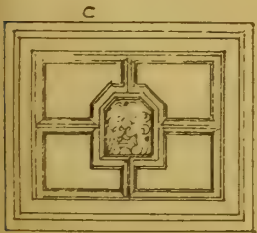
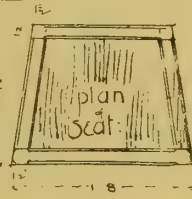
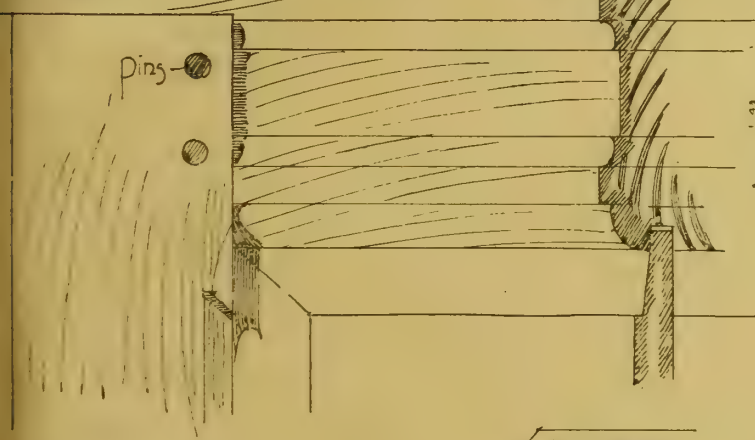
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Side.      Face.

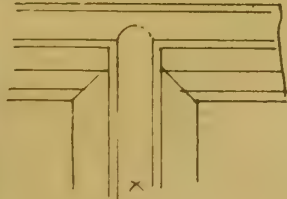
Old Chair in  
Holyrood Pal-  
ace: Edinburgh:



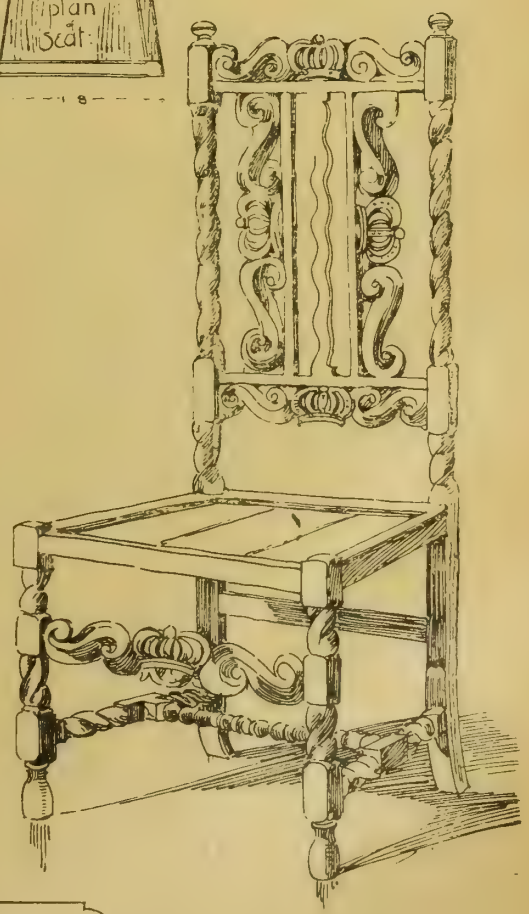
Cupboard Door



Section at C.



1 Do



DRAWN BY DOUGLAS TRAIL



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 832, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.). To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of eight words, the first line counting as two, the minimum charge being 6s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation advertisements) is 6d. per line of eight words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLIX., LI., LIV., LV., LX., LXI., LXII., LXIV., LXV., LXVII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

M. S. A. (We should hardly call their rubbish "joinery"! Go to a good firm like W. H. Lascelles and Co., of Bunhill-row, or B. E. Nightingale, Albert Embankment.)—H. L. D. (You will find good, reliable firms in our "Directory." The people you mention dropped out of these pages some time since, and can hardly be doing much now.)

RECEIVED.—T. C. and W. H.—G. T. K.—S. S. and Co.—F. L. M.—R. B. G. C.—D. N.

## "BUILDING NEWS" DESIGNING CLUB.

## SIXTH LIST OF SUBJECTS.

F.—A Stable suitable for the premises of a gentleman's suburban house, to comprise four stalls and two loose boxes, a coachhouse for three carriages and space for cycles, a harness-room, groom's bedroom, and a hay-loft with shoot. Provide a covered washing space about 14ft. square or of that area. A simple brick and stone treatment to be adopted, in a picturesque and quietly dignified style. A clock-turret may be introduced, and a gateway leading into the stable-yard. A dung-pit and men's closet to be provided conveniently, but in a retired position. The entrance-front to face the south, and form the chief elevation. The group may be L-shaped in plan. Scale 8ft. to the inch. Plans may be smaller, to 1/16th scale. View necessary. Site level.

SWAN. (Received.)—ROOK. (If you will send your address, we will forward you the Rules of the club, when you will see all particulars required to be observed.)

## Correspondence.

## ARCHITECTURE.

To the Editor of the BUILDING NEWS.

SIR,—“The London County Council, there is reason to believe, are not impressed by the beauty of the design suggested by the Royal Institute of British Architects” for the Vauxhall Bridge, says your contemporary the *Graphic*. Considering the eminence of the designers, and the immense—almost awful—potentialities of Architecture to the Fifth Power, one marvels at the audacity of

the L.C.C. In the design prepared by the five eminent architects, there is abundant proof that its designers have profited by the lessons inculcated by the present President of their Institute, who, some years ago, in a lecture to students, strongly advocated the advisability of continuing the glorious traditions of Medieval architecture by the substitution of iron and cement concrete for the merely commonplace wrought stone construction of our forefathers. With this ennobling example before us, it is easy to see that what is suitable for a church is also eminently adapted for a bridge, and that the aesthetic properties of iron are not lost during the process of its conversion into mild steel.—I am, &c. GOTH.

## SUPERVISION AND INSPECTION.

SIR,—Will you permit me, who has subscribed to the “B.N.” for thirty-four years, to take exception to one statement in your Leader last week under the above heading?

The writer asks: “Whether the district surveyor can adequately inspect every such building in his district?” and then states that “Many serious mishaps and building accidents take place which favour the assumption that the supervision is not what it ought to be.”

I maintain that this statement is utterly untrue, and I challenge the writer to name any accident or mishap to a building which has been brought about by the negligence of a district surveyor. The accident at Westminster certainly cannot be, as Mr. Drury did not superintend, owing to a claim of exemption, which claim the Queen's Bench has now shown to be wrong in law.

Even Leader writers should be careful of their facts.—I am, &c., HENRY LOVEGROVE.

## Intercommunication.

## QUESTIONS.

[12200.]—Walls.—Having to erect a villa residence in an exposed position, I should be glad of any information as to the best means of constructing the walls of faced brickwork with reference to economy—whether hollow walls (if so of what thickness are best; or solid walls built in cement mortar, or with a cavity filled with composition, cost being the chief consideration.—CHELTENHAM.

[12201.]—Building Construction.—I am desirous of going in for the second or Advanced stage of the Building Construction examination held by the Science and Art Department, South Kensington. I have not attended the classes held in the small town in which I live, but am told that I can enter as “self-taught.” Is this so, or not? If so, how should I proceed—apply here, or at South Kensington?—M. G. S.

[12202.]—Ink-Marks on Books.—How can ink-marks on the pages of books be removed? Is there some chemical that can be applied without injuring the paper?—READER.

[12203.]—Electric Lighting.—Is there any book published giving in a brief concise form, the requirements of electric lighting for buildings and a form of specification? A reply will be esteemed.—SOUTHERNER.

[12204.]—Westmoreland Slates.—Which is the best kind of slates, and where quarried; also their size?—A. T. O.

## REPLIES.

[12191.]—Architectural Tours.—Speaking from past personal experience, “Student” cannot do better than enrol himself a member of Messrs. Middleton and Carden's capillary got up and most ably managed architectural tours. The next of the series starts to Italy for Easter-tide, leaving town on March 25, and is due home again the 18th of April. The inclusive cost for the 25 days is 30 guineas, which, considering the admirable and thorough manner in which Mr. Middleton generalises these useful, practical, and really most enjoyable excursions, is far cheaper than any solitary student can hope to cover the same ground for in the same time alone.—HARRY HEMS.

[12192.]—Sound.—T. Roger Smith's small work on “Acoustics” is a handy work, published by Crosby Lockwood and Co.—REGENT'S PARK.

[12192.]—Sound.—I conclude that Mr. Bisset wishes to know all about the acoustic properties of buildings, and I refer him to the works of Professor T. Roger Smith, A. Reid, and others. It is a very important subject not very well understood, if we may judge from the many failures, and the wires and other contrivances in use in some important buildings.—H. L.

[12192.]—Sound.—The little treatise on “Acoustics” in Lockwood's series, written by Professor Roger Smith, is a very useful treatise, and contains many practical examples. There is also a paper published on the R.I.B.A. Transactions worth reading.—G. H. G.

[12193.]—R.I.B.A., Exams.—Get the treatise on “Masonry and Stonecutting,” by Dobson, in Weale's Elementary Series, and consult “Notes of Building Construction,” or Mitchell's “Building Construction,” where “Student” will find no difficulty in ascertaining the kind of diagrams required for the final exam.—A. J.

[12193.]—R.I.B.A. Exams.—“Student” would find much on the subject of constructive masonry in

Rondelet's “Traité de l'Art de Bâtir”; its numerous diagrams of arches and domes could scarcely fail to suggest a subject for the testimonies of study. “Practical Masonry,” by W. R. Purchase, would be useful; in it a diagram of a groined vault, with projection of stones, is shown.—A. R. I. B. A.

[12194.]—Inspection of Buildings by District Surveyor.—If, as I assume, “In Doubt” refers to a new building, the fee becomes due when the building is covered in; but the D.S. can order any irregularity to be removed until the building is completed to his satisfaction. If any alterations are afterwards made, the builder is bound to give notice of such fresh work.—H. L.

[12195.]—Estate Clerk of Works.—The requirements would vary, as in a country estate some knowledge of forestry, fences, land drainage would be required.—H. L.

[12196.]—Vagaries of Design.—“A Learner” has not kept himself abreast of the latest developments of art. The “astounding” character of a few of the designs he mentions for the Soane Medallion can be explained. They are, perhaps, extreme; but they represent the work of a band of rising architects who repudiate traditional forms as essential to honest construction, and the effect of this school is only a reaction against the commonplace attempt to reproduce historic styles. The principles of the school may be summed up in (1) Avoidance of traditional forms and details, (2) a plain treatment of wall surface, in which the requirements of plan are paramount, combined with sculptural relief and panels, well-emphasised masses, (3) good material and workmanship.—G. H. G.

[12197.]—Measurement of Stone Steps.—The details of measurement of spandrel steps are given in Leaning's work, or in Professor Banister Fletcher's “Quantities.”—A. PUPIL.

[12197.]—Measurement of Stone Steps.—The stone should be measured cube, and all labours super. It is impossible to teach quantity surveying in this column of the “B.N.”—H. L.

[12198.]—Calculating Cubic Space for Ventilation.—“Ventilation and Heat,” by J. S. Billings, published at New York, by Engineering Record—perhaps through Spens here—gives thus, p. 183, cubic space—

$$x = p + \frac{P}{A} - \frac{P}{2.718} - \frac{A}{c}$$

in which—

$x$  = number of units of CO<sub>2</sub> per cubic foot in air of room at end of  $t$  hours.

$P$  = number of units of CO<sub>2</sub> produced in room per hour when it is occupied.

$A$  = number of cubic feet of fresh air per hour introduced (and also volume of air escaping during same time).

$p$  = number of units of CO<sub>2</sub> per cubic foot in the fresh air introduced.

$c$  = number of cubic feet in room.

The numerical value of the last term in equation diminishes rapidly as  $t$  increases and becomes inensible. After a number of hours, depending on ratio of  $A$  to  $C$ , the final value becomes—

$$x = p + \frac{P}{A}, \text{ whence } A = \frac{P}{x - p}$$

Example: Suppose man produces six units of carbonic acid per hour, and fresh air contains .004 such units per cubic foot, if it is required to maintain (of whatever size), constantly occupied by one man, in such a condition that the units of carbonic acid in a foot shall never exceed .006, then—

$$A = \frac{6}{.006 - .004} = 3,000;$$

that is, 3,000 ft. of fresh air must be supplied per hour. In this case, at the end of  $t$  hours after room begins to be occupied, the number of units of carbonic acid per cubic foot is  $.006 - .002 \times C - \frac{3,000}{t}$ , where  $c$  is number of cubic feet in room. Suppose room equals 1,000 ft., then units of CO<sub>2</sub> per cubic foot are, at first .004, after one hour .00590, after two hours .005993, after three hours .005997; so after two hours room would sensibly reach condition of .006 per cubic feet, &c.—REGENT'S PARK.

[12198.]—Calculating Cubic Space for Ventilation.—In answer to “A. J. R.'s” query, the quantity of air required by an adult per minute, if a man makes 20 inspirations per minute, each equal to 40 in., he requires 800 c.in. per minute of fresh air. Roughly, a man wants a cubic foot of fresh air per minute, for every expiration contaminates twice the quantity of air inhaled at least. Thus for every individual a space of about 600 ft. is required, or a floor space of 60 ft. square, and about 10 ft. high.—G. H. G.

[12199.]—Re Tithe-Rent Charge.—The lessor would be liable for the tithe rent charge; consequently any wise man, before building, would be careful to see that it was redeemed. Only a small portion of land is subject to tithe, in cases only where the land was originally church or glebe land. The proper quarter to apply can easily be ascertained.—H. L.

Mrs. Thomason, wife of Mr. Yeoville Thomason, F.R.I.B.A., of Observatory Gardens, Kensington, and formerly in practice at Birmingham, died on Monday last, aged 81 years.

The new Liberal Club at Higher Tranmere, Birkenhead, is now in course of erection. The building is of a Renaissance character, and will be of red brick with Brynteg-stone dressings. The accommodation will include assembly-hall to seat 400, billiard-room for three tables, smoking-room, reading-room, refreshment bar, kitchen, store-cellar, lavatories and cloak-rooms, retiring-rooms, &c. The contract is let to Messrs. John Lee and Son, Babington, Cheshire, and the work is being carried out from the plans of Mr. T. Taliesin Bees, A.R.I.B.A., architect, Birkenhead.



## LEGAL INTELLIGENCE.

**EMPLOYERS' LIABILITY.**—At Southwark County-court, on Friday, before his Honour Judge Addison, Q.C., Thomas Cooper, a carpenter and joiner, sued William Shepherd, a builder, under the Employers' Liability Act, to recover damages for personal injuries sustained. The plaintiff was at work at the Borough Polytechnic on a board, which was supported at one end by a pair of tressels and at the other by an ordinary ladder, instead of another pair of tressels. The ladder slipped, and the plaintiff fell, breaking one of his legs, which was now about half an inch shorter than the other. His Honour awarded the plaintiff £100 and costs.

**IN RE JAS. JOHNSON, CREWE.**—At the Crewe Bankruptcy Court, on Friday, before Mr. Registrar Speakman, James Johnson, builder, of that town, attended for his public examination. The total liabilities amounted to £2,861 4s. 8d., of which £1,093 was expected to rank for dividend. The deficiency was £616 2s. 5d. The debtor attributed his insolvency to losses on contracts for buildings, and especially a large loss on sewerage and street-making contracts for the Crewe Corporation. He had not kept proper books. The examination was adjourned.

**LIBEL ACTION BETWEEN BUILDERS.**—At the Winchester Assizes last week, Mr. Justice Mathew and a jury heard the case of Jobbins v. Gale, an action to recover damages for slander. The parties are builders at Lee-on-the-Solent, near Fareham, and are rivals in trade. The slanders complained of were uttered on various occasions in the autumn of last year, and were to the effect that the plaintiff was an insolvent person, and unable to pay his way as a builder, and suggesting that he ought not to be supplied with goods on credit. As a result, a firm of timber merchants stopped the delivery of timber, and a firm of brickmakers refused to supply bricks to the plaintiff on credit. The defendant denied that he had ever uttered the slanders, and by his pleadings traversed the allegations of special damage in the statement of claim. Witnesses were called on both sides, but the jury ultimately found for the plaintiff, with £300 damages. Judgment accordingly.

**A HACKNEY ARBITRATION.**—GOODMAN v. SCHOOL BOARD FOR LONDON.—The claim in this case, heard in the London Sheriff's Court on Tuesday, was made in respect of a plot of land in Oswald-street, Hackney, comprising a frontage of 167ft. 9in., by a depth of 74ft. 6in. Mr. Josiah Goodman, the plaintiff (the freeholder), said that some years ago he had entered into a building agreement with a Mr. Motton to erect eleven houses, the ground-rent being £66 per annum. Mr. Percy Matthews, of the firm of Percy Matthews and Matthews, of 35, Bucklersbury, considered £66 a fair rental, and capitalised the same at 27 years' purchase, making a total of £1,802, plus usual 10 per cent., £180—£1,982. Several local builders were called to prove that the ground-rent was reasonable. On behalf of the School Board, evidence was given by Mr. Percy H. Clarke, F.S.I., of 2, Lancaster-place, Strand, who said this vacant land should be valued on the 5 per cent. table at 20 years' purchase, as the ground-rent was unsecured, and that it was worth £5 per foot frontage as freehold—£880 plus 10 per cent. for forced sale, £968. Mr. H. C. Roberts, of the firm of Inman, Sharp, Harrington, and Roberts, of 20, King William-street, gave a similar valuation, and stated that he had sold land adjoining to the Board at the same price. Mr. Marsh, a local agent, stated that the full value was £970. The jury awarded the claimant £1,563 10s.

Col. C. H. Luard held an inquiry on Feb. 24 at Ambleside into an application by the urban district council to borrow £1,000 for street improvements, and £4,500 for sewage and sewage disposal works. There was no opposition. Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle-on-Tyne and London, is the engineer.

Dr. F. H. Tristram, Q.C., Chancellor of the Diocese of London, sitting in the Metropolitan Consistory Court on Monday, granted an application for a faculty authorising the opening up and laying out the churchyard of St. John's Church, Hoxton. It is proposed to lay out the grounds at a cost of £500 as a public garden.

With regard to the statement published last week concerning St. Paul's Cathedral, it is now announced that Sir W. B. Richmond, B.A., has been promised by Mr. Morgan, a New York banker, the sum of £5,000 to defray the cost of such an installation of electric light in the Cathedral as will light up the mosaic decorations.

The result of the operations at the Mart, Tokenhouse-yard, last week, must be pronounced very satisfactory. The business done amounted to no less than £31,137.

New county-court and Inland Revenue offices are to be built for H.M. Office of Works, in Westgate-street, Cardiff, on the vacant site between the new post-office and the County Club.

## WATER SUPPLY AND SANITARY MATTERS.

**FOREST ROW, SUSSEX.**—Owing to the increase in the population of this town in consequence of the popularity of golf on the adjoining Ashdown Forest links, Mr. E. Bailey-Denton, M.Inst.C.E. (Messrs. Bailey-Denton, Son, and Lawford), of Palace Chambers, Westminster, has been instructed by the rural district council of East Grinstead to report on the best means to be adopted for the sewerage and sewage disposal of the district in combination with Ashurst Wood. His estimate amounts to £14,040.

**LYNN.**—The new water-supply has just been informally furnished to the townsfolk. The water-works are the property of the town, and for three centuries abundant quantities of excellent water have been drawn from the Gaywood river. The settling ponds, filters, &c., had become so foul that twice during the last six or eight years have inspectors from the Local Government Board pronounced the water dangerous. Six years ago the then borough surveyor (Mr. E. J. Silcock) was directed to prepare plans for an entirely new system, and they were adopted. They consisted of sinking two wells into the chalk hills at Gayton, six miles from the town, driving headings, constructing a pumping station, rising and gravitation mains, and covered service reservoir. The wells are 14ft. from centre to centre, each 6ft. 2in. in diameter, and 100ft. deep. From the bottom of the wells headings 6ft. by 4ft. have been driven, as well as a borehole 8in. in diameter, and the quantity of water yielded is over one millions gallons per day. The pumping machinery will eventually be in duplicate, and consists of two sets of boilers of the locomotive type, engines, and pumps, each capable of delivering a maximum of 1,250,000gal. per day through 6,243 yards of 15in. pipes, having a rise of 108ft. from the bottom of the wells to the top water level of the reservoir, which has a capacity of 1,000,000gal. two miles distant. The delivery main is 6,900 yards long, and is formed of 15in. cast iron pipes, the water being delivered at Lynn with a pressure equal to a head of 104ft. The works, which were commenced in 1894, have cost between £30,000 and £40,000.

## CHIPS.

A proposal is now being made to enlarge the boundaries of Dublin. The city area is confined to 3,808 acres, which gives the proportion of 67 people to an acre, including parks and open spaces, while what is known as the metropolitan district has an area of 24,768 acres.

The fine old mansion known as Riddlesworth Hall, dating from 1780 (the seat of Mr. W. N. L. Champion), which on the 10th ult. was the scene of a most destructive fire, will, we understand, shortly be rebuilt from designs of Mr. Herbert Green, of Norwich.

The Board of Trade have recently confirmed an order authorising the construction of a light railway between Didcot, in the county of Berks, and Watlington, in the county of Oxford.

At the last meeting of the city council of Exeter it was agreed, on the recommendation of a committee, that Mr. Herbert Read, of Sidwell-street, in that city, be employed to carry out the restoration of the stonework of the front of the Guildhall under the direction of the architects to the Society for the Protection of Ancient Buildings.

Mr. Silvanus Trevail, V.P.S.A., of Truro, who is at present in a private patients' home at Woodside House, Plymouth, is making satisfactory progress after a recent operation for an abscess in the back. The abscess was the sequel to a slight accident which Mr. Trevail met with in London.

The tramways committee of the Liverpool Corporation have discussed at great length the expediency of inviting tenders for the extension of the electric permanent way in half-mile or mile sections, or having the work carried out by day-labour under the engineer's supervision. By a single vote the contract system was rejected in favour of day-labour. The question is of considerable local importance, as the committee are about to expend £400,000 in permanent way extensions for the electric trams.

Mr. Jonas Watson, of The Lodge, Llandaff, one of the leading timber importers of Cardiff, died suddenly on Friday morning while with the Glamorganshire Hounds, near Cardiff. He was seen to reel and fall from his saddle, and when picked up was dead. Mr. Watson, who was the third son of the late William Jonas Watson, of St. Nicholas, Glam., was 69 years of age.

There has just been added to the National Portrait Gallery a bronze bust of Prince Charles Edward Stuart, which is considered one of the best likenesses of the "Young Pretender." The bust was modelled when "Prince Charlie" was about fourteen years old, and was brought from Italy in the latter part of the 18th century by Mr. Edward King, who was then Recorder of Lynn.

## Our Office Table.

THE new "Year Book and List of Members of the Society of Architects," now being issued from St. James's Hall, Piccadilly, is a smarter production than previous publications, and does credit to the recently appointed secretary, Mr. C. McArthur Butler. The membership roll has been carefully weeded by the Council, but still shows an increase in numbers, the figures for 1889 being 509 members, 17 hon. members, 10 associates, and 15 students—a total of 551, against an aggregate of 541 at the corresponding period last year. Three fresh standing committees have been formed, dealing respectively with the testing of methods and examinations for membership.

In the fortieth annual report of the Kent Archaeological Society, the secretary (Mr. G. Payne, F.L.S., F.S.A.) gives an account of the way in which the Romans set about road-making. "During 1897," he writes, "the laying down of a storm-water drain through the High-street of Strood revealed the formation of the road which passes through the town from Rochester Bridge. When the Romans made the great way from the Kentish coast to the north of England, a wooden bridge built upon piles was thrown across the Medway. On reaching the Strood side their engineers were confronted with a marsh about 355 yards wide. This difficulty they overcame by constructing upon the alluvial deposit a magnificent causeway. The workmen employed in laying the drain cut through the entire depth of the causeway to the mud at its base, thus enabling one to obtain a complete section of this remarkable work, as follows:—1, layers of post-Roman roads, 2ft. 8in.; 2, paved surface of causeway, 6in. to 8in.; 3, small pebble gravel, mixed with black earth, rammed, 9in.; 4, flints, broken fine, 7in.; 5, rammed chalk, 5in.; 6, flints (whole), rough pieces of Kentish rag, fragments of Roman tile, 3ft. 6in.; 7, marsh mud, containing numerous oak piles about 4ft. in length, with pieces of wood laid at intervals across them, or perhaps they were originally made fast with nails. All the layers were exceedingly hard, requiring much labour to cut through them. The Kentish rag boulders forming the pavement of the causeway were shaped polygonally, fine pebble gravel filling in the interstices."

THE *Times* of Natal for Feb. 4th refers to the old stocks that formerly stood upon the site of the police-station at Pietermaritzburg as follows:—One of the most interesting of Natal's exhibits at the Grahamstown exhibition is the old-fashioned stocks which were lent by Mrs. Thresh, of the Imperial. If this interesting curio could speak it would tell us of the early history of Maritzburg. These stocks, as many people are aware, were employed for the punishment of the unruly before the colony was taken over by the British, and it fell to the lot of our old and respected citizen, Mr. Wolhuter, to see that a proper guard was kept over those who had the misfortune to be "put in the stocks." We may add that the Stato Museum at Pretoria (of which Dr. Gunning, M.P., is the esteemed curator) is already so crowded with models of Sir Donald Currie's steamers, and other things of more or less interest, that at present no room exists for any additions. Pietermaritzburg boasts of a good museum of its own, and should certainly do its best to secure unto itself the city's most ancient existing relic.

Sir Reginald Hanson, M.P., on Saturday, introduced to the Chancellor of the Exchequer a deputation from the City, who desired that, in the case of large buildings used as offices or warehouses, only such rooms as were occupied by clerks or caretakers should be assessed to the Inhabited House Duty, instead of the whole building. This, it was explained, would enable a large number of persons to live in the City who were now excluded. Sir M. Hicks-Beach, while holding out no hope that in the present year anything could be conceded that would involve a loss of revenue, asked for more precise information regarding the deputation's proposal.

The question of extending Dundee Esplanade was considered at a meeting of the works committee of the town council last week. It was decided to enter upon an extension westwards, at an expenditure of £10,000, and, further, that the wall shall be continued from time to time. The extension at present decided upon will result in 50 acres being reclaimed.



## MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).—**St. Paul's Ecclesiastical Society. Visit to Catholic Apostolic Church, Gordon-square. 2.45 p.m.

**MONDAY.**—Society of Arts. "Cycle Construction and Design," Cantor Lecture No. 3, by Archibald Sharp. 8 p.m.  
Royal Institute of British Architects. "Early Christian Churches in Palestine," by A. C. Dickie, A.R.I.B.A. 8 p.m.  
Surveyors' Institution. "The Working of the Light Railways Act, 1896," by F. J. Smith, F.S.I. 8 p.m.  
Liverpool Architectural Society. Paper by Edward S. Prior, M.A. 6 p.m.

**TUESDAY.**—Institution of Civil Engineers. "Water-Tube Boilers for Marine Engines," by J. T. Milton; and "Recent Trials of the Machinery of Warships," by Sir A. J. Dureston and H. J. Oram. R.N. 8 p.m.

**WEDNESDAY.**—Architects' Benevolent Society. Annual Meeting at 9, Conduit-street, W. 5 p.m.  
Society of Arts. "Cornish Mines and Miners," by J. H. Collins, F.G.S. 8 p.m.  
Sanitary Institute. "The Establishment of Public Abattoirs in the Metropolis," by Dr. W. A. Bond, M.O.H., Holborn. 8 p.m.  
Northern Architectural Association. Annual Meeting. 7.30 p.m.  
Edinburgh Architectural Association. "Architectural Antiquities of Leith," by J. Campbell Irons. 8 p.m.

**THURSDAY.**—Society of Arts. "Leprosy in India," by H. A. Acworth, C.I.E. 4.30 p.m.

**FRIDAY.**—Birmingham Architectural Association. "The B.A.A. Excursion to Cambridge," by John Ward. 6.45 p.m.

## THE ARCHITECTURAL ASSOCIATION.

**MARCH 11th.**—VISIT to the GREAT CENTRAL RAILWAY HOTEL, Marylebone-road. Col. R. W. EDIS will conduct the Members over the Building at 2.30 p.m. At 3.30 p.m. a Visit will be paid to the Great Central Railway Station adjoining.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

The public opening took place on Thursday night in last week of the "John Ruskin" School, Beresford-street, Newington. The building brings the total number of schools erected by the London School Board to 850. The new school has accommodation for 358 boys, 358 girls, and 422 infants, and is fitted with a unique system of heating and ventilation. The cost of the site was £7,928, and that of the building £22,504. The total, £30,433, represents an outlay of £26 14s. for each scholar.

At Bridlington, on the 23rd ult., the foundation-stone was laid of the Yorkshire Foresters' Orphanage and Convalescent Home by Bro. R. S. Kirk, of Leeds, and several memorial-stones were laid by representatives of the various Courts and Districts of Yorkshire. The building is being erected by Messrs. F. Blackburn and Son, of Hull, and the architect is Mr. Robert J. Beale, A.R.I.B.A., of 9, Victoria-street, Westminster, whose design was selected in competition.

The most prominent building—a school—in all that is left of what was once one of the most fashionable parts of Edinburgh—Society-Brown-square—was practically destroyed by fire on Saturday morning. The school, one of the old Heriot institutions, was built in 1845, and has been used by the Heriot-Watt College for their classes in book-keeping, writing, and geometrical drawing for some years past. The damage, which is estimated at from £1,500 to £2,000, is fully covered by insurance.

Messrs. Wm. Potts and Sons, clock manufacturers, of Guildford-street and Cookridge-street, Leeds, have just erected a new hour striking clock at the new Acute Hospital, West Yorkshire Asylum, Wakefield, with Lord Grimthorpe's double three-legged gravity escapement and compensation pendulum, automatic lighting apparatus, &c., for turning on the electric light. There are four external dials 4ft. 6in. each in diameter, and the hours are struck on a 6cwt. bell. Messrs. Potts and Sons are also fixing the new turret quarter-chime clock at the Newcastle Asylum for Mr. Dyson, F.R.I.B.A., architect, of Newcastle-upon-Tyne.

The Mersey Docks Board propose to expend about £200,000 in widening and deepening the entrance to the Alfred Dock at Birkenhead, so as to admit vessels of the largest class likely to be constructed. It is expected that the entrance will be about 100ft. wide, and various other improvements will be made to bring the dock up to date.

Mr. George Lewis Heins has been appointed State Capitol Commissioner of New York, to succeed Mr. Isaac G. Perry. The position involves supervision of all the hospitals, armories, reformatories, and other State buildings. He is a well-known architect in New York, being in partnership with Mr. C. Grant Le Farge, the chief work of the firm being the Cathedral of St. John the Divine, now in course of construction in New York.

## Trade News.

## WAGES MOVEMENTS.

**ABERDEEN.**—The operative painters have made a demand for an increase of 1d. per hour on the present rate of wages of 7½d. They also request that the by-law prohibiting jobbing should be rescinded. The operatives number between 300 and 400, and unless the concession is made they threaten to strike.

**CHESTER.**—A movement has been on foot for some time among those engaged in the building trade in this district for an advance of wages, and it has culminated in the masters being served with notices from the different trade unions. The carpenters and joiners ask for an increase of wages and a reduction of hours, as also do the bricklayers and plumbers, and the labourers also demand an advance. The expiration of the various notices takes place on different dates in May, June, and July. There are about 900 men engaged in the building trade in the Chester district, and though they are not by any means all union men, the great bulk of them will be effected. The demands are regarded by the employers as unreasonable.

**HAMILTON, N.B.**—In conjunction with the associated joiners of the district, Hamilton joiners have made an application for an advance of ½d. per hour in their wages, to date from March 1. Masters have offered ½d. at that date, and ½d. three months later. The men have refused this offer, and are expected to take measures to enforce their demand.

## CHIPS.

The Board of Trade have recently confirmed an order authorising the construction of a light railway from Trowse, a suburb of Norwich and a junction on the Great Eastern Railway system, to Beccles, Suffolk, the junction for the Waveney Valley, Ipswich, Yarmouth, and Lowestoft lines on the same system.

Mr. E. H. Harbottle has been appointed hon. architect to the Devon and Exeter Hospital Committee.

The parish church of Lingwood, Norfolk, was reopened last week after restoration. The architect was Mr. A. J. Lacey, of Norwich, and the builder was Mr. Riches, of Postwick. The stonework was executed by Mr. Utting, of Acle.

New works of water-supply at Rainow, for the supply of the township of Bollington, North Cheshire, were formerly opened last week. The works have been carried out for the Bollington Urban District Council at a cost of £11,000. Mr. Radford was the engineer, and Mr. Bowers the contractor.

As the tenders received for the proposed new market-hall for Ilfracombe have greatly exceeded the estimates of cost, the urban district council have shelved consideration of the amended plans for three months.

The district schools at Hanwell are about to be extended by building on an adjoining site an infants' department at an estimated cost of £5,500.

Mr. H. P. Boulnois, C.E., Local Government Board inspector, held an inquiry at the Market Hall, Brixham, on Friday, into an application by the urban district council for permission to borrow £2,500 for street improvements.

## PILKINGTON &amp; CO.

(ESTABLISHED 1838),

MONUMENT CHAMBERS,  
KING WILLIAM STREET, LONDON, E.C.

Registered Trade Mark:

## POLONCEAU ASPHALTE

Patent Asphalte and Felt Roofing.

ACID-RESISTING ASPHALTE.

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## FAMBRINI &amp; DANIELS,

MANUFACTURERS OF IMPERISHABLE CONCRETE  
MASONRY FORCORNICES, STRING-COURSES,  
MODELLED PANELS, AND EVERY  
STONE-WORK REQUISITE.LANDINGS and Plain or Moulded and Mitred  
STEPS, durable throughout.

WORKS AND OFFICES: LINCOLN.

No order recognised unless issued from the works at Lincoln.

## LATEST PRICES.

## IRON, &amp;c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	to £8 10 0
Rolled-Steel Joists, English.....	6 10 0	" 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0
Bar Iron, good Stuffs.....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0
Do., Welsh.....	5 15 0	" 5 17 6
Boiler Plates, Iron—		
South Staffs.....	7 17 6	" 8 5 0
Best Suedashill.....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £8 16s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

	No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	to £11 0 0
Best ditto.....	11 5 0	" 11 10 0

	Per ton.	Per ton.
Cast-Iron Columns.....	£8 5 0	to £8 15 0
Cast-Iron Stanchions.....	6 5 0	" 8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	" 8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	" 7 15 0
Do., Galvanised.....	10 10 0	" 11 10 0
Cast-Iron Sash Weights.....	4 2 6	" 4 5 0
Cut Clasp Nails, 8in. to 6in.....	9 0 0	" 10 0 0
Cut Floor Brads.....	8 15 0	" 9 15 0

	0 to 7	8	9	10	11	12	13	14	15	16	17	18	19	20	B.W.G.
Wire Nails (Points de Paris)—															
9/0	9/6	10/10	10/9	11/6	12/6	13/6	15/3	15/3	17/3						
Cast-Iron Socket Pipes—															
8in. diameter.....	£5	10	0	to	£5	15	0								
4in. to 6in.....	5	5	0	"	5	10	0								
7in. to 24in. (all sizes).....	4	15	0	"	5	0									

[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]

	Per ton.
Pig Iron —	
Cold Blast, Lilleshall.....	106s. to 110s.
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.

Wrought-Iron Tubes and Fittings—Discount off Standard

	75p. 0.
Gas-Tubes.....	70
Water-Tubes.....	62½
Steam-Tubes.....	60
Galvanised Gas-Tubes.....	55
Galvanised Water-Tubes.....	45

	10cwt. casks.	5cwt. casks.
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	Per ton.	Per ton.
Zinc, English.....	£30	10 0 to £31 10 0
Do., Vieille Montagne.....	31	10 0 " 32 15 0
Sheet Lead, 3lb. per sq. ft. super.....	17	0 0 " 18 0 0
Pig Lead, in 1cwt. pigs.....	15	0 0 " 16 10 0
Lead Shot, in 24lb. bags.....	20	0 0 " 21 0 0
Copper Sheets, sheathing and rods.....	84	0 0 " 84 0 0
Copper, British Cake and Ingot.....	82	0 0 " 83 0 0
Tin, Straits.....	110	0 0 " 111 0 0
Do., English Ingots.....	112	0 0 " 113 0 0
Spelter, Silesian.....	27	0 0 " 28 0 0

## TIMBER.

	per load	£13	0 0	to	£15	10 0
Teak, Burmah.....						
" Bangkok.....		10	10 0	"	14	10 0
Quebec Pine, yellow.....		4	7 6	"	6	5 0
" Pitch.....		8	10 0	"	8	15 0
" Oak.....		4	0 0	"	6	0 0
" Birch.....		3	0 0	"	5	0 0
" Elm.....		4	12 6	"	5	15 0
" Ash.....		3	17 6	"	5	5 0
Dantisc and Memel Oak.....		3	5 0	"	3	15 0
Fir.....		2	0 0	"	4	0 0
Wainscot, Riga p. log.....		3	15 0	"	5	15 0
Lath, Dantisc, p.f.....		4	10 0	"	5	10 0
St. Petersburg.....		4	0 0	"	6	10 0
Greenheart.....		8	0 0	"	8	5 0
Box.....		4	0 0	"	15	0 0
Sequoia, U.S.A. ....per cube foot		0	1 9	"	0	2 0

	by 11in. :-
Mahogany, Cuba, per super foot	
lin. thick.....	0 0 5½ " 0 0 7
" Honduras.....	0 0 3½ " 0 0 4
" Mexican.....	0 0 3½ " 0 0 4
Cedar, Cuba.....	0 0 4 " 0 0 4½
" Honduras.....	0 0 3½ " 0 0 4½
Satinwood.....	0 0 9 " 0 0 1
Walnut, Italian.....	0 0 8 " 0 0 1
Deals, per St. Petersburg Standard, 120—12½ft. by 1½in.	

by Lin. :—					
Quebec, Pine, 1st	£18 15 0	to	£25 5 0		
"    2nd	13 15 0	"	17 0 0		
"    3rd	6 0 0	"	10 0 0		
Canada Spruce, 1st	8 10 0	"	10 10 0		
"    2nd and 3rd	5 0 0	"	8 10 0		
New Brunswick	7 5 0	"	8 0 0		
Riga	8 5 0	"	9 5 0		
St. Petersburg	11 15 0	"	14 5 0		
Swedish	9 15 0	"	16 15 0		
Finland	9 15 0	"	10 5 0		
White Sea	10 15 0	"	18 0 0		
Battens, all sorts	6 0 0	"	16 0 0		

Flooring Boards, per square of lin. :—				
1st prepared .....	£0	9	6	” £0 16 8
2nd ditto .....	0	8	0	” 0 13 8
Other qualities .....	0	6	3	” 0 7 0

Staves, per standard M:—					
Quebec pipe .....		—		—	
U.S. ditto .....	£35	0	0	£42	10 0
Memel, cr. pipe .....	210	0	0	230	0 0
Memel, brack .....					
Memel, red .....					

## OILS.

OILS.					
Linseed.....	per ton.	£17	7 6	"	£17 17 3
Rapeseed, English pale..	"	22	0 0	"	22 5 0
Do., brown.....	"	20	10 0	"	20 15 0
Cottonseed, refined.....	"	15	0 0	"	15 10 0
Olive, Spanish.....	"	28	10 0	"	29 0 0
Seal, pale.....	"	21	0 0	"	21 5 0
Cocanutt, Cochin.....	"	29	0 0	"	29 10 0
Do., Ceylon.....	"	25	0 0	"	25 5 0
Palm, Lagos.....	"	23	0 0	"	23 5 0
Oleine.....	"	18	15 0	"	19 15 0
Lubricating U.S.....	per gal.	0	6 3	"	0 7 8
Petroleum, refined.....	"	0	0 6	"	0 0 6
Tar, Stockholm.....	per barrel	1	0 0	"	1 5 0
Do., Archangel.....	"	0	15 0	"	0 18 0
Turpentine, American.....	per ton	23	15 0	"	29 0 0



LIST OF COMPETITIONS OPEN.

Beverley—Grammar School Buildings (limit £3,000; Assessor)...	£25 and £10	F. G. Hobson, Clerk to the Governors, Newbegin, Beverley .....	Mar. 4
Shoreditch—Additions to Town Hall (limit £12,000) .....	£50 and £25	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C. ....	22
Doncaster—House for Grammar School Master (limit £3,500; Assessor) .....	£50 (merged), £25	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster... ..	30
Forfar—Isolation Hospital (Assessor) .....	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee .....	31
Swindon—Additional Fever Pavilion (24 beds) .....	District Hospital Board .....	W. H. Kinneir, Clerk, High-street, Swindon .....	31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor) .....	£150, £100, £50	The City Surveyor's Office, Bradford .....	April 14
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff .....	£50, £20, £10	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate .....	30
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds .....	June 1
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair) .....		F. Moggridge, 18, King's-place, Portman-square, W. ....	—
Wandsworth, S.W.—Guardians' Board-room, Offices, &c. ....	£100 (merged), £60, £40	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W. ....	—
Hexham—Vagrant Wards at Workhouse .....	£20	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham .....	—

LIST OF TENDERS OPEN.

BUILDINGS.

Granton—Chimney Stack (105ft. high) at Gasworks .....	Edinburgh & Leith Gas Commisnrs.	W. R. Herring, Gasworks, Edinburgh .....	Mar. 4
Omagh—Keeper Lodge and Offices at New Cemetery .....	Guardians	J. L. Donnelly, Architect, 2, Bridge-street, Omagh .....	4
King's Lynn—Classrooms, &c., All Saints' Schools .....	King James's Gram. School Gvrns.	Louis F. Bagleton, Architect, Bank Chambers, King's Lynn .....	4
Knaresborough—School Buildings, &c. ....	Technical Institution Committee ..	Barrowcliffe and Alcock, Architects, Mill-street, Loughborough .....	4
Eastbourne—Alterations to Grove Hall .....	J. Greenland	W. Chapman Field, Borough Architect, Town Hall, Eastbourne .....	4
Kildorrery—Curate's House .....	Guardians	Rev. Denis O'Connell, P.P., The Presbytery, Kildorrery .....	4
Weston-super-Mare—Rebuilding No. 3, High-street .....	Model Steam Laundry Co. ....	S. J. Wilde & Fry, Archts., Boulevard Chmbrs, Weston-super-Mare .....	4
Bryn Eglwys—Repairs to Zion C.M. Chapel .....	Co-operative Society .....	Michael Thomas, Llwyn Onn, Corwen .....	4
Omagh—Church and Casual Vault at New Cemetery .....	Mrs. Taylor	J. L. Donnelly, Architect, 2, Bridge-street, Omagh .....	4
Littlehampton—Alterations to Steam Laundry Gloucester-road .....	Potteries Amal. Mineral Water Co.	H. Howard, M.S.A., Architect, Town Offices, Littlehampton .....	4
March—Primitive Methodist Chapel, Station-road .....	W. H. Vane	Rev. A. W. Edwards, 9, Artillery-street, Wisbech .....	4
Burton-on-Trent—Concert Hall and Four Shops .....	Midland Railway Co. ....	R. Stevenson, Architect, Burton-on-Trent .....	4
Dufftown—Additions to Gamekeeper's House .....	Joint Hospital Board .....	Andrew Thomson, Architect, Fife-Keith .....	4
Morecambe—Alterations to 19, Sea View Parade .....	H.M. Commissioners of Works .....	A. Lancelot Lang, Architect, 12A, Pedder-street, Morecambe .....	4
Hanley—Stabling, Meigh-street .....	Very Rev. Canon Shanahan	R. Scrivener and Sons, Architects, Hanley .....	4
Llangollen—House, &c. ....	Gas Company, Ltd. ....	E. T. Jones, Architect, 3, Cambrian-terrace, Llangollen .....	4
Weston-super-Mare—Improvements to 4, High-street .....	Board of Police .....	S. J. Wilde & Fry, Archts., Boulevard Chmbrs, Weston-super-Mare .....	4
Selly Oak—Timber Goods Shed .....	Aberdeen School Board .....	The Company's Architect, Cavendish House, Derby .....	4
Stairfoot—Five Houses and Shops .....	John Kenyon, Ltd. ....	Duncan and Jones, Stairfoot .....	6
Tiverton—Hospital Buildings .....	Holt Bros. ....	J. Siddalls, Architect, Tiverton .....	6
Baillieborough—New Wards at Infirmary .....	Glynceorgw School Board .....	Hugh Clarke, Clerk, Baillieborough .....	6
Ripponden—Shop, &c., Hollins Estate .....	W. H. Lee .....	Horsfall and Son, Architects, 22A, Commercial-street, Halifax .....	6
Low Westwood—Six Houses and Additions to Premises .....	Corporation .....	G. T. Wilson, Architect, 121, Durham-road, Blackhill .....	6
Foulridge—Rebuilding Hole-in-the-Wall Inn .....	Leeds Corporation .....	Robert Neill, Architect, 9, Grimshaw-street, Burnley .....	6
Glenfarquhar—Lodge .....	School Board .....	Davidson and Garden, 12, Dee-street, Aberdeen .....	6
Tiverton—Isolation Hospital Buildings .....	Corporation .....	J. Siddalls, Architect, Tiverton .....	6
Putney, S.W.—New Sorting Office .....	Hartlepool Gas and Water Co. ....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate .....	6
Newark—Houses and Shops in Catgate .....	Commissioners of Irish Lights .....	Sheppard and Harrison, Architects, 17, Kirkgate, Newark .....	6
Thornaby-on-Tees—Infants' School .....	Carnarvonshire County Council .....	E. Goldie, Architect, 31, Upper Philmore-place, Kensington, W. ....	6
Shoeburyness—Gasholders, &c. ....	School Board .....	Henry J. Robus, Engineer, 20, Bucklesbury, London, E.C. ....	6
Rochestown—Pair of Semi-detached Villas .....	John Kenyon, Ltd. ....	W. H. Hill and Son, Architects, 28, South Mail, Cork .....	6
Greenock—Electricity Station, Hunter's-place .....	Corporation .....	S. E. Feddon, Municipal Buildings, Greenock .....	7
Craigellachie—Schools .....	Urban District Council .....	Brown and Watt, Architects, Aberdeen .....	7
Penpergwn—Additions to Bryn-Rhydderch House .....	City Council .....	E. Williams, F.R.I.B.A., Pontypool, and 20, Northbrook-rd., S.E. ....	7
Alnwick—Shop and House, Wagon-way .....	Corporation .....	E. R. Temperley, Alnwick Castle .....	7
Sowerby Bridge—Four-Story Warehouse at Mearclough .....	Leeds Corporation .....	Jackson and Fox, Architects, 7, Rawson-st., Sowerby Bridge, Yorks .....	7
Bradford—Alteration of Shops, Market-street .....	John Sykes and Co. ....	G. F. Danby, Architect, 10, Park-row, Leeds .....	7
Glasgow—Extension of Coplawhill Depot .....	Holt Bros. ....	S. J. Wilde & Fry, Archts., Boulevard Chmbrs, Weston-super-Mare .....	7
Beeston, Leeds—Shelter, Cross Flatts Park .....	Glynceorgw School Board .....	O. Penton Lambert, Architect, Bridgend .....	7
Leeds—Additions to Shadwell Industrial School .....	W. H. Lee .....	Austin and Paley, Architects, Castle Hill, Lancaster .....	7
Prudhoe-on-Tyne—House and Shop .....	Corporation .....	Marshall Bros., Architects, Back Crescent, Morecambe .....	7
Edinburgh—Three Blocks of Workmen's Dwellings in Cowgate .....	Hartlepool Gas and Water Co. ....	E. Mawdesley, Town Clerk, Croydon .....	8
West Hartlepool—Gasworks at Dyke House .....	Commissioners of Irish Lights .....	Milnes and France, Architects, Bradford .....	8
Blundstone—Cottage .....	The Irish Lights Office, Dublin .....	John Young, General Manager, 83, Renfield-street, Glasgow .....	8
Knightsdown—Valencia Island—Shore Dwellings for Light-keepers at Teraght and Skelligs Lighthouses .....	Walker and Collinson, Architects, Swan Arcade, Bradford .....	The City Engineer, Municipal Buildings, Leeds .....	8
Fble Moor—School-Chapel .....	The County Surveyor, 3, Castle-street, Carnarvon .....	W. S. Braithwaite, Architect, School Board Offices, Leeds .....	8
Bangor—Additions to Police Station .....	J. E. Cutlan, Architect, Wellingborough .....	R. Walton, 2, Leaburn-terrace, Prudhoe-on-Tyne .....	8
Wellingborough—School in Westfield-road (340 boys) .....	James Shand, Methlick, N.B. ....	The Borough Engineer, Municipal Buildings, Edinburgh .....	8
Methlick—House .....	H. A. Wisner, Town Clerk, Clatter House, Kingston-upon-Thames .....	Thomas Bower, Engineer, West Hartlepool .....	8
Kingston-upon-Thames—Stalls, &c. ....	The Secretary, Society's Central Office, Cleckheaton .....	S. Rivett, M.S.A., 5, South Quay, Great Yarmouth .....	8
Leekheaton—Eleven Houses at Low Moor .....	Edward H. Smales, A.R.I.B.A., 5, Flower-street, Whitby .....		9
Whitby—Reroofing 23, St. Hilda's-terrace .....	Bowman Elliback, Standingtons, Maryport .....		9
Broughton Moor—Two Cottage Homes .....	J. Bell, R. ad Surveyor, 1, Aglionby-street, Carlisle .....		9
Artale—Road Bridges at Millbeck and Durdar Fords .....	Kenneth MacRae, Architect, Oban .....		9
Jeromey—Additions to Teacher's House .....	J. Eldridge, 18, Mount-street, Battle .....		9
Little—Repairs to Zion Chapel .....	T. H. Farrar, Architect, Fountain-street, Halifax .....		9
Irishfield—Two Semi-Detached Houses at Battleyford .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin .....		9
Irishfield—Additions to Station .....	E. P. Stephenson, Engineer, Church-walks, Llandudno .....		9
Landudno—Slaughter-Houses .....	Arthur O. Evans, Architect, Pontypool .....		9
Redgar—Altering and Cementing the Castle Hotel .....	W. B. Starr, Architect, 12, St. Peter's Gate, Nottingham .....		9
Vottingham—Branch Reading-room, Carlton-road .....	C. Stanley Peach, F.R.I.B.A., West Hartlepool .....		9
Vest Hartlepool—Electric Light Station, Burn-road .....	Max S. Green, Engineering Inspector, Dublin Castle .....		9
Faryborough—Block of Buildings and Wall at H.M.'s Prison .....	J. W. Webster, Engineer, Council Offices, Cowes .....		9
Lower—Coal Stores .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin .....		9
Jublin—Electric Power House, Amiens-street .....	Judson and Moore, Architects, Oakworth, near Keighley .....		9
Jakworth—Six Houses at Lane Ends .....	Robert Neill, Architect, 9, Grimshaw-street, Burnley .....		9
Jawntall—Alterations to White Horse Hotel .....	W. H. Hill and Son, Architects, South Mail, Cork .....		9
Jerk—Two Houses, Windmill-road .....	John Parker, A.M.I.C.E., City Engineer, Hertford .....		9
Jesford—Electricity Station, Wildmarsh-street .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin .....		9
Jagham—Station-master's House .....	The City Surveyor, Manchester .....		9
Janchester—Annexe to Nurse's Block at Monsall Hospital .....	H. Heather, Architect, 83, Wylie Cop, Shrewsbury .....		9
Jala, Merioneth—County Intermediate School for Girls .....	C. H. Marriott and Son, Architects, West Park-street, Dawsbury .....		9
Jornaby—Shipbuilding Offices .....	Brodrick, Lowther, & Walker, Archts, Catrl Cambs., Bridlington Quay .....		9
Jridlington Quay—Residence .....	C. H. Marriott and Son, Architects, West Park-street, Dawsbury .....		9
Jglecliffe—Stabling .....	E. Winder, jun., Architect, Wharf-street, Sheffield .....		9
Jngreave—Lodge at Burial Ground .....	J. Morris, Clerk of Works, 24, Cabra-parade, Dublin .....		9
Jublin—Thirteen Labourers' Cottages .....	H. Jarvis and Son, Architects, 29, Trinity-square, Brough, S.E. ....		9
Jst Dulwich, S.E.—Alterations to Workhouse, Constance-road .....	H. A. Hedley, Secretary, 141, Buchanan-street, Glasgow .....		9
Jagow—Exhibition Buildings, Kelvingrove Park .....	Owen Armstrong, Secretary, Dublin .....		9
Jshoven, Co. Donegal—Lighthouse Keeper's Dwelling .....	Hon. Reginald B. Brett, Secretary, 12, Whitehall-place, S.W. ....		9
Jnchester—South-Eastern District Post Office .....	W. B. Wood, A.R.I.B.A., 12, Queen-street, Gloucester .....		9
Jnchester—Alterations at Y.M.C.A. Buildings .....	A. Lancelot Lang, Architect, 12A, Pedder-street, Morecambe .....		9
Jncrembe—Mineral Water Works, Thornton-road .....	H. W. Gibson, Deputy Clerk, Saire Hall, Chelmsford .....		9
Jnpre-le-Soken—Additions to Police Station .....	R. Scrivener and Sons, Architects, Hanley .....		9
Jnley—St. Jude's Parish Church, Victoria-road .....	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E. ....		9
Jst Norwood—Two Bathrooms at Lambeth School Infirmary .....	W. A. H. Pe, C.E., Architect, Portsmouth-rd., Kingston-on-Thames .....		9
Jngton-on-Thames—Female Infirmary, &c., at Workhouse .....	E. Buckham, Brough Surveyor, Town Hall, Ipswich .....		9
Jwish—Alterations and Additions to Borough Asylum .....	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W. ....		9
Jneby, near Sleaford—Superstructure of Lunatic Asylum .....	Fredk. W. Rhodes, Architect, Upper Worthy, Leeds .....		9
Jnebeck—Ten Through Houses .....	F. W. Dixon, Architect, Trevelyan Buildings, Manchester .....		9
Jthport—Laundry, &c., Meols Cop-road .....			9



## BUILDINGS—continued.

Earlshaston—Extension of Weaving-Sheds	W. Spong	F. W. Ridgway, F.R.I.B.A., Architect, Borough Chambers, Dewsbury
Higham Ferrers—Three Dwelling-Houses	W. Spong	H. Adnitt, Architect, High-street, Rushden
Dewsbury—Two Shops and Houses, Halifax-road	Worthington and Co., Ltd.	F. W. Ridgway, F.R.I.B.A., Architect, Dewsbury
Barrow-in-Furness—Queen's Arms Inn, Rawlinson-street	F. Mitchell	E. M. Young, Architect, 90, Duke-street, Barrow-in-Furness
Reading—Two Shops, Oxford-road	Thomas Moy, Ltd.	W. Jane, 17, Market-place, Reading
Armagh—Alteration to Premises, Scotch-street	Thomas Moy, Ltd.	J. F. Giebert, A.I.C.E.I., M.E.I.A.I., Scotch-street, Armagh
Sheffield—Two Pairs Semi-Detached Houses, Ecclesall-road	Ecclesall Indus. & Prov. Soc., Ltd.	The Princess Works, Shoreham-street, Sheffield
Colchester—Stables, &c., at The Hythe	Harper Bros.	Chas. E. Butcher, Architect, 3, Queen-street, Colchester
Morecambe—Alterations to National Schools	Harper Bros.	Marshall Bros., Architects, Back-crescent, Morecambe
Broomhill—Additions to Property, Glossop-road	E. Bulley	Hall and Fenton, Architects, 14, St. James's-row, Sheffield
Manningtree—Shop and House, High-street	Industrial Co-operative Society	R. W. Downing, Brook-street, Manningtree
Starbeck—New Stores and Premises	Richard Leadbetter and Sons	A. A. Gibson, Architect, Yorkshire Bank Chambers, Harrogate
Chudleigh Knighton—Repairs to Ten Cottages and Outbuildings at Underhays	E. M. English	48, Wolborough-street, Newton Abbot
Walhampton—Twelve Houses	Withington Urban District Council	The People's Dwellings Co., Ltd., 5, Adelaide-pl., London Bridge, E.C.
Poynton—Drapery and Boot Shops, Offices, &c.	Freehold Land Society	F. W. Dixon, Architect, Trevelyan Buildings, Manchester
Kendal—141 Working Men's Dwellings, Long Field	A. M'Clelland	Clark and Johnston, Kendal
Fleetwood—Restaurant, North Albert-street	Patrick Doyle	T. A. Drummond and Sons, Architects, Fleetwood
Ballinamallard—School	Alexandra Lyons, J.P.	The Rectory, Ballinamallard, Ireland
Pocklington—Residence	John May and Co., Ltd.	W. Thorp, Architect, 22a, Commercial-street, Leeds
Halstead—Additions to Industrial School	Alcock and Co., Ltd.	Baker and May, Architects, Colchester
Cheshire—Sanatorium (100 beds), &c., Baguley Lodge	Wood Bros.	J. B. Broadbent, A.R.I.B.A., 15, Cooper-street, Manchester
Skegness—Alterations, &c., to Premises, Derby-road	W. Whitaker and Co., Bradford	Nelson Holloway, Architect, Angel-row, Nottingham
Hull—Colour Mill, Sealewates	A. G. Rayner	Brodrick, Lowther, and Walker, Architects, 77, Lowgate, Hull
Manningtree—Shop and House, High-street	C. and W. C. Keighley	H. Spooner, South-street, Manningtree
Bradford—Prospect Inn, Bolton-road	James M'Mullan	John Jackson, M.S.A., Architect, Barry-street, Bradford
Higham Ferrers—Three Dwelling-Houses	Rogers and Co.	H. Adnitt, Architect, High-street, Rushden
Skegness—Detached Villa	J. Stutlan	Nelson Holloway, Architect, Angel-row, Nottingham
Carmore—Dwelling-House	Goole Steam Laundry Co.	John Armstrong, Canal House, Tallamore, King's County
Todmorden—Additions to Unitarian Sunday School	Stevenson and Burstal, Engineers, 38, Parliament-st., Westminster Mar.	Jesse Horsfall, F.R.I.B.A., Architect, Todmorden
Belfast—Alterations to Premises, Short Strand & Anderson-st.	C. F. Wike, C.E., City Surveyor, Town Hall, Sheffield	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast
Old Colwyn—Church	Alex. Beveridge, Clerk, 220, High-street, Kirkcaldy	Douglas and Minshall, Architects, Chester
Hurst Brook—Methodist New Connexion Sunday School	James Barron, M.I.C.E., 1, Bon Accord-street, Aberdeen	S. Shiff, Mount Pleasant, Ashton-under-Lyne
New Deer—Bank House	H. W. Gibson, Deputy Clerk, Shire Hall, Chelmsford	R. G. Wilson, Architect, 181a, Union-street, Aberdeen
Swadlincote—Foundations at Gasworks	The Resident Engineer, Dewar-place, Edinburgh	Robert Cartwright, Commercial Manager, Gasworks, Swadlincote
Otley—Villa Residence	The County Bridgemanster's Office, County Offices, Preston	Fairbank and Wall, Architects, 3, Manor-square, Odey, Yorks
Lurgan—Licensed Premises, Market-street	R. M. Christie, C.E., Dunblane	W. J. Moore, Architect, Ann-street, Belfast
Morecambe—Three Houses and Shops, Battery Estate	John Strachan, Crispin Lodge, near Wrexham	Jas. Hartley, Architect, Bradford Chambers, Morecambe
Sligo—Pair of Semi-Detached Villas	John Lindsay, Interim Clerk, City Chambers, Glasgow	W. F. Gierbert, M.I.C.E.I., Wine-street, Sligo
Gleadowan—School	Chas. A. Kent, Secretary, Trinity House, E.C.	Andrew M'Neil P.P., Termon, Letterkenny
Overton—Additions to Red Lion Inn	S. Meunier, Portwood, Stockport	R. S. Wallis, Architect, Basingstoke
Eccleshill—Stabling and Out-building at New Inn	Chas. A. Kent, Secretary, Trinity House, E.C.	John Jackson, M.S.A., Architect, Barry-street, Bradford
Wrexham—Factory	William Smith, Architect, 65, Chancery-lane, London, W.C.	Walter Slater, Architect, 9, High-street, Wrexham
Cardiff—Church	J. E. Swindlehurst, City Engineer, Coventry	F. R. Kempton, F.R.I.B.A., Hereford
Morecambe—Villa, Stabling, &c.	Warren and Stuart, 115, Wellington-street, Glasgow	Marshall Bros., Architects, Back Crescent, Morecambe
Belfast—Dwelling-houses, Brown's-square and Gardiner-street	Chris. Mulvanny, M.I.C.E., Athlone	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast
Otley—Rebuilding Black Horse Hotel	E. Radcliffe, C.E., 24, Clooney-terrace, Londonderry	H. Chippendale, Architect, Springfield, Guseley
St. Mellon's—Three Cottages	M. Temple Wilson, Architect, Alnwick	David Oaklands, St. Mellon's, Mon.
Colchester—House, Rawstorn-road	J. Y. F. Cooke, C.E., St. Columba's, Londonderry	C. E. Butcher, Architect, 3, Queen-street, Colchester
Ashton-under-Lyne—Fourteen Cottages	E. P. Stephenson, Engineer, Llandudno	T. George and Sons, Architects, Old-square, Ashton-under-Lyne
Morecambe—Two Semi-Detached Houses, Rosendale-avenue	H. J. Weaver, C.E., Guildhall, King's Lynn	Marshall Bros., Architects, Back Crescent, Morecambe
South Acton, W.—Laundry Premises	Robert Hammond, M.I.C.E., Engineer, 84, Victoria-street, S.W.	G. P. Pratt, A.R.I.B.A., 10, The Parade, Churchfield-road, Acton
Lurgan—Grocery Premises, Market-street	E. W. Waite, A.M.I.C.E., Gas and Water Offices, Barry	W. J. Moore, Architect, Ann-street, Belfast
Frinton-on-Sea—Small House	The Manager, Gasworks, Roscommon	Beresford Pite, F.R.I.B.A., 48, Harley-street, W.
Cardiff—Additions to 1, Adam-street	John Young, General Manager, 88, Renfield-street, Glasgow	J. P. Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff
Kidderminster—Two Shops and Houses, New-road	T. and C. Hawkesley, C.E.'s, Great George-street, S.W.	J. M. Gething, Architect, Oxford Chambers, Kidderminster
Morecambe—House and Shop, Sefton-road	W. H. Tittensor, Dudhope Crescent-road, Dundee	Marshall Bros., Architects, Back Crescent, Morecambe
Goole—Alterations to Building in Victoria-street	The Treasury of Pará	J. Roberts, Clarkson's Hotel, Goole
	C. Mulvanny, M.I.C.E., Athlone	

## ENGINEERING.

Ashford—Excavating for and Laying Cast-Iron Main Pipes	Urban District Council	Stevenson and Burstal, Engineers, 38, Parliament-st., Westminster Mar.
Sheffield—Bridges over River Sheaf	Improvement Committee	C. F. Wike, C.E., City Surveyor, Town Hall, Sheffield
Kirkcaldy—Tramline (2ft. gauge) along the County Highway	District Council	Alex. Beveridge, Clerk, 220, High-street, Kirkcaldy
Road, from High-street to Thornton Junction Station	Essex County Council	James Barron, M.I.C.E., 1, Bon Accord-street, Aberdeen
Buckie—Bridge	Magistrates and Council	H. W. Gibson, Deputy Clerk, Shire Hall, Chelmsford
Felstead—Rebuilding Absol Bridge	County Council	The Resident Engineer, Dewar-place, Edinburgh
Edinburgh—Condensing Plant, &c.	Police Commissioners	The County Bridgemanster's Office, County Offices, Preston
Clayton-le-Dale—Stone Bridge	Wrexham Rural District Council	R. M. Christie, C.E., Dunblane
Downe, N.B.—Waterworks	Corporation	John Strachan, Crispin Lodge, near Wrexham
Rossett—Culvert on Honckley-road	Trinity House Corporation	John Lindsay, Interim Clerk, City Chambers, Glasgow
Glasgow—Alterations Laundry Machinery, Belvedere Hospital	Gas and Electricity Committee	Chas. A. Kent, Secretary, Trinity House, E.C.
Cornwall—Lantern for Pendene Lighthouse	Trinity House Corporation	S. Meunier, Portwood, Stockport
Stockport—Dynamo (Two 140kw.)	St. Mary (Telington) Guardians	Chas. A. Kent, Secretary, Trinity House, E.C.
Bristol Channel—Lantern for Foreland Lighthouse	Corporation	William Smith, Architect, 65, Chancery-lane, London, W.C.
Highgate, N.—Hot-Water Arrangements at New Infirmary	Duke of Hamilton's Trustees	J. E. Swindlehurst, City Engineer, Coventry
Coventry—Girder Bridge in Stony Stanton-road	Major Widdington, J.P.	Warren and Stuart, 115, Wellington-street, Glasgow
Whiting Bay, N.B.—Water Pipes (3,400 yards)	Urban District Council	Chris. Mulvanny, M.I.C.E., Athlone
Roscommon—Waterworks	Corporation	E. Radcliffe, C.E., 24, Clooney-terrace, Londonderry
Letterkenny to Burton Port—Railway (4½ miles)	Urban District Council	M. Temple Wilson, Architect, Alnwick
Glenties—Open Reservoir (100,000 gallons)	Gas Co., Ltd.	J. Y. F. Cooke, C.E., St. Columba's, Londonderry
Buncrana to Camdonagh—Railway (18½ miles)	Corporation	E. P. Stephenson, Engineer, Llandudno
Llandudno—Promenade Extension	Water Co.	H. J. Weaver, C.E., Guildhall, King's Lynn
King's Lynn—Widening South Gates Bridge, London-road	Gas Commissioners	Robert Hammond, M.I.C.E., Engineer, 84, Victoria-street, S.W.
Canterbury—Plant for Electricity Works	Government of Pará	E. W. Waite, A.M.I.C.E., Gas and Water Offices, Barry
Biglis Moors, near Cadoston—Sinking Well, &c.	Guardians	The Manager, Gasworks, Roscommon
Roscommon—Retort Bench, &c.	Waterworks Company	John Young, General Manager, 88, Renfield-street, Glasgow
Glasgow—Reconstruction of Tramways	Thrapston Rural District Council	T. and C. Hawkesley, C.E.'s, Great George-street, S.W.
Weymouth—Waterworks	Corporation	W. H. Tittensor, Dudhope Crescent-road, Dundee
Dundee—Electrical Plant at Station, Dudhope Crescent-road	Guardians	The Treasury of Pará
Belem—Waterworks	Guardians	C. Mulvanny, M.I.C.E., Athlone
Mullingar—Cast-Iron Pipe from Mullingar to Lough Sheever	Waterworks Company	F. J. Warden-Stevens, Engineer, 34, Victoria-street, S.W.
Poplar, E.—Well, &c., for Supply of Water to Union Work-	Thrapston Rural District Council	Secretaria da Industria, Pernambuco
house Buildings, High-street	Corporation	T. and C. Hawkesley, Engineers, 30, Great George-street, S.W.
Pernambuco to Olinda—Electric Tramway (3 miles)	Municipal Council	G. Hunningham, Clerk, Thrapston
Bristol—Pumping Engines, &c.		John Haslam, Town Clerk, Bury
Ringstead—Lattice Girder Bridges		The Surveyor's Office, Lanchester, Durham
Bury, Lancs—Alterations to Gasworks		Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.
Lanchester—Bridge over New House Burn		
Shanghai—Electric Trolley Tramways (23 miles)		

## FENCING AND WALLS.

Weston-super-Mare—Stone Retaining Wall at Town Quay	Urban District Council	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare
Omagh—Boundary Walls, Entrance Gates, and Railings at New Cemetery	Guardians	J. L. Donnelly, Architect, 2, Bridge-street, Omagh
Kendal—Iron Fencing, Fisher Tarn Waterworks	Corporation	The Borough Surveyor, Town Hall, Kendal
Leytonstone—Oak Cleft Fence at Forest House	Guardians of West Ham Union	F. E. Hillyear, Clerk, Union-road, Leytonstone, E.
West Ham—Wrought Iron Fencing (890ft. run), with Gates, at the Park	Town Council	Lewis Angell, Borough Engineer, Town Hall, Stratford, E.
London, S.E.—Boundary Railings, Gates, &c., Nelson Recreation Ground, Kipling-street	London County Council	The Architect's Department, 13, Spring Gardens, S.W.
Burngrave—Boundary Wall at Burial Ground	Burial Board	E. Winder, jun., Architect, Wharf-street, Sheffield
Carshalton—Oak Park Fencing (700 rods) at Southern Hospital	Metropolitan Asylums Board	Treadwell and Martin, Architects, 2, Waterloo-pl., Pall Mall, S.W.
Midhurst—Oak Swing Gates (100) and Fittings		W. Haslam, Cowdray Estate Office, Midhurst, Sussex

## PAINTING.

Harrogate—Property (outside)	Hirst and Capes, Solicitors, Harrogate	Mar. 4
Plymouth—Promenade Pier and Pavilion	E. Saunders, Secretary, Plymouth	4
Kirkcaldy—Beveridge and Smith Memorial Halls	Dunn and Findlay, Architects, 35, Frederick-street, Edinburgh	6
Barnsley—Chapels, &c., Cemetery	J. Henry Taylor, Borough Surveyor, St. Mary's-place, Barnsley	6
Leeds—Public Latrines and Urinals	The City Engineer's Office, Municipal Buildings, Leeds	8
Cardiff—Workhouse (external)	Arthur J. Harris, Clerk, Queen's Chambers, Cardiff	11
Milgate—Twenty-three Cottages and Two Shops	111, Oak-terrace, Milgate, near Rochdale	11
Thornaby—Chapel	G. Hewlett, 1, Derby-street, Thornaby	
Ascot—Grand Stand and Other Buildings	William M'nzies, F.S.I., Englefield Green, Surrey	
Longton—Interior of Public Baths	J. W. Wardle, C.E., Borough Surveyor, Court House, Longton	



## PLUMBING AND GLAZING.

Glasgow—Coplawhill Depot .....	Corporation .....	J. Young, Gen. Man., 88, Renfield-street, Glasgow .....	Mar. 8
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## ROADS AND STREETS.

Wakefield—Private Street Works in East View .....	The City Surveyor, Town Hall, Wakefield .....	Mar. 4
Omagh—Drains, Carriage-Drives, Avenues, &c., at Cemetery .....	J. L. Donnelly, Architect, 2, Bridge-street, Omagh .....	" 1
Kingstown—Footpaths, &c., at Eglinton Park .....	John Donnelly, Clerk, Town Hall, Kingstown .....	" 1
Jarrow—Paving East Back Nansen-street, Back Blackett-street, Back Croft-terrace, and South View .....	J. Petree, Borough Surveyor, Jarrow .....	" 6
Leeds—Paving and Flagging Streets .....	The City Engineer's Office, Municipal Buildings, Leeds .....	" 6
Belford—Road Works &c., (One Year) .....	A. J. Ware, Surveyor, Belford .....	" 6
Accrington—Paving Streets .....	W. J. Newton, C.E., Borough Engineer, Town Hall, Accrington .....	" 6
Brierfield—Road Works, &c. ....	J. T. Landless, A.M.I.C.E., Engineer, Station Buildings, Nelson .....	" 6
Teddington—Making-up King's-road, Upper & Lower Coburg-road, Royal-road, Prince's-road, Windsor-road, & Cedars-road .....	M. Hainsworth, Surveyor, Elmfield House, Teddington .....	" 7
Bicester—Highway Repairs (One Year) .....	J. Brabant, South View, Bicester .....	" 7
Maidstone—Road Works (One Year) .....	Frederick W. Ruck, County Surveyor, 86, Week-street, Maidstone .....	" 7
Ryton-on-Tyne—Road Diversion, Bradley-lane .....	John P. Dalton, Engineer, Council Offices, Ryton-on-Tyne .....	" 8
Old Hill—Street Works, Haden-road .....	The Council Offices, Lawrence-lane, Old Hill .....	" 8
Acton Green—Formation of Bolton-road .....	Edward Monson, F.R.I.B.A., Architect, Acton Vale, W. .....	" 8
Hull—New Street .....	Gelder and Kitchen, 76, Lowgate, Hull .....	" 8
Chatham—New Road .....	J. W. Nash, Surveyor, Medway-terrace, Rochester .....	" 8
Nevin—Widening of Main Road at Holborn .....	The County Surveyor's Office, 8, Castle-street, Carnarvon .....	" 9
Gosforth—Making Roadway, &c., (2,690 superficial yards) .....	C. J. Baff, Clerk, Council Chambers, Gosforth .....	" 11
Preston—Paving Back Roads .....	The Borough Surveyor, Town Hall, Preston .....	" 17
Keighley—Making-up Carr and Reed Streets .....	W. H. Hopkinson, A.M.I.C.E., Borough Engineer, Keighley .....	—
Peebles—New Street at Kirklands .....	R. S. Anderson, Civil Engineer, Peebles .....	—
Heckington—Completing Road on Six Hundreds Farm .....	Huskinson and Son, Epperstone, Notts .....	—

## SANITARY.

Richfield—Sewers (2,000 lineal yards) .....	Sanitary Committee .....	C. J. Corrie, City Surveyor, Lichfield .....	Mar. 4
Thornhill Lees—Private Drainage Works .....	" .....	B. Marsden and Sons, Estate Agents, Church-street, Dewsbury .....	" 4
Littleport—Sewer (300 lineal yards of 15in.) .....	Rural District Council .....	G. Carmichael, Ely .....	" 6
Fulham, S.W.—Sewer Portions of Combined Drainage .....	Vestry .....	C. Botterill, A.M.I.C.E., Surveyor, Town Hall, Walham Green, S.W. ....	" 8
Garstang—Sewers (1,650 yards) .....	Rural District Council .....	Frank Dixon, C.E., Engineer, Garstang, Lancs .....	" 9
Waterloo—Sewers (3,640 lineal yards) .....	Linchurst Rural District Council .....	Foster, Son, and Bardsley, Engns., 23, John Dalton-st., Manchester .....	" 10
Bardsley—Sewers .....	Rural District Council .....	Foster, Son, and Bardsley, 23, John Dalton-street, Manchester .....	" 10
Charlton, S.E.—Public Conveniences at Maryon Park .....	London County Council .....	The Architect's Department, 13, Spring Gardens, S.W. ....	" 14
Westbury-upon-Trym—Outfall Sewerage Works .....	Rural District Council .....	A. P. I. Cotterell, A.M.I.C.E., Engineer, 7, Baldwin-street, Bristol .....	" 15
Johannesburg—Sewerage Scheme .....	" .....	The Town Engineer's Office, Johannesburg .....	May 12

## STEEL AND IRON.

Greenock—Cast-Iron Pipes (275 tons of 6in. and 4in.) .....	District Committee of Co. Renfrew .....	J. Murray, C.E., County Buildings, Paisley .....	Mar. 4
Hamilton—Cast-Iron Pipes (820 tons) .....	District Committee .....	J. A. and Leslie and Reid, C.E., 72a, George-street, Edinburgh .....	" 9
Chartham—Gas-Mains (800 yards of 8in.) .....	Committee of Visitors .....	W. J. Jennings, Architect, Canterbury .....	—

## STORES.

Bath—Road Materials (One Year) .....	Urban Sanitary Authority .....	Charles R. Fortune, City Surveyor, Guildhall, Bath .....	Mar. 4
Halifax—Pig Lead, Lead Piping, and Block Tin (One Year) .....	Waterworks Committee .....	J. A. Paskin, Waterworks Engineer, Town Hall, Halifax .....	" 4
Brandon and Byshottles, Durham—Road Materials, &c. ....	Urban District Council .....	E. Gardner, Surveyor, Langley Moor, near Durham .....	" 4
Bermondsey, S.E.—Drain-Pipes, Lime, Portland Cement, Iron-mongery, Timber, &c. ....	Vestry .....	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa road, S.E. ....	" 4
Gravesend—Granite (200 tons) .....	Town Council .....	C. E. Hutton, Town Clerk, Court House, Gravesend .....	" 4
Thame—Broken Hartshill Granite (2,310 tons) .....	Rural District Council .....	J. Goodenough, District Surveyor, Thame .....	" 4
Colchester—Kerbing and Flagging, Cubes, Kentish Ragstone, Gullies, &c. (One Year) .....	Corporation .....	H. Goodyear, A.M.I.C.E., Boro' Engineer, Stanwell-st., Colchester .....	" 6
Abingdon—Hartshill Stone (3,115 tons) .....	Rural District Council .....	B. and E. M. Challenor, Clerks, 59, Stert-street, Abingdon .....	" 6
Castleton—Road Materials (One Year) .....	Urban District Council .....	R. J. Webster, Surveyor, Council Offices, Castleton, near Manchester .....	" 6
Ramsgate—Stourbridge Fireclay Retorts (620ft.), Firebricks (about 19,000) .....	Gas and Water Committee .....	William A. Valon, Engineer, Ramsgate .....	" 6
Tottenham—Road Materials, Lime, Cement, and Smiths' Work .....	Urban District Council .....	The Offices, Coombes Croft House, 712, High-road, Tottenham .....	" 7
Fulham, S.W.—Broken Granite, Kerbing, &c. (One Year) .....	Vestry .....	W. J. H. Denselow, Clerk, Town Hall, Walham Green, S.W. ....	" 8
Hornsey—Road and General Masons' Materials (One Year) .....	Urban District Council .....	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N. ....	" 9
Billesdon—Granite (One Year) .....	Rural District Council .....	W. E. Richardson, Clerk, 18, New-street, Leicester .....	" 11
Dartford—Kentish Ragstone (about 3,000 tons) .....	Commissioners of Sewers .....	J. C. Hayward, Clerk, Sessions House, Dartford .....	" 11
Beverly—Whinstone and Gravel (6,000 tons) .....	East Riding County Council .....	A. Beaumont, County Surveyor, Beverley .....	" 11
Barnes, S.W.—Granite and Portland Cement (One Year) .....	Urban District Council .....	G. B. Tones, A.M.I.C.E., Surveyor, High-street, Mortlake, S.W. ....	" 13
Chelmsford—Granite (1,000 tons) .....	Town Council .....	G. H. Sasse, Borough Surveyor, 16, London-road, Chelmsford .....	" 15
Paddington, W.—Creosoted Yellow Deal Blocks (1,260,000) and Jarrah Blocks (43,000) .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
Paddington, W.—Portland Cement and Thames Sand, Shingle, and Ballast .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
Paddington, W.—Pitch (12 tons) and Tar (18,000 gallons) .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
London, S.W.—Broken Granite (6,000 tons of 2in.), Granite Chippings (760 tons), and Granite Dust (400 tons) .....	Middlesex County Council .....	H. T. Wakelam, County Engineer, Guildhall, Westminster, S.W. ....	April 4
Fenton—Paving Setts (150 tons) .....	Urban District Council .....	S. A. Goodall, Surveyor, Town Hall, Fenton .....	—
Gainsborough—Granite (10,000 tons) and Slag (1,000 tons) .....	Rural District Council .....	R. Maxwell, Surveyor, Lea-road, Gainsborough .....	—

# WM. OLIVER & SONS,

## MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and FANCYWOOD MERCHANTS,

120, BUNHILL ROW, LONDON, E.C.  
The most extensive Stock of every kind of Wood in Planks and Boards, dry and fit for immediate use.

## TENDERS.

\* Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ASTON, BIRMINGHAM.—For alterations to windows at workshop, Gravelly Hill, for the board of guardians:—  
Lee and Son (accepted) ... £58 6 0

BATTERSEA PARK.—For the supply of ironwork for the superstructure of a permanent bandstand in Battersea Park, for the London County Council:—  
Coalbrookdale Co. ... £392 0 0  
McFarlane and Co. ... 316 15 0  
McDowell, Stevens, and Co. ... 314 0 0  
\* Accepted.

BEESANDS.—For carrying out works at Beesands, for the Kingsbridge rural district council:—  
Rhynes, J. W. ... £154 7 0  
Skinner, W. H. (accepted) ... 148 17 9

BRIGHTON.—For works of paving for the town council:—  
Briggs, B., and Jowett, S. and W. (accepted).

BRIGHTON.—For the construction of retorts at the Wakefield-road gasworks, for the town council:—  
Drake, J. J., and Sons, Halifax (accepted).

ELTON.—For carrying out works of sewerage and sewage disposal at Elton, near Northampton:—  
Siddons and Freeman, Oundle (accepted).

GLASGOW.—For carrying out outfall sewers in connection with the Western District sewerage scheme, for the town council. Recommended for acceptance:—

Brebnar, R. C. ....	Section No. 1:—	£36,021 0 0
Goldie, J., and Son .....	Section No. 2:—	36,244 0 0
Goldie, J., and Son .....	Section No. 3:—	24,064 0 0
Smith, J., and Co. ....	Section No. 4:—	35,960 0 0
Smith, J., and Co. ....	Section No. 5:—	32,467 0 0
Smith, J., and Co. ....	Section No. 6:—	25,712 0 0
Total .....		£190,458 0 0

HERTFORD.—For pulling down and rebuilding the Turk's Head, Railway-street. Mr. Percival C. Blow, A.R.I.B.A., 7, London-road, St. Alban's, architect:—

Miskin and Son .....	£1,285 0 0
Ekins and Co. ....	1,250 0 0
Ginn, R., and Son (accepted) .....	1,019 0 0

IPSWICH.—For erecting conveniences and making additions to the upper lodge at the cemetery, for the Ipswich Burial Board. Mr. Henry J. Wright, M.S.A., 4, Museum-street, Ipswich, architect:—

Scott, E. ....	£188 0 0
Grayston, W. ....	166 10 0
Gayford, A. ....	165 0 0
Marriott, V. A. ....	147 10 0
Dale, E. G. ....	140 5 0
Sadler, A. ....	140 0 0
Bevan, H. E. ....	135 0 0
Haggart, E. G. ....	130 0 0
Thwaites, G. F., Richmond-road. * Accepted.	129 5 0

LEEK, STAFFS.—For furnishing the new council chamber, for the urban district council:—

Supply of tables:—	
Overfield and Co. (accepted) .....	£26 15 0

For (a) chairman's seat and (b) 27 armchairs:—  
Brough, C. (accepted) (a) £7 10s., and (b) £1 11s. each.

LAPFORD, NORTH DEVON.—For certain painting, paper-hanging, and repairs to Kelland Barton, for Mr. Wm. Ford. Mr. Edgar M. Leest, Public Hall Chambers, Devonport, architect. Quantities by the architect:—

Saunders and Hull, Plymouth ...	£180 0 0
Gibson, Wm., Exeter ...	115 0 0
Bealey, Chulmleigh ...	100 0 0
Plymouth House Decorating Co., Ltd. ...	100 0 0
Skinner, T., Plymouth ...	99 10 0
Tucker, Chawleigh ...	99 10 0
Hoskin, Devonport ...	99 3 9
Hocking, W. J., Devonport ...	96 8 0
West and Co., Exeter ...	89 0 0
Grant, H., Torrington ...	88 0 0
Gill and Son, Crediton ...	82 0 0
Thomas and Jennings, Crediton ...	80 0 0
Gough, R., Chulmleigh ...	74 18 6
Fisher Bros., North Tawton* ...	69 10 0

\* Accepted.

LEICESTER.—For new warehouses, for Mr. Winterton. Mr. Chas. Kempton, C.E., A.R.I.B.A., architect. Quantities by the architect:—

Marston and Son ...	£6,940 0 0
Major and Son ...	6,914 0 0
Holmes, J. ...	6,197 0 0
Hutchinson and Son ...	6,890 0 0
Chapman, J. ...	6,813 0 0
Bland, H. ...	6,773 0 0
Carr Bros. ...	6,761 0 0
Johnson and Son ...	6,760 0 0
Clark and Garrett ...	6,742 0 0
Jewsbury, J. O. ...	6,738 0 0
Pipes, J. ...	6,700 0 0
Herbert, T. ...	6,689 0 0
Wright, C. ...	6,676 0 0
Bowles and Son ...	6,637 0 0
Bradshaw Bros. ...	6,607 0 0
Riddett and Son ...	6,498 0 0
Tyrell, W. ...	6,364 0 0
Carr, A. ...	6,251 0 0
Taylor, W. (accepted) ...	6,230 0 0

(All of Leicester.)



LONDON.—For repairs to heating apparatus on a Schedule of Prices, on running contracts, for the London School Board:—

	Group 1. per cent.	Group 2. per cent.	Group 3. per cent.	Group 4. per cent.	Group 5. per cent.	Group 6. per cent.	Group 7. per cent.	Group 8. per cent.	Group 9. per cent.	Group 10. per cent.	Group 11. per cent.	Group 12. per cent.
Bates and Pearce ...	...	+ 15	...	...	...	...	...	...	...	...	...	...
Berry, Z. D., and Sons ...	+ 25	+ 25	+ 20	+ 25	+ 20	+ 15	+ 15	+ 10	+ 10	+ 10	+ 20	+ 10
Bradley, G. and E. ...	...	+ 17½	...	+ 15	+ 15	...	...	...	...	...	...	...
Cannon, W. G., and Sons ...	+ 15	+ 15	+ 15	+ 15	...	...	...	...	...	...	...	...
Comyn Ching and Co. ...	...	...	...	...	...	...	...	...	...	...	...	...
James Cooper, W. ...	+ 20	+ 20	+ 20	+ 20	...	...	...	...	...	...	...	...
Davis, G. ...	...	...	...	+ 20	+ 20	...	...	...	...	...	...	...
Duffield and Co. ...	+ 17½	+ 17½	+ 17½	+ 15	+ 12½	...	...	...	...	...	...	...
Ellis, J. C. and J. S., Ltd. ...	+ 15	+ 15	+ 15	+ 15	+ 12½	...	...	...	...	...	...	...
Essex, J. ...	+ 22½	+ 22½	+ 22½	+ 22½	+ 22½	...	...	...	...	...	...	...
Gray, J. ...	+ 27½	+ 27½	+ 27½	+ 27½	+ 27½	...	...	...	...	...	...	...
Grundy, J. ...	+ 35	+ 35	+ 35	+ 35	+ 35	...	...	...	...	...	...	...
Hill, L. ...	...	+ 25	...	...	...	...	...	...	...	...	...	...
Kallaway, A. J., and Co., Ltd. ...	+ 10	+ 10	+ 10	+ 10	+ 10	...	...	...	...	...	...	...
Kite, C. and Co. ...	...	...	...	...	...	...	...	...	...	...	...	...
Knight, T. S., and Sons ...	...	...	...	...	...	...	...	...	...	...	...	...
Price Lea, H. C., and Co. ...	...	+ 15	+ 15	...	...	...	...	...	...	...	...	...
May, J. and F. ...	...	...	...	...	...	...	...	...	...	...	...	...
Russell and Co. ...	+ 15	+ 15	+ 15	+ 15	+ 15	...	...	...	...	...	...	...
Sharp, O'Brien, and Co. ...	At Schedule	At Schedule	At Schedule	...	...	...	...	...	...	...	...	...
Simmons, W. ...	+ 10	...	...	...	...	...	...	...	...	...	...	...
Skinner, A. H., and Co. ...	...	...	+ 15	...	...	...	...	...	...	...	...	...
Tomlinson and Milne, G. W., Ltd. ...	...	...	...	...	...	...	...	...	...	...	...	...
Wenham and Waters, Ltd. ...	+ 5	+ 5	+ 5	+ 5	+ 5	...	...	...	...	...	...	...
Wontner-Smith, J. Gray, and Co. ...	+ 15	+ 10	+ 10	+ 10	+ 10	...	...	...	...	...	...	...

+ These contractors have not tendered on the lines laid down by the Board.

\* Recommended for acceptance.

Board:—	A.	B.	C.	D.	E.	F.	G.
American walnut (not less than 9in. wide)—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
in. ... per ft. super. ...	0 10	0 7	0 6½	0 6½	0 6	0 5½	0 10
in. ... " " ...	0 9	0 5	0 4½	0 4½	0 4	0 3½	0 11
in. ... " " ...	0 8	0 4½	0 3½	0 3½	0 3	0 2½	0 10
in. ... " " ...	0 7	0 3	0 3	0 2½	0 2½	0 4½	0 9
Cedar—	...	...	...	...	...	...	...
in. ... " " ...	0 9	0 3½	0 3½	0 3	0 3	0 4½	0 9
in. ... " " ...	0 8	0 2	0 2½	0 2	0 2½	0 4	0 8

A.—E. J. Fitzgerald. B.—W. and J. R. Hunter. C.—Illingworth, Ingham and Co. D.—Ingram, Perkins, and Co. (accepted for cedar). E.—J. Latham (accepted for American walnut). F.—W. Olliver and Sons. G.—E. P. Treschard and Sons.

LONDON.—For supply of modelling stools, No. 3 cupboards, science cupboards, and tables, 3ft. 6in. by 2ft. 6in. (additional contract), on running contracts, for the London School Board:—

	A.	B.	C.	D.
Bouneau, H. ...	£7 0 0	£6 18 0	£8 18 6	£1 19 6
Cruwys, T. ...	9 18 0	7 10 0	8 12 6	3 12 6
Educational Supply Association, Limited ...	9 12 0	...	...	...
Foster, Cooper, and Foster ...	5 5 0	11 5 0	12 8 0	2 12 6
Garvie, J., and Sons ...	5 15 0	7 19 4	9 4 8	...
Hammer, G. M., and Co., Limited ...	5 2 0	7 17 0	9 0 0	1 14 0
Lascelles, W. H., and Co. ...	5 5 0	9 15 0	8 13 0	2 2 0
London School Furniture Co. ...	5 2 0	...	...	1 17 6
Martin, J. H. W. ...	6 18 0	8 14 0	11 0 0	2 10 0
Spencer, E., and Co. ...	6 3 0	9 10 0	10 0 0	...
Syer, T. J., and Co. ...	...	...	...	2 11 0

A.—Modelling stools (per dozen). B.—Cupboards, No. 3 (each). C.—Cupboards, science (each). D.—Tables, 3ft. 6in. by 2ft. 6in. (each). \* Recommended for acceptance.

LONDON.—For erecting manual training centre (on arches) for 40 boys, and drawing class-room, at Heber-road School, for the London School Board:—

Kirk and Randall ...	£2,984 0 0
White, A., and Co. ...	2,985 0 0
Mitchell, W. J., and Sons ...	2,930 0 0
Smith, J., and Sons ...	2,912 0 0
Wallis, G. E., and sons ...	2,887 0 0
Johnson, W., and Co., Limited ...	2,810 0 0
Higgs, F. and H. F. ...	2,799 0 0
Garrett, J., and Son ...	2,782 0 0
Bowyer, J. and C. ...	2,693 0 0
Marsland, J. ...	2,637 0 0
Trigg, E. ...	2,630 0 0
Edwards and Medway ...	2,592 0 0

\* Recommended for acceptance.

LONDON.—For erecting two additional offices for girls and female infants respectively, and one for male infants, with the necessary new drain and connections with existing chambers; also forming new entrance, with screen, to girls' closets, at Langford-road School, for the London School Board:—

Mallett, H. and G. ...	£271 0 0
Rice and Son ...	259 0 0
Lathey Bros. ...	257 0 0
Hammond, W. ...	247 0 0
Carmichael, J. ...	244 0 0
Triggs, E. ...	237 0 0

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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### MODERN IMITATIONS.

IMITATION has been said to be "the sincerest form of flattery." We do not imitate another man or his work unless we give a tacit approval of his conduct or his labours. We must acknowledge the cleverness or goodness of the work of art before we are brought into the state of mind to copy it, and in this sense the old saying is very true. But there is a way of imitating a thing that ought to be taken into account. We may copy a stone building in stucco; but by so doing we scarcely show our good taste or our flattery. Nor can it be said we show our good sense in imitating a piece of wood-carving in another material, or by another method altogether; nor by imitating a beautiful piece of veined marble on wood, or by any painted simulation of oak or maple. All these imitations, being untrue, are scarcely flattering to the original.

Imitations of one sort and another seem to be the order of the day. We have not only architects finding fault with the use and publication of designs they lay claim to as their own, but manufacturers in various materials producing designs that were originally invented and adapted only for stone, wood, or metal. The idea appears to be popular that when once a design has been made it is common property, and can be used, without any scruple, in a variety of different ways, and in fabrics of every conceivable kind. With respect to architectural designs, the onus of proof rests often with those who complain. They assert, in fact, that the thing or feature copied is their own, that they were the originators of it, and that no one has a right to steal their ideas. Probably in some instances such people imagine they have a right to claim their design as original, whereas in point of fact they have unconsciously been adapting some older work that they have seen or sketched; their minds are stocked with ideas and images of older work, and when they design any building these ideas come up, so to speak, unbidden. There are a few who do originate as they proceed; but still the greater number will be found to have adapted, or their designs have been suggested by, another building. And these claimants to originality are generally the most obstinate in their protests. The real crib does not like to be copied, for in his case it is certainly not the "sincerest flattery."

On the other hand, the value of a good copy depends on how much the copyist exercised his judgment. His application of the design may be more really discriminative than that of the man who first introduced it. Thus: If it is a gabled end with window that is copied, one man may use it for a building where it does not express any meaning, another makes it appropriate. One man copies the feature in a brick building where the lights and mullions are not suited, the other uses it in a stone building to give increased light where light is most wanted. So that the argument amounts to this: There is good and bad imitation. Good imitation may be really laudable, when its author rightly conceives the purpose of the original designer, and applies it to his work, honestly to the proper material, whereas bad imitation defeats the intention of the design and is a mere travesty.

To speak of manufactured imitations raises a very important question, and one we have always regarded as of the essence of good design. The discussion that took place

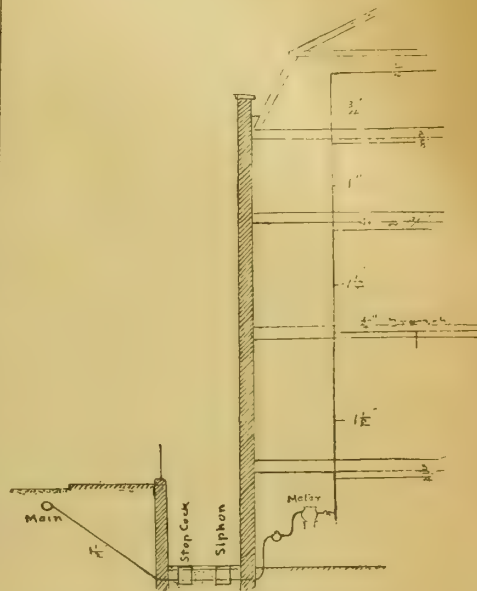
the other day at the Society of Architects on the very interesting paper by Mr. Scruby on Lincrusta-Walton—and by inference on all other decorative materials and their proper use and treatment—opened a wide door for the expression of opinion. There are many people who employ decorations of this kind, including architects, who are not very careful to distinguish between a right and improper use of them. It was satisfactory to find there was a general consensus of opinion at the Society that such decorations as Lincrusta, useful and valuable as they are as wall and ceiling linings, could not be honestly applied as the imitation of panelling and carved woodwork. As Mr. Ellis Marsland put it, "Lincrusta-Walton resembled leather hangings; but instead of the stamping being on leather, it was done on another material." There was no objection to the imitation of embossed leather patterns on similar materials. Both of them admitted of this treatment admirably; but when the attempt is made to imitate oak and wood carving by the same process, it is going beyond the proper treatment of the material. The same argument applies to all those kinds of materials which are not treated or used in a natural sense. Each has its limitations. We remember the time when wallpapers were printed with representations of temples and architectural detail, and garlands of flowers. Bad as these were, they were not so objectionable as the raised relief patterns representing architectural panelling in wood, oak carving of pilasters and arabesques. All plastic substances—from plaster to modern wall materials—can only be legitimately treated as moulded or stamped, and therefore the design ought to be in low relief, and of such a character as to adapt itself to surface ornament of a not too rigid or formal kind, and suitable for uniform-grained materials without fibre; such as is best represented by such patterns as simple reticulations, diapers, strap ornament, and folial conventions. The flat wall surface and the ceiling are the proper fields for ornamental relief of this kind: directly they assume structural features like pilasters, entablature, pediments, canopies, &c., they are transgressing their true purpose. The very nature of embossing precludes anything like sharp angles and decided architectural forms. Imagine, for instance, what it would be to try and get sharp impressions of mouldings in leather or in thick metal by stamping. The material would break at the angles. What is possible in plaster modelling or casting or in gesso work would be impossible in leather or any material beaten up from behind.

In these days of manufactured imitations, there is a demand for reproduction in cheap materials. The man who cannot afford to purchase a fine piece of *repoussé* or chased metal-work will content himself with a modern imitation: instead of a fine oak carved sideboard, he will buy one made of wood pressed into a mould, with its fibres crushed and spoiled, instead of modelled plaster or gesso relief on his walls; he is ready to accept even two coats of paint and a veneer of machine-printed wall-papers or some embossed hanging. The mania to mimic old masterpieces is seen in every modern house in its furniture and decoration. Enthusiasm for antique art is not a bad sign in itself: it shows that people like to have evidences of art about them; but the modern phase of the feeling lacks enthusiasm, and Emerson has told us that all the arts have had their origin in some enthusiasm. Let the architect guard himself against a too easy compliance with his client's taste for imitations. Let us at least be true to our materials, never losing sight of their natural qualities and limitations, for in such an exercise of honesty we shall more likely emulate the best and noblest work of the past.

### MODEL SPECIFICATIONS.—LV.

#### GASFITTER.

THE ordinary mode of arranging gaspipes is to take a pipe from a meter on the basement, diminishing its size at each successive floor; thus, if the pipe from meter is  $1\frac{1}{2}$  in. bore, it will be  $1\frac{1}{4}$  in. bore on the first floor,  $1\frac{1}{8}$  in. bore on the second floor,  $\frac{3}{4}$  in. bore on the third floor, and so on. The lower floors have generally more lights, and therefore this arrangement is reasonable. (See sketch.) All runs of pipes, positions of rising mains, and gas-fittings, whether stoves, pendants, or brackets, should be shown in the plans, and the sizes of all pipes



marked at the points of variation, the rule being followed that the fewer the number of burners the smaller the bore of the pipes. Pipes should have screw-joints and be put together with red lead, and the wall-hooks and clips should be at intervals of not more than 6 ft. for pipes of  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. A separate branch from rising main for each story is necessary in large buildings, and every main should be exposed to view or easily accessible.

Specify connection with main, size of rising main, and all pipes to be tight and clear in bore; the service-pipes above ground should be incased in deal and be protected by felt. It is, perhaps, the best course to provide a sum for fittings and fixing in the contract, to be done by a well-known firm, the architect to direct. Provide a clause for testing the piping at the completion. The outlets should be securely capped with screw-plugs, and the system tested by a water-gauge and gasfitter air-pump, the pressure raised to 18 in., and left for some hours to see whether the pipes are tight. All cheap composition pipes are to be avoided. Provide that all the fittings, &c., are to be supplied by an established house—such as Messrs. Strode and Co., Osnaburgh-street, or other firm—and specify particular fittings, their numbers and prices from catalogues. Gas-meters are usually hired from the gas company.

1. Generally.—The gasfitter to carry out the work agreeably to the regulations of the Gas Company. The pipes to be of the best quality wrought-iron (or galvanised) welded tubing, with screwed joints. All lead and composition pipes to be condemned. The internal tubing to be of the following sizes:—For the six-lights  $\frac{3}{4}$  in., for nine lights  $\frac{1}{2}$  in., for twenty lights  $\frac{3}{8}$  in. The pipes up to  $\frac{1}{2}$  in. diameter to be butt-welded; the larger ones lap-welded, and to be free from splits or flaws, and of uniform section, and must be tested by hydrostatic pressure of 60 lb. to the square inch. Or—

The gasfitter to conform to the regulations of the gas company of the district. The pipes to be Russell's patent wrought-iron welded tubing,



- with all necessary bends, ties, angles, &c., jointed in red-lead cement. Provide 50ft. of  $\frac{1}{2}$ in. pipe, 60ft. of  $\frac{3}{4}$ in., 30ft. of 1in. pipe.
2. *Meter*.—The company to supply and fix a gas-meter for 50 (or more) lights, tested and fixed in the basement (or in lobby near entrance), and easily accessible, and the meter to be connected by the company with the street service and house-pipe, with unions of the size prescribed by Board of Trade.
3. *Service-Pipe*.—The gas company to lay a service-pipe of sufficient size to supply all present and future requirements from the street main.
4. *Connect Meter*.—Connect meter with main by 1in. strong lead pipe and brass connections (or the gasfitter is to request the gas company to make the connection with main and with house supply), and fix where directed 1in. brass gas-main cock. Or—  
Give notice to gas company, pay all charges for extending gaspipe to building, and instruct gas company to supply and fix in a convenient position upon wooden bracket approved a gas-meter for 30 or other number of lights, the same to be tested, as well as all pipes.
5. *Stop-cock*.—Provide a stop-cock on the main side of meter to shut off supply if necessary.
6. *Branches*.—Fix all upright branches plumb with level nipples of proper length for fixtures, and all drop centre pipes to be perpendicular, and project about 1ft. below the furring.  
The gasfitter is to consult architect as to the position of all pipes and fixtures. All cutting of wood or concrete, &c., to be done only with his approval. The pipes to run as direct as possible, falling towards the rising lines and gas-meter, without sags, and all long runs of piping to be securely supported with wall-hooks, &c., to prevent sagging.
7. *Fittings*.—Provide the sum of £— for fittings, to be expended as directed by architect. Or—  
Provide  $\frac{1}{2}$ in. tubing for all rooms on the ground, first and second floors;  $\frac{3}{4}$ in. tubing to kitchen and gas-stoves, &c., and finish them with approved fittings of the following p.c. value. Kitchen fittings to be selected from catalogue of Messrs. Strode and Co., and allow sum of £6 for each stove. The ground-floor fittings to be selected by the architect, or allow sum of £— to be expended as directed. Or—
8. *Pendants*.—Provide five-light pendants and six brackets with all ceiling-plates, nipples, and roses for brackets.  
Provide and fix on first and second floor, fittings of the p.c. value of £8, selected from catalogue to architect's satisfaction. Or—  
Provide two or three-light bronzed iron pendants p.c. value £2 each, fixed to bearers on joists, with Strode's burners and opaque shades. Or—
9. *Brackets*.—Provide double-jointed bronze gas-brackets p.c. value 18s. each, with mahogany wall-block and rose, &c. Or—  
Supply and fix the following fittings, including a ceiling-plate for each pendant and a polished mahogany rose to each bracket, to be approved. The fittings to be made by Messrs. Strode and Co. (or other selected firm), and to be of the selected numbers and sizes given below for the positions marked. (Here give detailed list of pendants and brackets and number of burners and positions.)  
The following are more detailed clauses:—
10. *Make Connection*.—Open ground in road to company's main, and connect thereto with  $\frac{1}{2}$ in. screw ferrule, and take  $\frac{1}{2}$ in. wrought iron welded gas-tubing to building, incased in a deal trough, tarred, and filled with pitch. Continue  $\frac{1}{2}$ in. pipe to a Stott  $\frac{1}{2}$ in. patent gas-governor in basement, and connect to meter with stout lead pipe and brass unions, as prescribed.
11. *Outside Main Stop-Cock and Siphon*.—If the service-pipe from main descends to basement of house below area in front, specify:—"Connect the  $\frac{1}{2}$ in. pipe from main to a full-way brass stop-cock to shut off gas, fixed in an iron chamber bedded in concrete, and also to a gas siphon box also bedded in concrete, with labels on each." (The siphon collects the condensed water that may form on the descending pipe). The Stott gas-governor is made for pipes from  $\frac{1}{2}$ in. to  $\frac{3}{4}$ in. diameter. Or—
12. *Casing to Main*.—The main underground to be laid on a rough  $\frac{1}{2}$ in. red lead trough, well tarred, and filled with hot pitch; and a cast-iron siphon-box is to be placed in area where shown, with iron cover let in paving. Take main from siphon to meter, and provide a stop-valve in box, with locking lid, in pathway, to turn off gas from building.
13. *Gas Meter*.—Instruct gas company to fix a light dry (or wet) meter, and fix on wrought deal brackets perfectly level, and inclose with wrought deal matched and beaded boarding, with door, &c.

14. *Rising Main*.—Connect to meter with proper brass connection, with  $\frac{1}{2}$ in. brass stop-cock and spanner, and T-piece fitted with screw-plug for escape of condensed liquids in tubing, and take  $\frac{1}{2}$ in. vertical main to entry of ground floor, thence, with  $\frac{1}{2}$ in., to ceiling of first floor, thence, by 1in. piping to second, and  $\frac{3}{4}$ in. tubing to third floor.

15. *Branches*.—The branch-pipes to be of the sizes as follows: (here specify the bore) or say  $\frac{1}{2}$ in. tubing to basement to 15 lights and gas-stoves,  $\frac{3}{4}$ in. tubing to ground-floor to 15 or 20 lights,  $\frac{1}{2}$ in. tubing to first floor to 15 lights,  $\frac{1}{2}$ in. tubing to second floor to seven lights,  $\frac{1}{2}$ in. tubing to attics to three lights,  $\frac{1}{2}$ in. tubing to hall and staircase to four lights,  $\frac{1}{2}$ in. tubing to billiard-room for 6-arm lights, &c. These positions are to be determined by the architect (or marked on plan), care being taken that each branch is of sufficient capacity, and taken from the vertical main or main branch.

16. *Special Branches*.—Take  $\frac{1}{2}$ in. (or 1in.) tubing to gas-stoves (four positions) in kitchens, with stop-cocks, and allow sum of £4 (or £7) for each stove (or the stoves to be provided by Strode and Co., Osnaburgh-street).

Also take  $\frac{1}{2}$ in. tubing to billiard-room for a six-arm light, and provide p.c. sum of £3 10s. for same, or specify Messrs. Strode and Co.'s fittings. Take to bath-room  $\frac{1}{2}$ in. tubing for geyser, with stop-cock, and allow p.c. sum of £5 for geyser; also the same size pipe to w.c.

17. *Fittings and Burners*.—Provide and fix the fittings manufactured by Messrs. — (here specify name of firm, and quote numbers in trade list). Or—

The hall, drawing-room, and dining-room to have Argand (or regenerative or incandescent) burners, and to be fitted with pendants or sun-burners (give Nos. of patterns and value p.c. from trade lists of Messrs. Young and Marten, Stratford, or other firm).

18. *Test Pipes*.—The gas-pipes to be tested to a pressure of —. Plug all outlets with screw plugs, and provide and fix all necessary full-way brass stop-valves with loose keys, brass unions, &c. Or—

Give notice to gas company, pay all charges for bringing on gas, test the pipes, and leave perfect at completion.

19. *Attendance*.—Attend upon, cut away for, and make good after gasfitter, in all trades.

#### PUBLIC BATHS.\*

IT is not my intention to go over the ground so ably traversed by Mr. Hessel Tiltman in this room about a month since,† when he described the broad lines and the general disposition of public baths and washhouses. I have proposed to deal with the subject much more modestly, and rather with constructive details. It is difficult to lay down hard and fast rules for the

#### PLANNING

of any class of building in London, if only because of the restricted area and often extraordinary configuration of the sites which are chosen by enlightened public bodies, it would almost appear, with the idea of setting prize puzzles to aspiring architects. In most other countries the best sites are always reserved for public buildings—in London for enterprising speculators. Generally in Continental towns nearly every public building of any importance is bounded by streets on at least two sides. If the architect gets one fairly good frontage in London he is lucky. But our very difficulties in this way stimulate inventiveness, and nowhere in the world can more ingenuity in planning be found, nor have greater triumphs been achieved in making the most of limited opportunities, than in this huge conglomeration of buildings called London. Given, however, a fair site, the least we can do in making our plan is to study carefully the uses of our buildings and the essential requirements of their administration, and then to concentrate all our attention upon so arranging the various parts of the building as to fit these requirements, and to render future administration as easy and economical as possible. In planning a building to insure or make possible wise or true economy in its administration, we mean arranging the various parts in such order as will enable those who administer it thereafter to do so with the least waste of human energy. It is only just

to our clients to say that this point is largely recognised by them to-day, as can be shown by the lavish expenditure upon glazed bricks, majolica, and other surface decorations, the great first cost of which is so soon repaid by their permanence, and the small cost of maintenance. We, as architects, are much more interested in the first cost of a building than in its subsequent maintenance; and it is, therefore, also our interest to build well from the first. That is by the way; it does not benefit us alone. Indeed, our share is, comparatively speaking, small; the benefit to the client far greater. Those who, like myself, have had the privilege of going over the new baths at Shoreditch will agree with me that we are improving in our ideas as to what a public building should be. A little sign of this is afforded by the growing tendency in competitions not to hamper the competitors by a fixed price. May the tendency grow into custom! Another is the custom of visiting other institutions to learn what is their best, and then to go one better. We of the younger generation of architects have a good time before us, and it behoves us to rise to the occasion, and endeavour to inaugurate a new Renaissance in architecture, not only in purely architectural features, in new methods of construction, in the use of new materials, and a better knowledge of the old ones, but particularly in our ideas of space and order. So we may foster the growing imagination of our clients, and lead them on to yet higher ideals, yet nobler effects. In that day the architect may be honoured in the land, and always get his name mentioned (and spelt correctly) in the daily papers when they describe a building. In public buildings, the simpler and more direct our plans, and the greater the proportion between the rooms and passages, the better.

#### A MODEL DESIGN.

I have thought it well to try and realise what one would do with a fairly unrestricted site for a moderate-sized establishment; the plan is, perhaps, not perfect, but it will suffice for my purpose. This design may, indeed, be regarded in the light of a diagram, such as are sometimes given out with the conditions of competition to indicate the lines upon which the client desires to have the building arranged. I may be permitted to anticipate a criticism which will, or should, occur to some of you, and it is this:—Mr. Tiltman foreshadowed a different classification and distribution of baths in the near future, and his remarks upon this point were by no means the least interesting and suggestive part of his paper. You may be disposed to ask why I have not planned my building upon future rather than present-day ideals, especially as I have proclaimed my sympathy with the former. I can only say that until these new ideals have been well ventilated, it is impossible to say in what form they will be best adapted to the peculiar conditions of our own country. Moreover, the principles I shall draw from the diagram will, I believe, be applicable as much to future as to present-day planning. Let me take you through the building, pointing out, by the way the *raison d'être* of the various parts. It comprises three swimming-baths, respectively for first and second-class men and women; and eighty private baths allotted to the two classes and sexes in the proportion laid down in the Public Baths and Washhouses Acts. We will commence with the entrance waiting-hall, which should always be

#### THE KEY TO A PLAN.

It is about 30ft. by 20ft., and undivided, entered from the public street by a short and wide vestibule, and dominated by the pay-office in the rear. The first point some of you will notice is that I have only one entrance, which you will say is unorthodox. So it is; it is usual to have at least two entrances—one for men and another for women. In many baths there are as many as four, respectively for first and second men, and first and second women. I hope the time is coming—and that soon—when we shall recognise that it is not necessary to have separate booking offices and entrances for men and women in libraries, railway stations, and other public buildings, it should not be necessary for public baths. When this is recognised we shall do away with one of the most hampering restrictions there is in planning these buildings. The hours I have myself spent in endeavouring to design a pay-office which should serve four separate entrances, and yet be decently lighted and ventilated, I feel sad to think of. Of course, when there is a public washhouse attached to the baths, two entrances at

\* A paper read before the Architectural Association on March 3, 1899, by A. SAXON SNELL, F.R.I.B.A.

† See report of R.I.B.A. meeting in our issue of the 10th ult., pp. 189–190.



least are absolutely necessary. In such a case make, if possible, the second entrance serve also for the second-class women's baths. Ladies find it less objectionable to meet a rough class of men than the same order of women. Another point to which I draw your attention is the

#### SMALLNESS OF THE HALL AND CORRIDOR AREA

compared to the size of the building, which is due in some degree to the one-entrance plan. Practically the same result has been obtained at the Plaistow Baths, although the entrances are separated. Whatever may be said in favour of a large entrance-hall (and I myself would have it of ample size) little can be urged in favour of corridors, especially long and tortuous corridors. They take up room, cost much to build, and more to maintain, clean, and overlook, and show weak planning. On one side of the vestibule is the superintendent's private office, and on the other a staircase to his apartments above. Except in quite small baths, it is a mistake not to provide a separate office, in addition to the pay-office. The pay-office itself should be about 100sq.ft. to 150sq.ft. (not larger), and fitted all round with shelving for towels and bathing drawers, &c. In an establishment of this size two pay windows are necessary. It is desirable for many reasons (not the least being that of commanding the entrances, &c., from all parts) that the front and sides should be glazed in the upper panels, with obscured glass to the height of 4ft. from the ground, and above with clear glass. If you can afford any luxuries in the way of expensive fittings, joinery, pavings, &c., your clients will raise less objection to their use in the entrance-hall than elsewhere. The superintendent's office should also always be close to the entrance, as many people come to see him who should not be allowed to pass into the building generally; 150sq.ft. is quite large enough. On either side of the pay-office are lobbies and short corridors—the shorter the better—leading to the swimming and warm baths.

#### CENTRAL POSITION FOR THE FIRST-CLASS BATH.

You will see that the first-class men's swimming-bath is placed centrally, with those for second-class men and for women on either side, the warm baths naturally being on the corresponding sides. The provisions of the Baths and Wash-house Acts as to the proportion of numbers between the classes make it difficult to preserve symmetry in planning. Now my reason for placing the first-class bath centrally is that, in all probability, it would be convenient to alternate its use for first-class men and first-class women; and this may often be conveniently done, because ladies prefer to bathe, if at all, in the morning, whilst the men's baths are always filled up in the evening. It is also in a convenient position for use as a winter gymnasium, alternately for men and women. The shorter length of the second men's and women's swimming baths leave room for the boiler-house and engine-room, and the establishment or towel laundry, &c. These are not infrequently placed together, but it is not a necessary arrangement, and is, indeed, undesirable if women are to be employed in the laundry. The subway under the end of the first-class bath affords access from the engine-room to the boiler-house. If the site permits, these departments may be advantageously placed in the basement; but, if so, we would never make the mistake of depriving them of light and air. A system of subways is almost essential in public baths, and if possible all main pipes for drainage and hot and cold water supply and heating should be fixed along their walls or ceilings, where they can be repaired or renewed without disturbance or injury to the rooms above. Both at Marylebone and Plaistow, and also Stratford, I have subways under every part of the building. The superintendent's apartments will, of course, be placed on an upper floor over the front centre of the building; and one of the most important points to observe is to arrange the approaches so that the damp warm air which invariably hangs about even the best-ventilated baths, cannot find its way in to the rooms. There are not a few superintendents who can speak feelingly upon this point. A small area or a way out on to the flat is very desirable. It is usual to provide about six rooms, and they should not be too small. It is not the most enviable existence to live and work all day in the atmosphere of public baths. Now I propose to take the various parts of the building in detail, but before commencing I would draw your attention to certain

features in some of the plans round the room, many of which have been most kindly lent me for the evening by their authors. I call your attention, however, first to one which was not lent me by the author. I had it enlarged from a small plan in one of the building papers, where it was ostentatiously labelled as having been designed by a superintendent engineer. The name of the architect "for the erection" was also given, and I am inclined to think that it was the latter who published the plan with a suspicion of sardonic humour. The least I can say of it is that it contains a number of things which are not to be commended. Note the plan of a bath designed by Messrs. Harrington and Lee now in course of erection at Romford. It appears to me to be a model in its way of good arrangement for a very small set of baths. We have another small example in the bath erected at Alloa, near Glasgow, from the designs of Messrs. Burnet, Son, and Campbell. I cannot quarrel with the want of directness in the passages to the warm baths, for instance, because the very breaking away from the simple austerity of planning is made use of for some charming architectural effects. A small set of Turkish baths, with a separate entrance and a billiard-room, is provided. I have ventured to show also the plans of the St. Marylebone Public Baths, and two sets for the borough of West Ham, each of which may not be without interest as examples of the application of these theories applied to three very different sites.

#### THE SWIMMING-BATH.

The general arrangement of a swimming-bath is too simple and too well-known to need much description. It is invariably a large hall, inclosing a bath, the essential point of which appears to be that it should be as big as circumstances will allow. This is surrounded on all sides by a pathway or platform, as it is called, and a number of dressing-boxes arranged along each wall. With respect to the bath itself, I do not myself advocate a greater length than 100ft., and a very good width for this length is from 30ft. to 35ft. In deciding upon the dimensions of a bath, we have to bear in mind that water costs in London about 6d. per 1,000 gallons (often much more and seldom less), and if a bath is emptied and filled only three times a week the expense is heavy if the size is greater than need be. Of the three dimensions, I should place first in importance the length, and next the depth and width. One of the most popular uses of a good bath is as a swimming racecourse, and as the unit of length in races is always the yard, and the divisions mostly multiples to 100, it is acknowledged by swimmers that 100ft. is a very convenient length for a racing bath. Three lengths go the hundred yards; twenty-five and thirty yards are easily measured off. Our water depth should vary from 3ft. 6in. to 6ft. 6ft. or 7ft.—in second-class baths 3ft. to 6ft., the latter being used far more by boys than grown men. Theoretically, the deepest part of the bath should be about 10ft. from one end, because that is where a high diver would, generally speaking, strike the water. The level of the water should not be less than 12in. below the footway curb, and this level is maintained by the overflow trough, which it is usual to place along the wall at the deeper end. This overflow has been variously contrived with an iron projecting gutter, a series of holes, or a sunk gutter hidden by a flush brass or iron grating. The best form I have seen is that adopted at Shoreditch, which is a large moulded trough made in long lengths of majolica. For neatness of appearance and also economy, Mr. Tiltman's white glazed sunk channel is nearly, if not quite, as good. A small modification would improve it. In the most usual form of bath tank, the walls are constructed of cement concrete built battering on the outside; but I prefer brickwork in cement carefully calculated for strength and well buttressed. The bottoms must always be of cement concrete, and if the foundation is good, 12in. is quite thick enough. Some advocate building the tank entirely separate from the walls of the bath hall to avoid any possible unequal pressure on particular parts, and consequent danger of settlement. But the immense strength necessary for holding the water alone leaves a very ample margin, and, indeed, the additional weights of roof, supports, and floors help the stability. It is, of course, of enormous importance to

#### HAVE THE TANK ABSOLUTELY WATER-TIGHT,

and this can only be obtained by two or three methods. One of the most usual is to have a

lining of asphalt behind the brick or tile facing, and in that construction it is very necessary to use only the best asphalt, and to have it applied in two layers. I do not think asphalt—vertical asphalt—is exactly a good surface for fixing tiles to, and that is no doubt why so many baths—even that fine one at Shoreditch—are lined with glazed bricks. Six-inch glazed tiles are surely preferable for appearance alone, and the introduction of coloured slips and painted tiles gives us a field for decorative effect. A safe backing is obtained with two layers of plain flat tiles laid to break joint, and alternated with renderings in cement; this, together with the tile face, makes an absolutely impervious facing 3in. thick, and I have never found the slightest leakage. In forming the platform round a bath we have to bear in mind that it can never be kept dry, and splashes and the wet feet of bathers, combined with mud from the boots of new-comers before undressing, would soon render the footways dirty, slippery, and dangerous unless they are frequently washed down with buckets of water and run over with the squeegee. They must, of course, be laid to a good fall away from the bath, not towards it, if only to prevent fouling the bath water. A gutter running down in front of the dressing-boxes will lead off the washings. There are more baths than one in London in which this gutter is placed at the back of the dressing-boxes, with pleasant consequences to the unwary bather who may happen to drop any article of clothing on the floor. To avoid this entirely, I find it better to raise the dressing-box floors above the platform level, the floor sloping outwards to the channel. A good curb—indeed, the best—round the bath is formed with slate 3in. or 4in. thick, and if this overhangs the bath a few inches, a wider footway can be obtained at very small comparative cost. It also prevents the bath water splashing over the footways. The gutter may be covered with a brass grating, but that is not absolutely necessary. Footways are usually paved with impervious material. Wood and York stone have been advocated, because they are essentially non-slippery—a matter of great importance. Bathes do not always walk sedately along the footways, and running along an impervious surface covered with a film of water is dangerous. But it is a pity if we must come down to York paving, with its monotonous colour and cold surface. Tiles laid herring-bone and in small pieces do very well; and there is another flooring which I will not recommend you till I have tried it, but which I think will be better still. Before we leave the bath itself, mention must be made of the safety rails, which should run round at least 4in. above the water-level. At the deep end the overflow trough serves the same purpose. At the shallow end there should be a spray-rail—that is, a hollow rail, pierced with a line of small holes, and connected with a high-pressure water-main. When the water is turned on occasionally, a regular and even spray is directed on to the surface of the water, which has the effect of cleansing it of scum and floating matter, which are driven down to the overflow-trough. I must only briefly mention the desirability of marking along the sides of the baths, in plain figures, not only the various depths, but distance in yards from the deep end, and other devices to aid in swimming contests; also the necessity of diving-boards, step-ladders, and water-chutes—the latter not being an unmixed blessing. All these matters have their importance, but a short visit to any modern bath will supply all such information.

#### DRESSING-BOXES

are always placed along the two long sides of the bath hall, and sometimes one end or both as well. Even so, it is impossible to get enough of them in comparison to the size of the bath. At Marylebone we have some short "transepts," so to speak, with boxes on each side, but I do not like the idea. Dressing-boxes out of sight are always liable to be rifled. Want of adequate dressing-box accommodation must be met by some drastic alteration, and I have a glimmering notion or two of some such innovation. To meet this difficulty at the Hornsey-road baths, the dressing boxes are placed in a separate room adjoining the bath; but the same objection holds even to a greater extent than with respect to transepts. A gallery is only necessary in the first-class or racing bath, and need not be more than 6ft. or 7ft. wide, unless we can afford such a one as that at the Shoreditch Baths. It is advisable to have at least two staircases from the platform level.



## CONVERSION FOR ENTERTAINMENTS.

I do not propose to dilate here upon the various matters necessary to fit the bath hall for use as a concert-room, or for other public entertainments, further than to suggest that if we study the London County Council regulations, and then satisfy the Council's district surveyor, nothing much is left to be done; but it is vital to bear in mind that these regulations have most important bearings on the planning, and should, therefore, be studied from the very first. Dressing boxes for a first-class bath should not, if possible, have less than 12sq.ft. of area (or, say, 3ft. 6in. square) although it is possible to do with as little as 9ft. They may, and I think should, be constructed with wood-framed sides and doors well painted with enamel paint and varnished. If we take care to keep the partitions well off the floor there is no reason why they should rot. Of course the use of oak or teak is an improvement, but even then I would have it well varnished or lacquered. When a bath is used for entertainments the boxes are of no use, and the room they occupy is much wanted. To meet this an ingenious arrangement has been lately patented, which, although capable of some improvement in construction, enables us to fold the sides, doors, and seats neatly and very quickly flat against the wall, where they form a fine panelled dado. They can be seen at the Shore-ditch Baths. With every swimming bath there should be what is called a

## SOAP AND SPRAY BATH.

which may be just one of the dressing-boxes fitted up with a foot-bath sunk in the floor, with hot and cold-water shower over. Spray and douche arrangements may be added with advantage. Indeed, it is an advantage to elaborate and enlarge this provision. As the result of a few remarks made in this room, I have had two long and interesting letters from a superintendent of baths in a Midland city. I shall have occasion to refer to one or two points he brought to my notice later on. But among other matters he described the soap bath of his establishment. He says in his first letter: "I like the increasing favour shown for the former [shower] kind of bath, and should be especially pleased to see it supersede the present arrangement of a soap bath as well as the slipper, as that can scarcely be considered a proper system which only allows one change of water for as many as forty persons for each change (I am referring here to the soap bath). The same bath-room, fitted with automatic feeding showers, having a regulated warm temperature, also a separate corner for a cold shower, would hardly use any more water, and even if all the dozen I have seen in at once were under the showers, they would each at least have clean water." Later on, in answer to my request for the dimensions, he says: "The dimensions are 8ft. by 5ft. by 18in. depth; usual depth of water 12in., therefore equal to about 240 gallons. A serious drawback, which I did not like to mention in my last, is the fact that there is no shower with it, so you may imagine the bathers plunging into the bath to clean themselves of the soapy water, especially after some dozen or so of moulders, mechanics, &c., have washed themselves." He adds: "I am forced to believe that the soap bath is also a serious competitor of the slipper on account of the cheap prices of the swimming."

## LIGHTING AND VENTILATION.

With respect to swimming-baths, I have only to add that they should be lighted by a large lantern with side-lights to open in the roof, and the walls should be lined with impervious material, glazed tiles or bricks for preference. A bath cannot be too well lighted. For ventilation—and a bath wants plenty of it—it is desirable to have an electrically-driven fan. I should add, by the way, that these fans give a lot of trouble, because they are so soon affected by the dampness. Perhaps some form of water-driven fan will yet be devised.

## WARM BATHS.

We have next to consider the warm baths, provided only for washing purposes. The present form is almost invariably the ordinary slipper-bath, as it is called; but—to be prophetic again—I think the days of its general use are numbered. Some of them will always be required, and it is worth while to describe them. The best form is, of course, the porcelain enamelled bath glazed inside and out, and

sometimes with a glazed rolled edge. Personally, I always use those glazed inside only, and with a wood top (teak for preference), because I think the greatly increased cost of outside glazing never worth the better appearance; and a roll edge, although cleanly, is uncomfortable, and may be dangerous. It also adds even more to cost. The usual length is 5ft. 6in. to 5ft. 7in. from out to out. These baths are usually inclosed in front, for reasons which have never quite convinced me, and I am now omitting the casings. Each bath is fitted up in a very small room, which has an area of 36ft., but better 40ft., or as much larger as can be afforded. The walls are generally built up of slate slabs, 6ft. 6in. to 7ft. high, sometimes left plain, and more often highly finished in enamelling. Marble is also employed, but I do not recommend it, and for this reason it is so necessary to keep these places absolutely clean that any surface which will hide even the appearance of dirt is to be avoided. Inversely, they should not only be clean, but look it, to inspire confidence. It is impossible to see at a glance whether marble is or is not perfectly clean. Various other forms of partition wall are employed, and notably a thin, glazed both sides, brick wall. I prefer the slate, because with its use no woodwork at all is necessary, even as door-posts. Each bath should be fitted with hot and cold-water taps, fixed on to the front partition with the valve spindles taken through, so that the attendant outside can turn on or off the water. In the same way the waste-valve should be operated by the attendant from the outside; but it is desirable to have the means of doing so also from the inside of the room. The floors of these compartments should, of course, be impervious to wet—tiles or mosaic if we can afford it, granolithic for economy. A disagreeable experience has taught me that these floors should be laid to fall. Bathers sometimes splash the water over the sides, and the baths also overflow at times.

## SHOWER BATHS.

Mr. Hessel Tiltman dwelt at some length upon the shower, or rain douche baths, which are in use in many Continental towns, and advocated their adoption in this country. At the time, I mentioned that some form of it had been successfully inaugurated by a Northern manufacturer for his workmen several years ago. I have since refreshed my memory, and will refer anyone who is interested in the details to a paper read before the Sanitary Institute Congress in 1888 at Worcester by Mr. Charles Clement Walker, F.R.A.S. The main idea of these baths is that the bather shall not be compelled to bathe in water which has already been fouled by what we may describe as the first washing of his body, but that every drop of water, as it becomes soiled, should be carried away at once. This idea was adopted over twenty-five years ago by Mr. H. Saxon Snell for lavatories in a Poor-law industrial school. It has been improved and modified since in many ways, but the principle remains the same. Another advantage of such baths is that they could be erected at about half the cost of the ordinary slipper bath, and it would be possible therefore to make a lower charge for their use—a matter of very considerable importance in the great work of reducing the numbers of that class which is facetiously dubbed the "Great Unwashed." It is, however, very hard to wean the public from old-established customs, however salutary the innovation proposed. It is a good beginning to provide a hot and cold shower to the slipper baths, and in time, no doubt we shall discard the bath itself. I say we, because I think most of us have a sneaking regard for the comfortable warmth of a casing 4in. thick of warm water for a few moments, and some of us love the shower—the cold shower—more in theory than practice. Before leaving the subject, it is well to note the necessity of light and ventilation, and plenty of both in the room. A lantern with opening sidelights is generally sufficient. One or two medicated, sitz, vapour, and other special baths may be included with advantage. Turkish baths in a public institution are as yet exceptional; but no doubt when their hygienic properties are more widely known, and when they can be indulged in more cheaply, no public baths will be completed without them. By the way, why should it be considered necessary to adopt exclusively Eastern forms and decoration in Turkish baths? They are none too soul-inspiring, and are certainly not "at home." Personally

I propose to break through the tradition in the Stratford Baths, and try the effect of the latest new humour in design. A fair-sized waiting-room, which should be comfortably furnished, is necessary to each set of baths, for there is much waiting to be endured at certain times in all establishments. Water-closets in the proportion of, say, one to fifteen baths, should be provided, and they should have direct and separate light and ventilation.

## TOWEL LAUNDRY.

Every set of public baths must have a small, completely-fitted laundry as part of the establishment. There should be easy means of communication between the departments, and this is the best achieved by the subways. If it is possible to have a shoot from each department in these subways a basket or trolley can be placed under to receive the dirty towels, and some labour is saved thereby. With respect to the laundry-room itself, the floor should be paved to falls, the walls should be faced, at least 6ft. or 7ft. high, with white glazed bricks, and there should be ample light and ventilation, mostly from the roof. The machinery should include the usual rotary washing-machines, centrifugal wringers, steeping and rinsing-tanks, and a few wash-tubs. Steam-heated drying horses are also required, and if there is not room for a fair number (and they take a disproportionate space), a cylindrical steam-drying and ironing machine will do a very large amount of work for the space it occupies. As the machinery must be power-driven, it is always desirable to have the laundry not too far from the engine-room; but it will be found desirable to keep the two departments quite separate, if women are employed in the laundry.

## ENGINE-ROOM AND BOILER HOUSE.

The engine-room and boiler-house should be quite show-places in their way. Until late years these vital parts of the establishment have generally been consigned to odd corners or dark basements—in fact, anywhere where the ingenuity of the engineer can possibly fit up his boilers, &c. Only two or three years ago I went over a building, but just then erected, which comprised public baths, a gymnasium, free library, and technical institute, in which the necessity of a boiler and engine-house had apparently been forgotten; indeed, I believe actually so. So the boilers were put in the subway, under part of the swimming-bath hall, and the engines and electrical plant were arranged in a line along the narrower part of the same subway. The towel laundry was 7ft. 6in. high, with no light but what could be obtained from little areas, and the communication between it and the engine-room was a doorway 2ft. wide and 4ft. high. It couldn't be bigger without cutting too much out of the bath-wall piers. In the smallest institutions at least two steam-boilers are required, and if three can be afforded, all the better; because with three boilers it is possible to use one for the direct supply of hot water. The engine-room must be closed off from the boiler-house, and room will be required for an engine, boiler, feed-pumps, lathe, and other tools. Adjoining the boiler-house should be a large coal-store, and, within bounds, the larger the better. It should have direct communication with the boiler-house and the public street.

## ADMINISTRATION.

We arrive now at the administration of the building. The superintendent's apartments should be designed like any other private house, and it should have separate access to the public street. Six, or at most eight, rooms are all that are necessary. A board or committee-room is necessary, and our clients will never complain if we lavish a little architectural display therein. A superintendent's store for towels, soap, and other necessities is essential. It should scarcely have less area than 150ft., and may be nearly twice that size with advantage. If either of the baths are to be used at times for a gymnasium or public entertainment, we can scarcely have too much rough storage room, which may be in basement or even subways.

## DRAINAGE.

The swimming-bath drains should not be connected to the general system, and, if possible, each bath should drain direct into the public sewer, with the usual disconnecting trap, &c., of course. If they are connected to the general system, the enormous pressure and bulk of the



bath-water will quickly choke back the flow from any other part of the building, if it does not even find its way up the pipe into the lower parts. A large sluice-valve is necessary close to the bath outlet. It is important, too, to bear in mind that the outlet should be covered with a close grating. The warm baths may be taken direct into an ordinary drain, provided the latter discharges over an open trap. The end of the drain-pipe should be continued up in iron as a ventilator. A further precaution against foul air entering the room is to trap each bath. The Midland superintendent I referred to writes me that at his establishment the wastes are carried untrapped through the floor into a subway to discharge over a channel in the floor of this subway, which leads the water off to a trap; but, he adds, that in this case the channel is too shallow, and so the bath-water is practically discharged on to the subway floor with unpleasant results. It is not a bad idea to discharge over such a channel if it is only deep enough and can be regularly cleaned with a hose. Finally, every part of the drainage should be easily accessible, for delay in removing a stoppage might seriously disorganise the work of the establishment.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL business meeting of the Institute was held at 9, Conduit-street, W., on Monday, the President, Professor George Aitchison, in the chair, when there was a large attendance of members.

##### THE ROYAL GOLD MEDALLIST FOR 1899.

The PRESIDENT moved, in accordance with the amendment made at the ordinary meeting a fortnight previously, that, subject to her Majesty's sanction, the Royal Gold Medal for the promotion of architecture be presented this year to Mr. George Frederick Bodley, A.R.A., for his executed works as an architect. The resolution, which was based upon a unanimous recommendation by the Council, was agreed to without dissent and amid applause.

##### THE LADY ARCHITECT ONCE MORE.

Mr. HENRY DAWSON moved: "That, with the object of securing correct legal action in the election of candidates for membership of this Institute, the members thereof request the Council to obtain, at the earliest convenient date, the written opinion of some eminent Queen's Counsel of eminent position, as to whether women are eligible as Associates or Fellows under the terms and provisions of the existing Charter and by-laws of the Royal Institute of British Architects. And that the Council do report such opinion to the members at the earliest convenient date." The motion led to a long discussion, and was eventually lost.

##### A HITCH IN THE TESTS OF BRICKWORK.

Mr. OWEN FLEMING proposed the following resolution: "That the attitude of the Council towards the brickwork experiments recently conducted by the Science Standing Committee is calculated to impair public confidence in the Royal Institute, and that the Council therefore be invited to take such steps as may be necessary to bring the matter to a satisfactory conclusion." The motion was carried.

##### WANTED, A BOLD ADVERTISEMENT.

Mr. H. HARDWICKE LANGSTON had given notice of a motion as follows: "That in the opinion of this meeting it is desirable to put a suitable and prominent inscription on the street front of No. 9, Conduit-street, indicating that those premises are occupied by the Royal Institute of British Architects," but the proposition was held over.

##### SOME EARLY CHRISTIAN CHURCHES IN PALESTINE.

Mr. A. C. DICKIE read an illustrated paper on this subject. He remarked that Jerusalem was rich in remains of Early Christian churches, and he had selected for discussion three interesting types of plans which were comparatively unknown—viz., those of the church of St. John the Baptist (11th century), an Armenian mortuary chapel (6th century), and the church of the Pool of Siloam (5th century). Before dealing with these, the lecturer briefly outlined the history, and described the great cathedral church of the Holy Sepulchre, the most important and most interesting early Christian church in Jerusalem. Constantine, in the 4th century, built a

basilica over the site of the discovery of the true cross by Queen Helena, and a rotunda over the Holy Sepulchre, which seems to have been separated from the basilica by a cloister. These were burned and destroyed by the Persians in 614, and partly restored by Modestus soon after, with the addition of a chapel over Calvary and a chapel to the Virgin Mary. Arculf (7th century) gives a plan of the buildings, showing the rotunda isolated, and, between it and the basilica, the chapel over Calvary and the chapel of St. Mary. The buildings were again destroyed and restored in the 9th and 10th centuries, and totally destroyed in 1010 by the Khalif Hakem. Not long afterwards they were restored, and in the beginning of the 12th century the restoration of the Crusaders made the church much as it is now seen from the housetops; the façade, with its domes and tower and the Mohammedan minaret in the foreground, is the most charming group of the city. The rich, tawny colour of the weathered stone and the lead and white domes set in bright sunlight against the intense blue Syrian sky is a picture to be remembered. The lecturer acknowledged his indebtedness for the facts given of the church to the careful researches of Mr. George Jeffrey, a Fellow of the Institute.

##### THE CHURCH OF ST. JOHN THE BAPTIST

lies on the way to the church of the Holy Sepulchre, in Christian-street, adjacent to the Pool of Hekziah. Over the original church a modern one has been built, very nearly on the same plan, and the ancient building now takes the place of a crypt, the surface of the ground being at the level of the upper church floor. The lower church is reached by a rude flight of steps on the south side descending into a narthex, from which three doors enter the main building. The total length of the church north and south is 62ft. 9in., and width 24ft. 9in., which the later wall thickening has reduced to 16ft. 6in. The west wall of the narthex is 6ft. 10in. thick. The floor of the eastern apse is raised 6in., and the original window is now formed into a recess. The present vaulting is Late Pointed, the centre bay having intersecting vaults and the flanking bays plain vaults. A close examination of the vaulting convinced the author that it had been constructed in the same way as the natives construct the vaults at the present day—viz., by a rude centring of timber, brushwood, and earth, modelled to the form of the vault, and then completed in concrete of stones and lime thrown quickly over the centring and left to dry. An Arab Effendi, when excavating the foundations for a new house, came upon one of the most beautiful Byzantine floor mosaics yet discovered. He preserved it by building a cell on the old foundations. The mosaic formed the floor of an Armenian mortuary chapel, a tiny rectangular cell 21ft. by 13ft., with an apse on the east end. The lecturer quoted Dr. Bliss's account of the discovery, and a note by Dr. A. S. Murray on the design of the mosaic.

##### THE CHURCH OF THE POOL OF SILOAM.

Next to the Church of the Holy Sepulchre, perhaps the most interesting is the church dedicated to the waters of Siloam in the middle of the 5th century. This long-lost ruin was discovered during the recent three years' excavations by the Palestine Exploration Fund under Dr. Bliss's direction. Having given a description of the Pool of Siloam and its present condition, and some account of Dr. Bliss's excavations, the lecturer went on to discuss the church itself. There is no record of any building attached to the Pool prior to the time of the Empress Eudocia in the middle of the 5th century. The sacredness of its waters to the pilgrim, who sought relief from their infirmities at its healing stream, inspired the Empress with the idea of building a place of worship over the Pool. The plan adopted is unique. It consists of a nave and two aisles, measuring over all 86ft. by 52ft. In the centre of the nave are four piers, 4ft. 3in. square, the supports of the Byzantine dome of a later restoration. The projecting choir is also of the period of this later work, as well as the thickening of the pier in the entrance colonnade to the north, inserted evidently to provide for the extra thrust of the dome arches. There is no entrance in the west, and access is gained in the north by a great stair of sixteen steps, 68ft. wide, descending through an arcade of seven arches, almost the whole length of the aisle. The staircase is reached by three doors, entering from an atrium, the centre doorway being accentuated

by the addition of a small portico. Between the doorways occur low stone benches set against the wall, used as seats. Ranged around the apse are five tiers of steps, with the centre raised at a higher elevation than the flanks for the seat of the bishop, as existing more or less complete at Torcello, illustrated by Fergusson. There is a small chapel in the east end of the north aisle, screened by a low screen of red marble 2in. thick, let into the sill and walls, and coped with a moulded coping stopped by moulded stone gateposts in the centre, the remains of which were found lying at this point. In considering the influences which had worked together to bring about the peculiarity of plan, the lecturer explained that the church was designed to fit into an existing scheme, in the building of which no such extension was contemplated. At that time the pool was believed to be supplied by a spring, the builders being ignorant of the existence of the Siloam tunnel. The position of the supposed spring to which the church was dedicated therefore fixed the position of the altar directly over the spot where the waters were believed to spring from, 27ft. below. This practically settled the eastern apse, and the west wall was fixed by the position of the rising scarp and city wall then existing, and forming the western butt of the great staircase, the necessity for incorporating the latter in the plan forcing the builders to draw the wall to within a few feet of the scarp, leaving a space only sufficient for a narrow passage and a western light to the church. It was desirable to have as much of the church as possible over the pool, and this was easily managed by carrying the south wall on the pool arcade and the aisle colonnade on the north wall of the pool. Thus the north was the only side available for the entrance to the church, and although the rapidly rising ground rendered this difficult, necessity demanded it, and the magnificent idea of a great staircase entering the north aisle through seven arches (almost its whole length) was the result. The traditional three doors were placed at the entrance to the staircase, and an atrium put in front. Thus all the traditions of the early church plan were retained in a modified form—a most successful solution of an exceedingly difficult problem. An unsuccessful attempt was made to buy the site, with the intention of restoring the church and pool to its original state. Among the illustrations was a sketch restoration made by the lecturer founded upon the theories advanced in his paper. A careful study of the existing remains leaves little to conjecture, as the buildings practically stand for a height of 35ft. from the pool pavement to the ruined top of the church walls.

Owing to the lateness of the hour, the PRESIDENT suggested that any members who wished to discuss the paper would do well to write to the *Journal* of the Institute, and the proceedings therefore closed with a vote of thanks to Mr. Dickie, on the motion of Messrs. W. EMERSON and R. PHENE SPIERS.

##### FOUL GAS IN SEWERS.

MR. J. CORBETT, the borough engineer of Salford, has favoured us with a copy of the following directions which have been issued by him, and may prove useful in other places:—

1. Open the lids of two adjacent manholes so as to provide a down-cast and an up-cast shaft; or if only one manhole is available, and there is no other outlet by an open sewer or vent-pipe, place a wooden tube about 1ft. square down the one manhole for use as a down-cast shaft.

2. Use one manhole, or the wooden pipe above described, as a down-cast shaft, by means of a heavy shower of water from a large watering can with a rose-jet, or else from a rose jet on a hose-pipe from the town's water-mains.

3. Where there are two manholes near together, use one for the down-cast shaft, by means of the shower of water above described, and use the other for the hoisting and working shaft.

4. Test the air in any shaft before men go down it by lowering a lighted candle down it. If the light burns dull, even without going out, the shaft must not be entered. Ventilate the shaft as before described, and test it again; and do not enter it until a light will burn brightly in it.

5. Beware of any mixture of combustible or explosive gas in the sewers or their manholes, and if any signs of such gases are found, obtain



skilled men and safety-lamps from some colliery, and let those men direct the work, giving them the help of ventilation, &c., as before described.

6. When a man has to descend a risky man-hole or shaft, he must have a strong rope properly tied about his shoulders, so that he could be lifted by it, and the ropes must be kept in hand ready to lift him up if he becomes overpowered by the gas. When a man has to crawl along a risky sewer he must have a short rope securely tied to his ankles, and a rope from it to hand, so as to draw him back if he becomes overpowered by the gas.

7. In any case of special difficulty or danger, report the case immediately to the borough engineer, so that he may take the responsibility of the work.

## IRON CONSTRUCTION IN DRAINAGE WORK.—VIII.\*

By T. E. COLEMAN, F.S.I.

FIG. 106 is a sketch of a soil-pipe supported by "single tacks," whilst in Fig. 107 is shown a soil-pipe fixed with "double tacks." In some

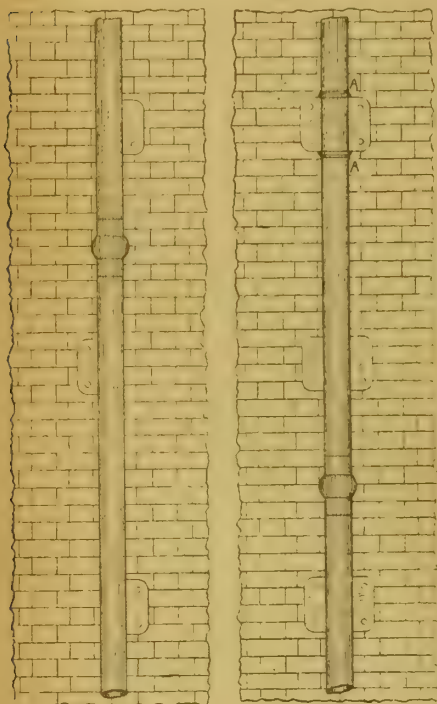


FIG. 106.

FIG. 107.

cases the pipes are given a more ornamental and finished appearance by encircling them with a lead astragal or bead near the upper and lower end of each tack as indicated at A A (Fig. 107). All lead tacks should be secured to the walls with

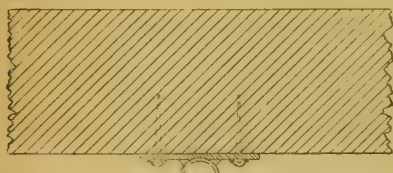


FIG. 109.

stout copper nails or spikes, as iron nails are liable to be eaten away by rust.

Another form of lead tack used for small pipes is seen in Fig. 108. They are soldered to the pipes from the front side of the tack as indicated on plan in Fig. 109. Cast lead "socket tacks" similar to Fig. 110, soldered to soil-pipes, are also used for fixing purposes.

The upper end of lead soil and ventilating pipes are generally finished with a bead or astragal, and the opening covered with a domical copper wire grating to prevent birds building

therein. A modification of this arrangement is seen in Fig. 111. A series of perforations are made in the upper portion or body of the pipe, whilst the top is provided with the usual beaded end for the purpose of strengthening it as well as

FIG. 110.



FIG. 108.

improving its general appearance. The opening is protected by copper cross wires. Ornamental perforated cast lead tops of various designs may also be obtained if preferred.

When lead soil- and waste-pipes are fixed in



FIG. 111.

situations where they are liable to be damaged by passing traffic, or otherwise subject to rough usage, they should be protected to a height of 7 or 8 ft. from the ground by means of a stout iron shield or guard. The shield may either be

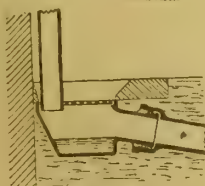


FIG. 112.

galvanised or painted, and should be so arranged as to be capable of being readily taken down and refixed when considered necessary for purposes of examination or repair.

Many varieties of gully-traps suitable for

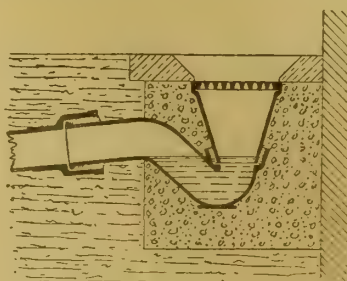


FIG. 113.

connecting to iron pipe drains may be obtained. The choice of any particular pattern or description must, however, in a great measure depend upon the purpose for which it is required, and any peculiarities connected with the locality or mode of fixing.

Fig. 112 is a section through the "Tron" rain-water shoe or trapless surface gully. It is constructed of cast iron, and designed to retain any sand, gravel, &c., that may be associated with

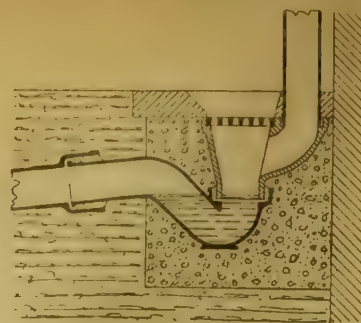


FIG. 114.

the storm-water. The débris may be readily removed by raising the surface grating. This form of gully should only be used for clean-water drains which have been properly discon-

FIG. 115.

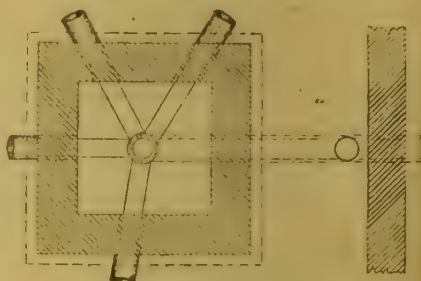
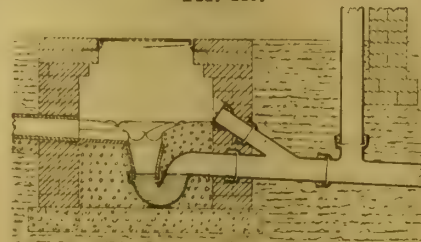


FIG. 116.

nected at their junction with any foul drains. The perforated grids to the trapless gullies insure the continuous and efficient ventilation of the clean-water drains to which they are attached. The

FIG. 117.

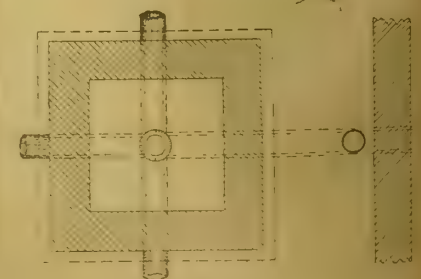
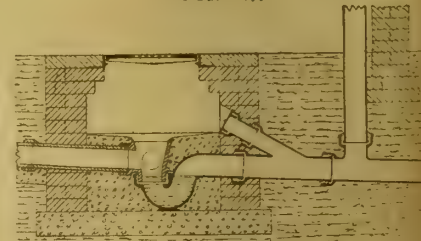


FIG. 118.

gullies may be obtained either coated with Dr. Angus Smith's solution, or glass enamelled internally. They are also obtainable in salt-glazed fireclay.



Fig. 113 illustrates a cast-iron trapped gully. The grating and body of the gully are circular in form, without angles or corners, so that the whole may be self-cleansing. Similar trapped

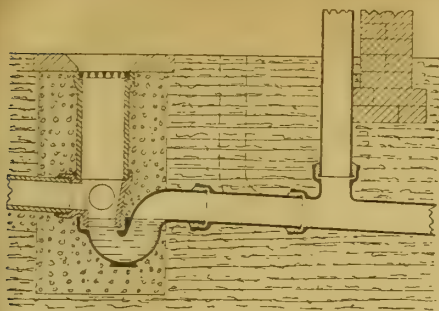


Fig. 119.

gullies, finished with glazed stoneware top (with or without flushing-rim) and iron grid are also obtainable. Fig. 114 shows a gully of this description, having a cast-iron trap or bottom connected to an iron drain, and fitted with stoneware gully top and side inlet (for rainwater pipe).

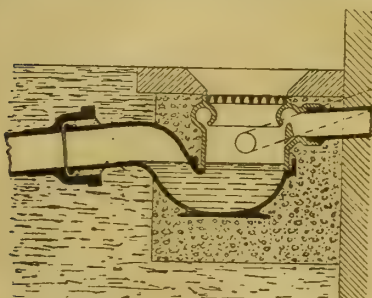


Fig. 120.

Figs. 115 and 116 illustrate the general construction of a disconnecting chamber for untrapped rainwater drains. Four drains (indicated on plan) converge to and discharge over a trapped gully directly connected to the foul-drainage system. The gully is arranged with a cast-iron trap and stoneware top, whilst the whole of the foul drains are constructed with iron pipes. Access to the drain beyond the trap is afforded



Fig. 121.

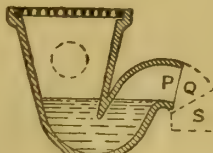


Fig. 122.

by means of a suitable inspection arm fitted with screw-cap. A ventilating pipe is also placed near this point. Glazed stoneware pipes are used for the rain-water drains, and half-round stoneware channels within the manhole. The disconnecting chamber is provided with a ventilating cover, so that the rain-water drains (receiving the water from roofs, flats, &c.), being untrapped throughout their entire length, and open to the air at both ends, are thoroughly ventilated throughout.



Fig. 123.

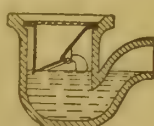


Fig. 124.

A slight modification of the preceding arrangement is seen in Figs. 117 and 118, the rainwater drains being designed to discharge through inlets formed within the gully top. This is advantageous for situations where but little fall is available, as the outlets of the rainwater drains are thereby brought just above the water-seal of the disconnecting trap.

Another form of rainwater disconnecting gully is shown in Fig. 119. The drains discharge into the stoneware gully-top, as already described, the body of the gully being brought to the surface by means of one or more extension pieces, and finished with an iron grating and dished stone curb at the ground level. By this means the disconnecting gully also acts as a trapped-surface gully for carrying away the waste waters of the yard or area in which it is situated. A ventilating pipe is provided to the



Fig. 125.

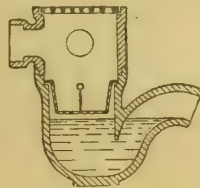


Fig. 126.

foul drain, and, if desired, an inspection arm may also be arranged, as indicated by the dotted lines in the section.

A sketch of Winsor's patent flushing rim grease gully, with cast-iron bottom connected to an iron drain, and fitted with a glazed stoneware top, is shown in Fig. 120. The advantage of a combination of iron and stoneware, such as is shown in the foregoing illustrations, is that the whole of the joints on the drain side of the water-seal are run with lead and caulked, thus insuring air and water-tight connections throughout; whilst at the same time, stoneware gully-tops of normal pattern may be fixed according to local require-



Fig. 127.

ments. The joint between the stoneware and iron in the body of the gully is made with neat cement.

The cast-iron gully-trap shown in Fig. 121 is arranged with a catch-pit bottom for the purpose of retaining sand, &c. It may be provided with a movable bucket for cleaning purposes if desired.

Fig. 122 is a section through a stoneware gully-trap with iron grating. The inlet pipe or pipes enter the gully below the grid, but well above

Fig. 128.

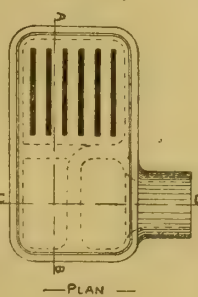


Fig. 128.

Fig. 129.

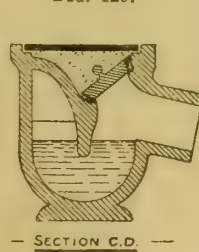


Fig. 129.

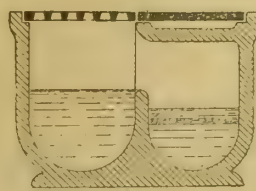


Fig. 130.

the water-seal of the trap. The gully outlet may be of P, Q, or S pattern.

Special precautions must be taken whenever it is found necessary to fix surface gullies in situations where they will be subject to the rising or back-flow of tidal and storm-waters. Figs. 123 and 124 are illustrations of Couzen's patent gully-traps. It will be observed that the gully in the first-mentioned sketch (Fig. 123) is

provided with a hollow copper ball floating on the surface of the ordinary water-seal of the trap. Any rising of the water-level or back-pressure a once automatically forces the ball against the indiarubber seating attached to the iron fram



Fig. 131.

above, whilst the diminution or evaporation of the water-seal within the trap causes the ball to rest upon the lower seating. The gully shown in Fig. 124 is provided with a sensitive balance-flap which is arranged to rest upon its seating when in its normal position. The flap readily opens to allow the free passage of liquids entering from above; but should any back-flow of sewage or storm-water take place, the flap-valve is thereby tightly pressed to its seating. The ironwork of both types is securely fixed to the stoneware gullies by means of copper screws, so that no pressure of water will displace them.

Stable gullies should be so arranged as to prevent, as far as possible, the entrance of pieces of straw, &c., into the drain. Fig. 125 is a section through a stoneware gully provided with iron perforated bucket and grid, whilst Fig. 126 shows a similar gully arranged with an extension piece so as to allow the sewage matters to discharge over the perforated bucket, but under the surface grating. The form of stable gully shown in Fig. 127 is constructed of cast iron, and is fitted with a perforated bucket for the retention of solids, &c., together with a cleaning eye, to allow of ready access to the drain beyond.

The details of construction of the "Grosvenor" patent gully-trap are illustrated in Figs. 128, 129, and 130. It consists essentially of a receiver or shallow catch-pit, which retains any sand, gravel, &c., passing through the surface grating, whilst the liquid passes over a weir into the trapping chamber before entering the drain. The gully is also provided with an inspection eye for drain-cleaning or inspection purposes at any time. Fig. 128 is a general plan for the gully, showing the surface grating; the space occupied by the receiver and the trapping chamber respectively being indicated by the dotted lines. Fig. 130 (section A B) shows the weir separating the receiver and the trapping chamber; whilst Fig. 129 (section D D) is a section through the

Fig. 133.

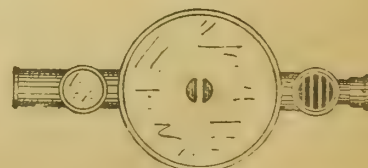
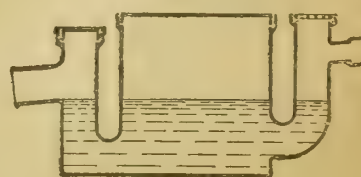


Fig. 132.

trapping chamber showing the water-seal, the upper portion of the weir and the opening from the receiver to the trapping chamber being seen in elevation. This section also shows the arrangement of the inspection eye for access to the drain, an air-tight joint being obtained by means of a composition of tar and pitch. The space between the stopper and the iron surface cover is some-



times filled with sand, charcoal, &c. The receiver or catch-pit of the gully may also be provided with a removable dirt bucket if desired. The general appearance of the gully is seen in Fig. 131.

When large quantities of greasy liquids are discharged into ordinary gullies the drains are liable to become choked by the gradual accumulation of grease, unless special precautions are taken. Many devices have been introduced from time to time in order to overcome this difficulty. The grease-gully shown in Fig. 120 is largely used for this purpose. An automatic flushing-tank, arranged to discharge at certain periods, is connected with the flushing rim of the gully, in order that the velocity and volume of its discharge may break up the fatty particles collected within the gully and carry them through the drains.

Grease-traps designed for the purpose of collecting and retaining any fatty substances which may be discharged into them are also extensively used. The grease is removed from

FIG. 131.

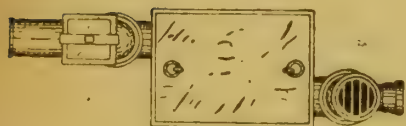
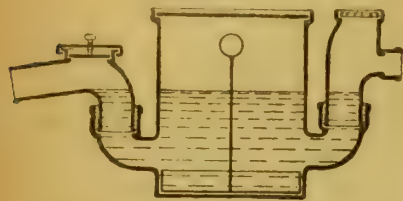


FIG. 135.

the trap by hand at stated intervals, instead of permitting it to enter the drains. Figs. 132 and 133 are the plan and section of a typical cast-iron grease-trap. On entering the circular receiver—containing a comparatively large volume of water—the liquid grease becomes solidified, and, rising to the surface of the water, gradually forms a solid cake of fat, whilst the remaining portion of the liquid flows into the drain. The grease-cake is then removed from time to time.

Another form of grease-trap is seen in Figs. 134 and 135, the inlet and outlet being cast separately from the body of the trap. When fixing the trap, the inlet and outlet may, therefore, be placed at any required angle, the joints being afterwards run with lead and caulked.

#### ACETYLENE GENERATORS.

THE report of the committee appointed by the council of the Society of Arts to inquire into the requisite conditions of safety in acetylene gas generators, and to report on the various apparatus shown at the exhibition held at the Imperial Institute, has just been issued. The object of the exhibition was to familiarise the public with the means of generating acetylene gas, and with the simple precautions with which its use, at low pressures, is as safe as coal-gas. The committee appointed Professor Vivian B. Lewes and Mr. Boverton Redwood as a sub-committee to make a series of tests of the various forms of generation. As a result, the committee have advised the granting of certificates to those generators which have complied with the requirements of the various tests to which they have been submitted, and which have worked safely and satisfactorily during a month's everyday use. The committee classified the generators into three groups:—(1) those in which the gas is generated by water being allowed to drip or flow on to the carbide; (2) those in which the water is allowed to rise in contact with the carbide, the rise being regulated by the increase of pressure in the generating chamber; (3) those in which the carbide drops into the water. These are again subdivided into—automatic generators, whose storage capacity is less than the total volume which the charge of carbide is capable of generating, and which, therefore, require automatic regulation; and non-automatic, whose holders can receive all the gas produced by the charge of carbide. The committee consider that

the tests have clearly demonstrated that many types of acetylene-gas apparatus can be so constructed as, with ordinary precautions, to be absolutely safe, and that lighting by acetylene need be no more fraught with danger than any other form of artificial lighting in general use. The committee, however, feel it their duty to state that, safe as they consider acetylene gas to be, when generated in a properly constructed apparatus outside the building to be lighted, and in accordance with the rules and suggestions contained in the report, they consider the generation of gas within the house, and the use of hand-lamps, cycle lamps, &c., to be not unattended by danger, except in skilled hands. As to the storage of the carbide, the Home Office regulations allow 5lb. to be kept without a license in 1lb. packages. The committee recommend that the quantity, however small, should always be kept in a dry place, and under lock and key.

#### THE LUXFER PRISMS ELECTRO-GLAZED, AND THEIR RESISTANCE TO FIRE.

THE British Luxfer Prism Syndicate, Limited, of 16, Hill-street, Finsbury, have lately undertaken a series of important tests which have conclusively proved the fire-resisting property of their electro-glazing process, already described in this journal. Last Saturday we visited the Hill-street factory, to examine for ourselves the behaviour under these tests of the electro-glazing

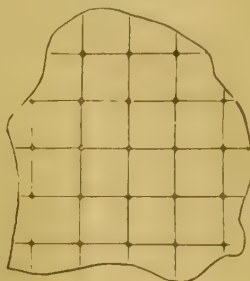


FIG. 1.

method adopted by the syndicate in the mounting of their Luxfer prisms, and of plain or ornamental glass. We may remind our readers who have not already visited this interesting factory, that the usual wide lines of lead, zinc, or brass ordinarily used for mounting obstruct a large portion of the light which passes through the window, and also add to the weight. By the invention of electro-glazing the plates or sashes of glass are at once rendered neat in appearance (Fig. 1), elastic, weather and fire-resisting. We have described the process as the insertion of strips of flat copper between the pieces of glass (Fig. 2), which are made to assume rectangular,



FIG. 2.



FIG. 3.

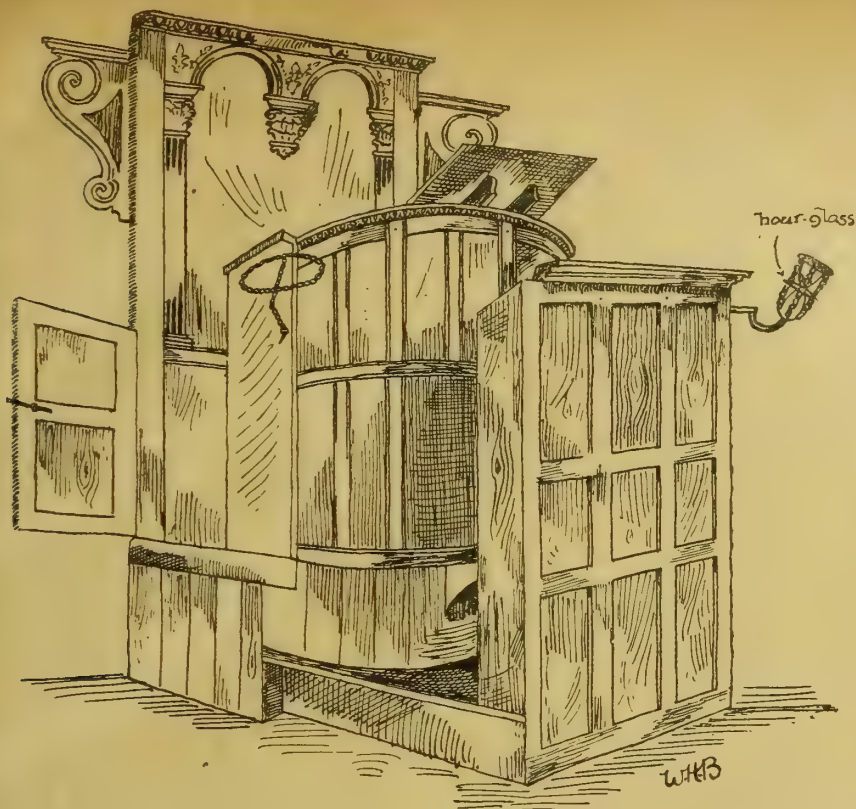
geometrical, and curvilinear forms. The strips are touched with solder at the points of intersection, and the sheet thus put together on a table is afterwards submerged in a copper bath, where it remains 30 to 40 hours. A deposit is formed on the flat ribbon of copper, tightly filling up the space between glass and copper strip, while at the ends a flange-like projection is formed, which secures and holds the glass tightly. By this process the electro-glazed plate is made very strong, the glass and copper deposit are joined as one piece, and if the glass is broken the pieces are found to adhere to the copper deposit. So strong and elastic is the plate thus formed that a piece 20in. square and  $\frac{1}{4}$ in. thick was found to have a stiffness exceeding plain glass of the same size.

Three samples of glazing—one of plain thick glass, one of leaded glass, and another of the electro-glass with copper mounting—were exposed to severe fire tests. Sheets of flame from numerous gas-jets were made to play on each specimen. The two first soon began to show signs of failure, and the glass began to crack away from the frame, and the flames to pass through. The leaded glass gave way almost suddenly, the lines of lead melting and letting out the glass; but the electro-glazed plate resisted the fire entirely, although exposed to a great heat a long time after the others had been burnt through. The heated glass in all three cases was exposed to jets of cold water, which speedily cracked the panes, causing the pieces in the former two specimens to fall out; but the electro-glass remained intact, although cracked, and held the flames at bay. These tests proved beyond all doubt that the ordinary systems of glazing offer little or no obstacle to fire, while the electro-glazed specimen withstands the most intense flames, and offers a splendid resistance to the spread of fire. In great fires, much peril is caused by the breaking of the glass in windows, allowing the flames to burst through, and causing imminent risk to firemen on fire-escapes placed opposite the windows. The Luxfer electro-glass window is proof against this danger.

The Luxfer Prism Syndicate have published a very useful illustrated manual, which not only describes the application of the Luxfer prisms to a variety of purposes, and their wonderful illuminating effect in darkened interiors by refracting the light from the sky in horizontal and other required directions, but explains an easy method of selecting the prisms proper for a given room by means of a protractor with the various angles marked. Suppose we have a room to light: a vertical section of the building on the other side of the street, window, and room is made, which is easily obtained in case of a new building from the architect's section. From the bottom of the proposed prism plate or window to the top of building on the opposite side of the street draw a line. The protractor is then placed with its horizontal line passing through the lower part of prism plate. Then the oblique line of the summit of opposite building indicates at a glance the proper prisms to use—whether sash or canopy prisms, the former being the vertical sash prisms, the latter, as its name implies, being the part of the light which is received overhead to the angle of 38° from the vertical. By the aid of the Prism Table given in this manual the proper prism can be at once selected, by the aid of the zenith angles from 35° to 70°. Thus, if the window has a zenith angle of 50°, the ray leaves the prism marked L, 10½ below the horizontal, or the M prism 6½ below, the numbers giving the direction in which the rays from certain angles leave the prisms, which are generally marked by letters. By this means a prism can be chosen which refracts the light in the required direction in the room. Small zenith angles are best provided for by using a canopy prism, which receives more light than that from the vertical window, and these canopy prisms are made to project out from top of window, the prisms being fixed in a separate iron frame which can be held by chains or brackets, and can be made a feature by the architect. For canopy the "A" canopy prism is recommended. The subject of selecting the right prisms for different zenith angles is explained under different groups, so that any architect will have no difficulty in selecting the prisms that are required. Several sections are given, showing the various applications of canopies and new mode of fixing. We cannot doubt that this system of introducing daylight will be extensively used in the future, and as light-courts or wells are not necessary, a great saving in cost in these objectionable features will be effected, besides the reduction of fire insurance required to light interiors during the day, and also the saving of cost of shutters, which the electro-glazing renders unnecessary. We strongly urge all architects, builders, and property owners to visit the works of the British Luxfer Prism Syndicate, and witness for themselves a fire test of any kind of window glass electro-glazed. They will agree with us that the end sought is most effectually achieved.

Mr. J. A. Lucas, of Exeter, surveyor to the Okehampton Charity Trustees, has been elected borough surveyor and sanitary inspector for Okehampton, in succession to Mr. H. Geen, resigned.





OLD PULPIT, ST. ANDREW'S.

## OLD PULPIT, ST. ANDREW'S.

THIS quaint old pulpit (which is supposed by antiquarians to have been the one in which John Knox preached) now occupies a position in the museum of St. Andrew's University. The desk or box in front was occupied by the "precentor," who used to be an important functionary in the Scottish Church. The lamp-bracket and hour-glass are of wrought iron, and the pulpit itself is made of dark oak.

W. HODGSON BURNET.

## THE WORKING OF THE LIGHT RAILWAYS ACT, 1896.

THE subject mentioned above was dealt with in an interesting paper read by Mr. F. J. Smith, of Southampton, at the ordinary general meeting of the Surveyors' Institution, held on Monday evening last. The author dealt principally with the Basingstoke and Alton Light Railway, and claimed to speak with some authority, as having dealt with claims on behalf of owners and occupiers of land throughout more than half of the district traversed by the line in question. He referred at length to the sections of the Act on which the "Order" of the Light Railway Commissioners was based, section 11 defining what shall or shall not be incorporated in an order, section 12 (subsection 1) naming the Clauses Acts which are not applicable to a light railway unless specially incorporated in an order, while subsection 2 stipulated that the general enactments applicable to railways should be applicable to a light railway. Section 13 directed the mode of procedure on going to arbitration on the value of land taken and compensation, subject to such Acts, &c., as may be detailed or incorporated in an order under the two preceding sections. It was, the author thought, probable that in some cases owners might prefer the nomination, as arbitrator, of some local surveyor, whose knowledge of the country through which a projected light railway would pass, would be advantageous, or they might prefer a well-known expert as arbitrator. On the other hand, promoters might prefer an arbitrator with less local knowledge or influence, or might even prefer a nominee of the Board of Trade, in which case that department would have the appointment in its own hands. The author's practice had been to suggest the names of three surveyors of repute—not necessarily local men, but Fellows of the Institution by preference—with the request that the promoters should select

one of them as arbitrator. The provision that the arbitrator should have regard to the extent to which remaining and contiguous lands might be benefited touched the principle of "betterment." The determination of such benefit was left entirely to the arbitrator, who might allow as much or as little as he pleased, and who, without any guidance or precedent, appeared to be placed in an onerous and difficult position. He was by law directed to do what was practically impossible, for he must "have regard to the extent" of any improvements or benefit which might accrue to the adjacent lands by reason of the light railway—presumably on and after its construction—and must determine the extent of such benefit at the time of estimating the amount of compensation. It seemed clear, said Mr. Smith, that the object of the measure was to place every case of compensation and of betterment on its merits in view of cases where the principle of betterment as generally understood could not be applied nor any improved value accrue from a light railway, as in cases where the property was already served by a railway, or where stations, sidings, and works were not required. A light railway might either immediately or ultimately improve the value of adjacent property, and with respect to immediate beneficial value, the author first considered residential properties and agricultural estates having no special adaptability for development. The benefit likely to be felt would be due to facilities for goods and passenger traffic, and any value accruing therefrom must be evidenced by a saving in working expenses, improved rental, and personal convenience. It might be fairly assumed that light railways would not be constructed of any great length, and would not open up any large tracts of country as the ordinary railways had done, and, indeed, section 9 of the Act seemed to intimate that the Board of Trade would not sanction the construction of a light railway where the undertaking was of such magnitude that it should be submitted to Parliament in the ordinary way. Consequently agricultural estates within, say, seven miles of existing railway stations, would hardly appreciate any saving in expenses of cartage. Farms might let more readily, but it was a question whether they would command a better rent. The advantage to personal convenience would of course depend on the service of trains. The conversion of corn farms into dairy farms, which it was assumed would follow the construction of these railways, would, he feared, involve an outlay on buildings, fences, &c., which would neutralise any possible benefit. There was, he thought, a

general opinion among those best qualified to express one, that light railways would not raise the fallen fortunes of agriculture to any appreciable extent, and the logical conclusion seemed to be that landowners would not be very much benefited in consequence. The author then dealt with the question of "tolls," which, in the event of a light railway not being profitable might be raised to the maximum authorised by the Order, and this increase made subsequent to the award of the arbitrator, based on the probable beneficial value of the adjacent property. "Deferred beneficial value" could only apply to lands which could be developed for building purposes or for the working of minerals, or where, by special arrangement, special accommodation was provided by the promoters, or where agricultural or residential estates are not already served by a station within, say, five miles. The author held that any existing railway company constructing a light railway for the purpose of joining a branch with main lines was not entitled to "betterment" beyond the amount (if any) added for compulsory sale of the land taken. Mr. Smith then gave details as to the provisions of the Act regulating the construction of light railways, the raising of capital, advances by the treasury, free grants of land, repayments of loans and advances, and the system of orders by the Board of Trade, illustrating his remarks by references to the Basingstoke and Alton Railway above referred to, the total cost of which was estimated at some £64,000 for some 12½ miles of railway, including land, stations, permanent ways, bridges, &c., or some £5,140 per mile, including everything.

A short discussion followed, in which Messrs. G. Langridge, A. G. Rickards, H. W. Towse, J. L. Crouch, W. H. Warner, and L. R. S. Walcott took part.

## VENTILATION OF THEATRES.

IN speaking of theatre sanitation, Mr. W. Paul Gerhard, who is the author of many useful sanitary publications, refers to ventilation of theatres, often sadly neglected in new buildings. Every part of a theatre should be ventilated, the stage as well as the auditorium, dressing-rooms, engine-room, vaults, and the retiring and toilet-rooms. A system of extraction is of no use unless a supply of pure air, drawn from an uncontaminated source, is combined. Extraction only means a sucking up of the air of all these parts of the house. The fresh air should be warmed and filtered in winter and sprayed or cooled with ice in summer, and it should enter without causing draughts. The inlets and outlets should be of good size, and the author remarks every person in the audience should have a supply of fresh air equal to at least 30c.ft. per minute, or 1,800c.ft. per hour. Mr. Gerhard says: "The fresh air may be introduced at the top of the house, through the ceiling, and made to move downward in a steady and uniform current, until it reaches the lungs of the spectators, and then removed at or near the floor line; or else air may be introduced at or near the bottom, and exhausted at the ceiling of the hall. Either one of the systems may be successfully planned and arranged. The plan and subdivision of the building, the details of construction, and local conditions will generally decide the question. When the theatre is lighted with electric lights, the downward system will show better results than where gaslights are used." He also says a good system should effect a complete change of air three or four times an hour.

The scheme of ventilation ought to be considered in connection with the safety of the building from fire. A current of air from the stage towards auditorium would be serious in case of fire, which generally originates on the stage, as the smoke from the burning scenery, &c., would be drifted towards the upper part of auditorium, and suffocate people before they could escape. The air current should be in a contrary direction from auditorium to stage, and to effect which large ventilators over the stage to create a draught thereto are required. As to the dressing-rooms, &c., these may be ventilated by windows to the outer air or by vent shafts. The currents of air should be maintained from the theatre and halls into the toilet-rooms, so that all odours from the closets, &c., will not reach the theatre. For the latter purpose, Mr. Gerhard's downward ventilation would probably serve the best, though there are



objections to the system, as, for instance, in the fresh currents from the ceiling forcing the vitiated air rising from the auditorium back through the lungs of the people before it is finally expelled through the floor outlets. The question of the ventilation of theatres is fraught with difficulties, and playhouses in London, even amongst the later ones, are far from giving satisfactory results. The usual entrances generally act as the main inlets for the cold fresh air, which forces back the eddying currents of vitiated air upon the people, besides causing dangerous draughts of cold air to those near the openings.

#### THE ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Association was held on Friday evening at 9, Conduit-street, W., the President, Mr. G. H. Fellowes-Pryne, in the chair. Messrs. N. B. Fairweather, C. F. Houston, and G. Gilbert Scott were elected as members. The President announced that a meeting of members desirous of resuscitating the A.A. Bicycling Club will be held at 56, Great Marlborough-street, W., on the following Friday evening (to-night) at 7.30 p.m. It was proposed, at that meeting, to draw up rules, appoint officers, and arrange club-rooms, and he trusted there would be a large attendance; if the revived club were worked conjointly with the A.A. Camera Club, much good and useful work would be done. Mr. E. Howley Sim, the hon. sec., proposed a vote of thanks to Mr. J. F. Bentley for permitting members to visit the new Roman Catholic Cathedral at Westminster on the 18th Feb. He also mentioned that the next spring visit would take place on Saturday, the 11th inst. (to-morrow), to the Great Central Hotel, Marylebone-road, at 2.30 p.m., under the guidance of Col. R. W. Edis, F.S.A., and at 3.30 the members would proceed to the Great Central Railway Station adjoining, when Mr. E. Wragge, the resident engineer, would conduct the party. Several donations to the library were announced and acknowledged with thanks.

#### PUBLIC BATHS.

A paper on this subject, illustrated by numerous plans of recent English buildings lent by the respective architects, was read by Mr. ALFRED SAXON SNELL, F.R.I.B.A., and is fully reported on p. 328, *ante*.

The President, in inviting discussion, referred to the practical and instructive character of the paper, and expressed curiosity as to the new paving material for the edges of the bath pathways. He suggested that more boxes could be arranged down the side of a swimming-bath, if the frontage-line of the boxes was curved inward at the centre, and concluded by proposing a vote of thanks to the lecturer.

Mr. T. NORMAN DINWIDDY seconded the motion, remarking that for edging a bath slate had a good appearance, but grew slippery in use, and mosaic was still more cleanly, but also had the drawback of insecure foothold. Cork paving promised to be more satisfactory, but he had not yet seen it tried. The cost of renewing the water in a large bath was very great, and it was undoubtedly cheapest to provide an independent supply, as the engine could be alternately used for pumping and working the laundry machinery. Storage tanks of great strength had in that case, however, to be provided.

Mr. E. H. PAYNE pointed out that Mr. Saxon Snell had omitted in his model plan to show cross-ventilated lobbies between the baths and closets; unless cross-ventilation was provided, a most objectionable smell rested on the surface of the water. In nine cases out of ten the galleries provided for swimming-baths were practically useless, for none but those in the first row could see what was going on in the water. Another defect in the newest baths was that no means was provided for professionals getting from one end of the bath to the other, except along the front. At Shoreditch there was a well-arranged gallery, but it projected too far over the water. He feared English bathers would object to using a douche bath before entering the swimming pool. He saw Mr. Saxon Snell provided in his model plan a club-room for the second-class bath, a feature which seemed quite unnecessary. He did not like the complicated pay-office arrangements at Newington; the best arrangement was that seen at Shoreditch. Subways were not so much utilised as they might be for the collection of wet towels, &c.,

or trollies running on tram-rails, and communicating by lift with the floors above.

Mr. C. H. BRODIE said it was the body, not the feet, that fouled the water of baths. The old-fashioned slipper-bath was a stupid survival, and should be replaced by the douche bath.

Mr. H. E. CLARK asked as to the cubic cost per foot of public baths.

Mr. ERNEST HERBERT advocated the adoption of the plan to be seen at Edinburgh, of providing a passage at the back of boxes. By this method the pathway is not muddled by boots; on the upper floor instead of the usual gallery was a tier of slipper-baths.

Mr. MARCHANT, superintendent of the Marylebone Baths, said it should be the duty of the attendant to see that dirt was not carried on to the pathway, and if any were, to have quickly removed. In his baths they emptied and refilled the bath every day in the summer. They also provided a cold shower bath for first-class bathers, and for a small extra payment a warm shower could be supplied. A subway would be beneficial to allow professionals to get from one end to the other of a bath; but if a passage were made behind the boxes it would need constant watching. It was difficult to devise a gallery in which more than the first two or three rows of spectators could see the whole water surface. The huge baths, now so fashionable, were very expensive to fill sufficiently often; a length of 100ft. was quite sufficient for all practical purposes.

Mr. F. PERKINS said tanks could only be made water-tight by building with a cement backing and asphalt, and it was necessary to insure a sound junction between the materials. It was impossible to secure an impervious walling by using cement alone. The architect should be careful to call in a consulting engineer to advise him, and not a mere tradesman.

Mr. WAKELIN, chairman of the Shoreditch Bath Commissioners, held that any public bath built more than ten years ago was not worth inspection, and he had seen nothing in Scotland, even as far north as Aberdeen, or on the Continent, from which anything could be learned by those acquainted with the latest English baths. He regarded 100ft. by 40ft. as quite large enough for any swimming-bath. He did not say that the Shoreditch baths represented perfection; but the architects were hampered in their plans by the form of site and the prohibitive cost of additional land. He feared that committees in arranging competitions did not always know exactly what they wanted.

Mr. MATT GARbutt criticised adversely the suggestion to arrange a passage behind the dressing-boxes.

In replying to the vote of thanks, Mr. SAXON SNELL observed that the President's suggestion to widen out the middle of the platform on either side of the bath, and set back the boxes to an elliptical line of frontage, was an excellent one, provided the site would allow of it. It would have a fine architectural effect, and would afford more dressing room. He quite agreed with the suggestion that, if an architect could not carry out the engineering details himself, he ought to apply to a first-class consulting engineer. The engineer, alas, had no respect whatever for architectural features. He had not found slate slippery or easily discoloured as a bath edging if kept clean; it should be roughed occasionally. He had found Portland stone wore very quickly, and tended to become green, and marble, for like reasons, was not a success as a paving material. The new paving he was thinking of trying was Rust's mosaic, which was really cast glass, and promised well. Side galleries should be set, as at Shoreditch, at an angle of 45°, and not sufficient use was made of end galleries. A pathway at the back of the boxes was an abominable arrangement, but was adopted in the United States and in Germany; a subway was equally useful, and was more easily kept under supervision. If asphalt was employed as a lining for baths, it should be in two thicknesses, overlapped to avoid the risk of pin-holes. If, from ideas of economy, the asphalt is omitted, a coating of cement, well trowelled, must be used. In gas-holder tanks no asphalt was used, but the cement rested on a puddled backing, and this was impracticable in baths, owing to the subways. It was impossible to construct a small bath more cheaply than a large one, and a fair cost per cube foot was about one shilling. The club-room in the second-class baths was for the use as a dressing-room of children in any one school.

#### CALLENDER'S BITUMEN DAMPCOURSE.

THE increasing importance of rendering our buildings damp-proof is acknowledged by all. The profession have tried a great many materials for dampcourses; but the unanimous opinion is that pure bitumen is the best form in which to apply this preventive, and Callender's Pure Bitumen Dampcourse, made from pure Trinidad bitumen, appears to have taken the place of all cements and felts. One of the desiderata of a good dampcourse is that it should not crack under the weight, or when bent. The illustrated list of applications of this valuable material is a proof of the value of an elastic bitumen in which there is no admixture of pitch or gas-tar. Callender's pure bitumen course is made in lengths of 24ft., and of any width up to 72in., so that it can be easily inserted as a damp course, and bent up the outer surface of wall, if desired. As a dampcourse as well as a sheeting, this pure bitumen has been used in numberless public buildings, tunnels and bridges, water and sewage works, water-tight tanks, &c. For vertical sheets to tank walls bitumen "bonding cases" are made for fixing into main wall before the 4½in. facing is built. The bitumen sheeting lines the main wall behind the 4½in. facing, and is bonded by these "cases" to the work at intervals, making a perfect water-tight tank. The attested experiments recorded—all severe tests—show the perfectly water-tight and impenetrable character of Callender's Bitumen Dampcourse.

The opinion of other engineering experts, such as that of Messrs. Bramwell and Harris, of Great George-street, show the perfectly impervious nature and other qualities of the bitumen to withstand changes of temperature. Callender's pure bitumen dampcourse has been used on numerous buildings, views of which are given, such as the Claybury Asylum for the London County Council, Corporation Asylum, Oldham, on numerous houses in the London suburbs—Herne Hill, Croydon, Hammersmith, Harringay, Stroud Green, Dulwich, Bedford, Brighton, Bristol, Blackburn, Buxton, Coventry, Nottingham, Sheffield, Glasgow, &c., &c. We recommend our readers to use this dampcourse; all particulars about which may be obtained of George M. Callender and Co., 11, Victoria-street, Westminster.

#### LEADLESS GLAZES IN POTTERY.

MR. W. P. RIX, in a paper read before the Society of Arts, in London, the other evening, discussed the possibility of the use of leadless glazes in the manufacture of pottery. He described the various efforts which have been made during the past century to exclude lead from glazes, and showed specimens of pottery made without its aid, but said none of them could be considered quite successful as applied to coarse earthenware, however suitable they might be for porcelain, and, apart from the results produced, they did not appear to have been economical. Yet he gave the leading houses great credit for their efforts to solve the problem. Pottery with leadless glazes if applied to earthenware became practically a new manufacture, involving large sacrifice of plant, &c., which meant ruin to the small potter. Few of such glazes had survived the preliminary ordeal, and fewer still had entered the commercial stage. After noting in detail the improvements made by Mintons, Doultons, and many other firms, Mr. Rix said that, notwithstanding their apparent success, it could not be assumed that they had obtained decisive proof that the general adoption of lead-free glazes was yet possible. It must be proved whether greater expenditure in fuel was needed, and how far the more accurate control of the glaze-dipping and firing could be met. Such a change could not be made till the new product was shown to be free from increased cost of manufacture. It was therefore still necessary as a precaution, while further experience was being gained, to find the best means of reducing the necessary lead in the present glazes, and to secure the permanent fritting of the whole. The fritting of lead with silica, or borax, or stone, could only produce innocuous results when the proportions of earth were such that the whole was chemically combined in a stable form. Most leadless glazes had three objectionable properties—opacity, sluggish fusibility, and inequality of texture. Sluggish fusibility left the slightest inequality of thickness apparent after firing. The absence of



lead caused the glaze to be more viscid, but it also made it slower in its response to the fusing temperature. Glazes without lead, therefore, must be dipped as thinly as possible, and much more uniformity of dipping was necessary. Surface inequality gave rise in some glazes to an egg-shell or pitted texture, depriving the ware of the smoothness essential to cleanliness. The permanence and stability of all glazes without lead was of great importance. Owing to the large place occupied by the alkalies as fusible basic substances for lead, it was easily possible to obtain combinations which would prove disastrous in this respect, for whereas lead had proved a reliable support to stability, the alkalies were notoriously treacherous. Doubtless little opportunity had occurred to thoroughly prove the latest mixtures. All that could be said was that they had stood the most severe exposure and the roughest usage without injury. It might, however, be safely stated that with the exercise of due intelligence in compounding a formula no serious risk need be incurred. The scientific data available were amply sufficient to protect the potter. The use of leadless glazes had been fitful and exceptional. Up to the present it could not be said that for the bulk of the trade they had proved practicable. Within the last five years every Staffordshire potter pronounced their adoption impossible. Since that time such advance had been made that some, at least, of the most strenuous opponents had confessed that their views were modified, and that for many classes of ware lead was no longer a necessity. Some went so far as to think that, with increased experience, leadless glazes might become available for nearly all kinds of goods. He was inclined to believe that such a result was only a matter of time.

The chairman (Professor John Thomson) said he was of opinion that the great variety of shades required by the public was responsible for the poisonous glazes. He trusted the public taste might be modified, perhaps on the basis of the old Eastern pottery, which was content with a more modest selection of colours. Manufacturers ought to be prevented from using glazes highly charged with lead for the sake of increasing their profits.

In the course of the discussion it was urged that the manufacture of ware with leadless glazes to any extent would not be advisable until the ware had been tested in trying climates like that of the Philippines. Doubts were expressed as to whether ware so made would stand the atmospheric conditions which prevailed in such parts of the world. It was also pointed out that work-people were often habitually careless in observing Government regulations for their protection.

The Leeds Lighting Committee have decided to apply to the Government authorities for power to borrow £150,000 to extend the electric mains in the city, enlarge the present generating station at Aire-street, and to acquire additional machinery. This sum will meet the more pressing requirements for the next couple of years.

The celebrated Douglas collection of stained glass has lately been sold at Cologne for 180,000 marks. The three Holbein windows were purchased by the city of Basle for 30,000 marks. This rare and splendid collection of old stained glass was formed by the late Grand Duke Ludwig of Baden and Count Douglas.

The Finchley Urban District Council have decided to purchase two acres and a quarter of land upon which to erect 30 houses for the working classes, to be let at 7s. 6d. and 8s. 6d. a week. Half the land will be used for allotments until required for 30 more houses. Each dwelling will cost about £250 to build, and the ground will be intersected by a 40ft. road. The total cost is estimated at £8,000. The site decided upon is between East and Church End, Finchley, near where the Great Northern Railway Company are going to open a new station.

It is proposed to erect a Kursaal on the Harbour Parade, Ramsgate, in accordance with a scheme approved by the town council, and from designs by Mr. T. W. Cutler, F.R.I.B.A. On the ground floor there will be a buffet extending back from the parade a distance of 100ft. A second-class restaurant, to afford seating accommodation for 300 persons, will adjoin the buffet. Overhead there will be first-class dining or supper-rooms, consisting of a saloon and a number of smaller apartments. An assembly-room 100ft. by 70ft. will be situated on the ground floor to the west of the restaurant. In addition to a theatre occupying the floor above the banqueting-hall, there will be provided a roof garden in the Continental style.

## OBITUARY.

MR. TOM TURNER, A.R.I.B.A., of 18, Provost-road, Haverstock Hill, died on Thursday in last week at the early age of 32 years. Mr. Turner, who was the youngest son of the late Albert Turner, of Aldermanbury, E.C., and Sevenoaks, became an Associate of the Royal Institute of British Architects by examination in 1896, and had been a member of the Architectural Association for fourteen years past.

THE death is announced from Manilla of a well-known American architect, Mr. WILLIAM C. SMITH, of Nashville, Tennessee. In his youth he fought in the Confederate Army, and again during the late Spanish-American War he saw active service as a colonel of volunteers, being sent to the Philippines on duty. During the attack on Manilla by the natives on Sunday, Feb. 5, Col. Smith was stricken with apoplexy, and died on the field. One of his most conspicuous works as an architect was a reproduction of the Parthenon, which was exhibited at the Art Building at the Tennessee Centennial Exhibition.

WE regret to announce that the late managing partner of the Hathern Station Brick Co., Mr. JAMES FRANCIS HODSON, passed away on Tuesday, Feb. 28, after a very short illness, contracted whilst on business at Sunderland on the previous Wednesday, and was interred at Loughborough on the 4th inst. The business in all its branches—both at the Hathern Station Works and the Cliff Works—will be carried on as heretofore by the surviving partner and by his nephews, who have been associated with him in its conduct for several years.

MR. WILLIAM SHADDOCK, J.P., master builder of Saltash, and an alderman on the town council, died last week, aged seventy-one years. He was born at Bradninch, near Exeter, and went to reside at Saltash in 1854, being engaged by Mr. I. K. Brunel, the engineer of the Royal Albert Bridge, to superintend the excavations in the bed of the river for the pier foundations, and the erection of the masonry work. Upon the completion of that great undertaking, in 1859, Mr. Shaddock began business as a master builder, and obtained several contracts from the Great Western Railway Company for the construction of their stations, while he also built the Saltash Baptist Chapel, and restored the parish church and St. Stephen's Church. His connection with the Corporation of the borough dated back to 1869. In that year he was made a free burgess, and in 1875 appointed an alderman. He was three times elected mayor—namely, in 1876, 1877, and 1885; for three years he filled the office of chairman of the school board; and for a much longer period presided over the ferry committee. He was also for the past thirty years superintendent of the Baptist Sunday-school.

MR. ROBERT NEILL, the well-known Manchester contractor, died at his residence in Higher Broughton, on Sunday, in his 83rd year. Mr. Neill, who was mayor of Manchester for two years in 1866-7 and 1867-8, and high sheriff of Rutland in 1889 (in which county he had a seat near Wing), was a self-made man, being one of a large family of boys, who, in turn, as they grew up emigrated south from Moffat, Dumfriesshire. His first engagement on settling in Manchester was in the workshop of Mrs. Trees, joiner and builder in Strangeways. After occupying for some years the position of a foreman, he began business on his own account in the year 1842. His connection rapidly increasing, numerous additions were made to plant and works until the appliances and engagements of Robert Neill and Sons attained a place among the largest concerns of the kind in England. An early work carried out by the firm which attracted widespread notice from the rapidity of the operations was the erection of the Manchester Jubilee Exhibition of 1887. In 1852 he was elected on the town council as a representative of Cheetham Ward. Ten years later he was made an alderman, and in that capacity rendered conspicuous service to the corporation in its various departments—as chairman of the building and sanitary committee, and also of the cemetery committee, and on many other committees. During his several years of office as a mayor he laid the foundation-stone of the town-hall in Albert-square, of which Mr. Alfred Waterhouse, R.A., is the architect.

ANOTHER great contractor, Mr. GEORGE PEARSON, father of Sir Weetman Pearson, M.P., died on Friday at Brickendonbury, Hertford. He was

founder of the well-known firm of S. Pearson and Son, of Westminster, which had its origin at Scholes, and in former days the deceased resided in Bradford. The firm constructed the line of railway from Laisterdyke to the Lancashire and Yorkshire station at Bradford, which was made for the purpose of connecting with the Great Northern Railway at the Exchange Station. Mr. Pearson was the contractor for the waterworks and the great tunnel for the Bradford Corporation on Thornton Moor. The firm made the waterworks for the Dewsbury and Batley Corporation near Dunford Bridge; they built the Mirfield (L. and Y.) station; they sewered Southport and Tong; and the work of constructing the main sewerage of Ipswich was followed by the construction of the large Bentinck Dock at King's Lynn. Some sixteen years ago Messrs. Pearson and Son established themselves in London. They were largely employed upon work in connection with the docks at Milford Haven, and another big contract was that of the making of the great Mexican Canal, which was a contract of some millions in value. The firm is at present engaged constructing harbour locks at Vera Cruz. They were employed upon the construction of the Madrid and Portugal direct railway. Messrs. Pearson secured the contract for two railway tunnels two-thirds of the distance across the Hudson River, from Jersey to New York. The new Empress Dock at Southampton was another big achievement in the history of the firm. The firm are now working on the Admiralty harbour works at Dover. Six months ago the firm bought large cement works in Essex at a cost of £60,000. One of the large works under consideration is that of the railway in connection with the Great Northern and City Railway in London, which is to be built by a separate company, and the making of a dock and railways at Port Talbot, Glamorganshire, is another work with which the firm has been associated. Mr. Pearson, who was nearly 66 years of age, leaves a widow, three sons, and five daughters.

## CHIPS.

The rural district council of Tamworth have raised the salary of their surveyor, Mr. H. J. Clarson, to £400 per annum.

The fifteenth annual exhibition of the work done in the classes of the Home Arts and Industries Association will be held from May 1 to 15, in the gallery of the Royal Albert Hall. There will be exhibits from a large number of classes throughout the United Kingdom. The exhibition will include wood-carving, inlay, metal repoussé, embossed leather, spinning and weaving, and many other applied arts.

The contract for the county police buildings which are now being erected at Birkenhead has been let to Mr. P. McLachlan, whose tender was the lowest. The building will be erected of local stone, with red sandstone designs. The design is from the office of Mr. T. Taliesin Rees, A.R.I.B.A., which was selected in open competition.

The clergy and churchwardens of Dromore Cathedral, which is also the parish church, are appealing for subscriptions towards its enlargement, as also for the repair and renovation of the school buildings, for which purpose £1,300 is needed—£1,200 for cathedral, £100 (possibly more) for schoolhouse. The cathedral church of Christ the Redeemer was rebuilt in 1661 by Bishop Jeremy Taylor, whose remains, as also those of Bishop Percy, are interred in its vaults.

Mr. Ernest Crofts, A.R.A., has nearly completed his painting representing the opening of the Royal Exchange, which is to be placed by the Mercers' Company in one of the vacant panels of the ambulatory of that building.

A furniture repository has just been erected by Messrs. John Morton and Son, in Lincoln-street, Foleshill-road, Coventry. The building is of red brick, two stories high. It has a frontage of 70ft., and a depth of 150ft. The architect was Mr. T. W. Whitley, Coventry, and the builders were Messrs. J. Isaac and Sons, Foleshill.

A Sailors' Bethel on Battery-green, close to the fish markets, at Lowestoft, was opened on Thursday in last week. The buildings, which are of red brick, comprise a chapel 72ft. 6in. long by 36ft. wide, a schoolroom 35ft. by 20ft., with reading-room 20ft. by 15ft., and a room measuring 20ft. by 12ft. for small meetings. There is a large kitchen and lavatory. Accommodation is provided for 900 people. The heating is by hot-water apparatus. The cost of the building and land is about £4,420. Mr. F. W. Richards, of Lowestoft, was the architect, and Mr. C. R. Cole, of the same town, the builder.



## Building Intelligence.

**BELFAST.**—The foundation stones of St. Michael's Church were laid on Saturday in Craven-street, off Shankill-road. The cost of the entire structure when completed will be about £3,300. The dimensions will be 104ft. by 74ft. The church will accommodate between 700 and 800 people, while the plans provide for the erection of a gallery, which would seat about 150 more. The style is Gothic, and the material used in the walls is perforated brick, with Dumfries red sandstone dressings. The inside columns are to be of white Bath stone, and all the internal woodwork will be of pitchpine. The builder is Mr. James Kidd, and the architect Mr. Samuel P. Close, both of Belfast.

**BIRMINGHAM.**—The Imperial Theatre, erected from plans by Messrs. Owen and Ward, of Birmingham, is approaching completion. The building has two frontages, one to High-street, of 104ft., and the other to Clyde-street, 134ft. There are arranged twelve exits from the various parts of the house, and each section of the building has at least two fireproof staircases. The grand hall leading to circle and stalls is 25ft. by 20ft., with staircases on both sides leading to the dress-circle. The domed ceiling of the hall will be decorated with hand-painted panels illustrative of Shakespeare's works, the walls will be lined with marble in parti-colours, and the floors paved with marble mosaic. The interior accommodation is classified into orchestra and pit stalls, pit, dress circle, balcony, and gallery, together with six private boxes, and will seat 2,500 persons. The auditorium is 69ft. by 65ft., and the stage is 69ft. by 40ft. The gridiron will be 50ft. above stage level. A green-room has been provided, and also dressing-rooms for both sexes. Both gas and electricity will be employed for lighting purposes throughout. The interior decorations will be principally of fibrous plaster in the Renaissance style, the prevailing colours being cream, blue, and gold; whilst the draperies and upholstery will be in old gold silk. The elevation to High-street is in red Ruabon brick, with buff terracotta dressings by Messrs. Doulton and Co., the two extreme angles being surmounted by square towers, finished with steep roofs, whilst a gabled pediment rises above the central entrance. The circle and gallery are supported on steel cantilevers, thus avoiding any obstruction in the shape of iron columns, &c. There will be a fireproof curtain to the proscenium opening.

**EDINBURGH.**—At the last Dean of Guild Court a warrant was granted to Brighton-street E.U. Congregational Church Trustees to take down houses and erect a chapel at 1 to 4A, Bristo-place. The building, which will be Early Renaissance in style, and will recall certain features of the old Tron Church, is expected to cost about £3,000. The frontage will be to Bristo-place, and the church proper will be on the first floor, which will be reached by a wide staircase. It will be seated to hold 510 people, and there will be galleries at the two sides, besides an organ-loft. On the ground floor will be a hall, which will accommodate 170 people. There will also be a classroom and a vestry, and the remainder of the frontage of the site will be used for shops. The basement floor will contain a luncheon-room, a ladies' room, and offices. The front is to be divided into four bays, panelled with fluted pilasters, which will carry Ionic caps. Three-light windows will be inserted with semi-circular heads, and these will be filled in with tracery of the period. The front of the building will be accentuated by a gable, in the centre of which will be a rose window. Red polished stone will be used. The heating will be by hot pipes, and the building will be lit by electricity, the ventilation being by an electric fan. The architects are Messrs. Sydney Mitchell and Wilson, Edinburgh.

**HANDFORTH, CHESTER.**—On the 3rd inst. the new parish church of St. Chad, Handforth, was consecrated by the Bishop of Chester. The new building takes the place of a church built about 50 years ago, and found to be unsuited to the present requirements of the parish. The style of the new church is 15th Century, with modern detail. The walls are faced with red brick, with Alderley stone dressings to windows, doorways, and buttresses. The roof is covered with Staffordshire tiles of a dark brown colour. The interior woodwork, including the open-timbered

roof, is of pitch-pine. The accommodation is for 300, and the total cost about £4,000. Mr. Thomas Browne, of Chester, is the builder, and the work throughout has been carried out from the designs of Mr. John Brooke, A.R.I.B.A., of Manchester.

**LEVENSHULME.**—The new offices of the urban district council in Stockport-road, Levenshulme, were opened on Friday. The building has a frontage of 75ft. to Stockport-road, the front being of Ruabon brick, with Derbyshire stone dressings. A 10ft. wide entrance opens upon an octagon hall, which is 15ft. across. The council chamber and all the offices—including accommodation for the clerk, the surveyor, overseers, and sanitary inspector—and also a committee-room, are reached from this hall, and behind are the caretaker's house, the stables, sheds, and a town's yard. A wide staircase leads to a public hall, 72ft. by 40ft., provided with two retiring-rooms. The electric light is installed throughout. The building was designed by the council's surveyor, Mr. James Jepson, of Stockport, and the total cost has been about £6,000.

**MIDDLESBROUGH.**—New premises for the Co-operative Society in Linthorpe-road, Clifton-street, and Pelham-street were opened on Friday. They cover an area of 6,573sq. ft. The main frontage of 87½ft. is into Linthorpe-road, and is divided into four large shops. The corner shop is occupied by the grocery department, by the drapery, shoes, and butchery departments. The three first named have a depth of 52ft., the walls and ceilings are of pitch-pine, and the floors are laid with wood blocks in cement concrete. The butcher's shop has a depth of 45ft., has a high dado of glazed tiles, and the upper part is faced with white glazed bricks. The floor in this shop is of cement concrete. The height of the ground floor story is 14ft. Immediately to the rear of the shop is a carriage-way, 14ft. wide, with the entrance in Clifton-street, and an exit into the back passage leading direct into Pelham-street. On one side of this carriage-way is a raised platform, 40ft. by 6ft., upon which goods are delivered ready for putting by lift into the various warehouses. The cellar for the grocery department is 48ft. by 40ft. Adjoining this, but at the ground-floor level is a drapery warehouse, 40ft. by 12½ft., a boot warehouse, 29ft. by 12½ft., and a grocery warehouse, 48ft. by 40ft. On the first floor are the showrooms, 51ft. by 48ft., and 44ft. by 17ft. respectively. On the second floor is a public hall, 67½ft. by 52ft., with retiring rooms. The three street elevations are faced throughout with the Accrington red pressed bricks, and the dressings are of stone, with a small amount of terracotta. The architect is Councillor W. G. Roberts, of Albert-road, Middlesbrough. The contractors were:—Excavating, bricklaying, masonry, &c., Messrs. W. and H. Pounder, Middlesbrough; plastering and cement concrete work, Mr. J. R. Smiles, Middlesbrough; carpentry and joinery, Mr. W. Thompson, Middlesbrough; slating, Mr. J. Harrison, Middlesbrough; plumbing, glazing, and gasfitting, Messrs. Baker Bros., Middlesbrough; and painting, Mr. J. H. Hill, Middlesbrough. An installation for electric light and power has been put in, capable of running 800-light candle-power lamps.

**MURRAYFIELD, EDINBURGH.**—On Saturday the Scottish Episcopal Church of the Good Shepherd, Murrayfield-avenue, was consecrated by Bishop Dowden. The church at present consists merely of nave and chancel, with vestries, &c. Ultimately a north aisle and organ transept will be added, and a square tower will be carried up over the vestry. The nave is treated with the utmost simplicity, and consists of five bays with plain barrel wood roof. On the north side is the arcade to the future aisle. The pulpit is in the north-east corner of the nave, and is of oak, with linen fold-paneling on the wall behind. The reredos, reaching 15ft. up from the floor, is in the form of a triptych, the centre panel being carried up above the rest. It is surrounded by a pierced and carved frame, with the dove in a halo of rays at the apex, flanked on each side by angelic figures. At the sides are green stamped velvet wings hanging from iron rods. In the centre light of the east window is the Crucifixion. The background is filled with diapered lattice glass. The heads of the sidelights contain the sacred initials on crowned shields within wreaths. At the base of the window are four crowned shields with the symbols of the Passion. Mr. R. S. Lorimer, of Edinburgh, is the architect.

**YORK.**—In his annual report the building in-

spector states that in the west division of the city there has, during 1898, been a small increase in the total number of dwelling-houses completed, but the number of better-class dwelling-houses far exceeds that of previous years. There has been a good demand both for purchase and occupation. The districts where the better-class dwellings have been built are Scarcroft and Holgate. Of the cottage class a large number have been built in the Leeman-road district. Upon the new estate recently opened out on Bishopthorpe-road great activity is being displayed, and the demand for the smaller class of houses is great. The North-Eastern Railway Company have built large additions to the workshops at Holgate, which will provide room for the employment of several hundred additional workmen. On the east side of the city 265 dwelling-houses, mostly of the small and middle class, have been built. Plans have been approved for new streets on Fulford-road, Hall-road, Haxby-road, Huntingdon-road, Heworth, Park-grove, and Burton Stone-lane. Many large additions and alterations have also been made to business and other premises.

### CHIPS.

At Stirling, on Saturday, new co-operative premises in King's-street, erected from designs by Messrs. McLuckie and Walker, were formally opened.

At the Royal Pavilion, Brighton, on Wednesday week, Colonel J. T. Marsh, R.E., held an inquiry on behalf of the Local Government Board with reference to the application of the town council for sanction to borrow £15,000 for works of street improvement.

A pavilion is being built in the Nevill Athletic Ground at Tunbridge Wells. The structure is of half-timber on a foundation of brickwork and is tiled, the dimensions are 38ft. by 20ft. Mr. C. H. Strange, A.R.I.B.A., is the architect, and Messrs. Strange and Sons, of the same town, are the builders.

Mr. Robert H. Reed, the borough surveyor of Lostwithiel, has secured an appointment as superintendent of the building of new wings to the Hampshire County Asylum, at Knowle, near Fareham, now about to be carried out at a cost of £26,000.

A Jubilee clock, having three 8ft. dials, has been placed on the tower of the parish church of Ecclestone. It was constructed by Messrs. J. B. Joyce and Co., of Whitechurch, Salop.

In our notice last week, p. 321, of the New Year Book of the Society of Architects, one of the recently formed committees was described by a printer's error as having for its object the testing of "methods," in place of "materials."

Within the past three months a notable improvement has been carried out by the Epping Forest Committee of the City Corporation. What was formerly known as "the hollow pond" has been excavated, while the swamps surrounding it have been cleared, and the space obtained added to the lake itself. In consequence, the lake now extends to close upon five acres, and artificial islands have been formed at various points.

Mr. F. W. Stevens, C.I.E., F.R.I.B.A., &c., has been appointed arbitrator under the Municipal Act by H.E. the Governor of Bombay, with the concurrence of the corporation, to fix the ratable value of buildings and lands in the city of Bombay vesting in her Majesty and beneficially occupied.

A two-storied ward block is being added to the Royal South Hants Infirmary at Southampton, and will be opened in the autumn. It will contain two wards of 25 beds each, two single-bedded receiving wards, ward kitchens, &c. Adjoining it a new mortuary with post-mortem room and students' museum is in course of erection. Messrs. Playfair and Toole, of Southampton, are the builders, having taken the contracts at £9,680 for the ward block, and £1,400 for the mortuary.

The Co-operative Society's premises at Thetford, erected fifteen years ago, have just been enlarged. A house adjoining the store has been pulled down, and on its site has been erected a shop 50ft. long by 27ft. wide, with a room above of the same dimensions. There is now a total shop-frontage of 49ft. The plans and specifications were prepared by Mr. J. Osborne Smith, F.R.I.B.A., of London, and the work has been carried out by Messrs. E. Willmott and Sons, of Cambridge, at a cost of about £1,300.

At the Public Offices, Grassendale, Colonel A. J. Hepper, D.S.O., R.E., an inspector of the Local Government Board, has held an inquiry into the application of the Garston Urban District Council for sanction to borrow £1,000 for works of sewerage at Mossley Hill, where Messrs. Roberts and Co., Liverpool, are making great developments, and it is expected that 500 or 600 houses will be erected at an early date.



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## ILLUSTRATIONS.

THE CROWN THEATRE, FULHAM.—ST. MARY'S CHURCH, STRETTON-CUM-WETMORE.—NEW COTTAGE HOMES AT STYAL, CHESHIRE.—NEW TOWER AND SPIRE, ST. PETER'S CHURCH, ANDERLECHT.—DRAWING AND DINING-ROOM, XXVIII. WOBURN PLACE.—OAK SCREEN IN YORK MINSTER.—UNITED METHODIST FREE CHURCH, ARMLEY.

## Our Illustrations.

## THE CROWN THEATRE, PECKHAM.

WE published a perspective view of this important addition to the playhouses of London in the BUILDING NEWS for April 29, 1898, when we gave a plan of the building. The great feature of the arrangement is the unusual width of the stage, which is 140ft., so contrived as to lend itself to spectacular effects. The saloons have been well-arranged, and the decorations are of a thoroughly substantial and handsome kind. The retiring and dressing-rooms are hygienic and ample. Mr. Edwin O. Sachs has written a descriptive account of the work, of which, as an authority on theatres, he entirely approves. He says that the exterior, treated in a style of the Spanish Renaissance, he considers admirably adapted to the purposes of such a building, while the materials, i.e., brick and terracotta, are equally suitable. He warmly refers to the decorations, which embody suitable references to the name borne by the establishment—viz., the "Crown" Theatre. We give to-day Mr. Charles Buchel's four panels representing the colonies "India," "Africa," "Australia," and "Canada." The same artist painted the frieze over the proscenium of the house, as well as the spandrels illustrating "Art," "Music," "Drama," and "Poetry." The general interior photographic view shown on our plate gives the grand circle foyer, from a silver print by Messrs. Bolas and Co. Messrs. Dennett and Ingle did the constructional ironwork, the terracotta was made by Messrs. Doulton and Co., Messrs. Strode and Co. provided the electrical installation, and Messrs. G. Jackson and Sons the plastic decoration. Mr. Ernest Runtz, F.R.I.B.A., is the architect; Messrs. Colls and Son were the builders.

## ST. MARY'S CHURCH, STRETTON-CUM-WETMORE.

THE church of St. Mary at Stretton, consecrated in November, 1897, is one of the few modern churches which have been completed in furniture and decoration under the direction of the architects. It is the gift of Mr. John Gretton to his native parish, and replaces a very poor building, which, though only about sixty years old, was already worn out. On the site of its altar there now stands a tall churchyard cross, with a suitable inscription. The new church is built on an extension of the churchyard, a little to the north-east of the old one, and, being on a slightly rising ground in a generally flat country, is conspicuous for miles round. The church is entirely of ashlar, the outside is of Stanton stone, very hard and durable, and the inside of Runcorn. The upper roofs are covered with tiles, and the lower with

copper, and the down-pipes of cast lead are made a feature in the design. All the roofs are ceiled, and decorated with painting. The east window and those north and south of the sanctuary have painted glass, and the architects consider that more than this is not wanted. The other windows have white glass, a little ornament being used in the leading. The font, which forms one of the illustrations, shows the character of the furniture. The font and steps are of Frosterly marble, and the cover of dark oak, as also are the screens, chancel fittings, pews, and other joiners' work. The organ has a richly-carved case, which projects into the chancel from a gallery above the choir vestry; the front pipes are gilt. The instrument is played from a console in the south chapel. The church is lighted by oil-lamps hung from the roof. The altars have costly furniture. The intention has been that everything should be of the best, and many men have contributed to make it so. The contract work is by Mr. Halliday, of Stamford; the oak furniture by Mr. J. E. Knox; the stone carving by Mr. Bridgeman, of Lichfield; the painted decoration by Mr. Charles Powell; the more important metalwork by Messrs. Barkentin and Krall; the marble-work by Messrs. Farmer and Brindley; the curtains by Messrs. Morris and Co.; and the embroidered work by Messrs. Watts and Co. Mr. Roscoe Mullins has done statues of the patron saint and of St. Chad, and the stained glass is by Sir William Richmond. The church is seated for 280 people, and it has cost about £32,000. The architects are Messrs. J. T. Micklethwaite and Somers Clarke.

## COTTAGE HOMES, STYAL, CHESHIRE.

THE group of buildings herewith illustrated has been erected for the Chorlton Union. It comprises a lodge at entrance, which is used as a quarantine station, homes to accommodate 20 children in each, Kindergarten school, workshops, bakehouse, swimming bath, &c. (in the rear of the site), a hospital built for 16 beds, with accommodation for nursing staff, superintendent's house, and boardroom. The large school, of which a view is shown in the corner of our plate, is situated about half a mile from the homes, and will eventually be attended by the village children. The works were commenced in the spring of 1896, and opened at the beginning of October last, the amount of the contract being rather over £50,000. The homes at present provide accommodation for 310 children, but the offices and school are built for an ultimate population of from 500 to 600. Mr. James B. Broadbent, A.R.I.B.A., of Manchester, is the architect.

## NEW TOWER AND SPIRE, ST. PETER'S CHURCH, ANDERLECHT.

THE collegiate church of St. Peter, at Anderlecht, a suburb of Brussels, was commenced in 1470 and consecrated in 1482. On September 19, 1898, the new stone tower and spire, shown in our illustration, were inaugurated, having been completed from the designs and under the superintendence of M. J. J. Van Ysendyck, architect, 109, Rue Berckmans, Brussels.

## TWO CHIMNEYPICES.

THE sketches we publish to-day are of two chimneypieces designed by Mr. H. Percy Adams. One has a specially-designed faience stove, and the chimneypiece and all the surrounding panelling and woodwork are painted a dull green. There is a small painted glass window on either side of ingle nook, the one on the north representing the wind, and the one on the south representing the sun. They were designed by Mr. Wilson, and executed by Messrs. Simpson, and are of a yellowish-brown tone. The chimneypiece, with dog-grate, as well as all the panelling, cosy corner, and cabinet, were executed in American white wood, with polished mahogany shelves, and all except the upper part of shelves is enamelled cream white. The paper is a dull grey-green, designed by Mr. Walter Crane, and the frieze was all modelled *in situ* by Messrs. Elmes, and represents music, and is coloured a warm cream colour, and is about 4in. in relief. The lighting of this room is from 12c.p. electric lamps fitted into the ornamental plasterwork of the ceiling.

## SCREEN IN YORK MINSTER.

THIS screen is next the choir, but not in a very good position to be seen. It has been very well executed, and is in a very good state of preservation, being almost entire. The drawing given is by Mr. J. Douglas Trail, of Edinburgh.

## THE "SCOTSMAN" BUILDINGS, EDINBURGH, N.B.

IN connection with the extensive scheme of municipal improvement which is being given effect to in Edinburgh, a notable change is being made in several historic districts, which will contribute much to enhance the appearance of the city. Part of this scheme involved the building of a new bridge spanning the valley which divides the old town and the new, and to meet the requirements of a wider bridge, the municipality has, under rights granted by Parliament, bought up the property on both sides of the street forming the connection between the old town and the new bridge. The cost to the corporation was close on £350,000. Both sides of the street were recently exposed for sale, and the west side was purchased by the proprietors of the *Scotsman* for £120,000, the east side being purchased partly by the Commercial Bank of Scotland, and partly by Mr. John White as a speculation. The illustration in last week's issue showed the frontage overlooking the Princes-street valley. The foundations of the main building are on the level of Market-street, 60ft. below the level of North Bridge. At Market-street the frontage is over 250ft., in front of which is the Waverley Station. The whole of the street at the low level will be excavated 35ft. to the railway level. This will permit of the railway lines being run direct to the stores under the street level for the delivery of paper, machinery, &c. These stores have an area of over 20,000sq.ft. On the ground floor at Market-street level there will be the machinery hall, stereotyping and mailing rooms, occupying an area of over one-third of an acre. The floor above is occupied by the Linotype composing room. On this floor accommodation is found for the artists employed, and a matrix room, where the papier-mâché matrices will be prepared from the finished pages previous to being passed down to the stereotypers on the floor immediately beneath. Above the composing room come the editorial rooms of the *Scotsman*, the *Evening Dispatch*, and the *Weekly Scotsman*, and a large library and reference room. Above these again, on the fourth story, are the editorial rooms of the *Scotsman*. The fifth floor opens on the North Bridge, one of the principal arteries of this city. On this level are located the commercial and managing departments of the establishment, in immediate touch with the public, and with a commanding outlook towards Princes-street. On this frontage will be arranged the advertising office, an apartment with an area of 2,800sq.ft., with a height of nearly 30ft., with galleries running round the four sides. The remaining stories above the North Bridge level, of which there will be five, will be fitted up as offices, and can at any future period be absorbed for the requirements of the newspapers. The plans of the whole of the west side are being prepared by Messrs. Dunn and Findlay, architects, Edinburgh. The total cost will be close on £500,000, including the site.

\* \* THE photographic processes of reproduction are now so available that we venture to suggest that in many cases it is hardly worth while to send us drawings for reproduction. For measured work, for details, competitions, and the like, the services of the draughtsman will, of course, always be indispensable; but for average executed buildings, statuary, furniture, &c., a photograph is frequently in every respect as useful; and as, generally speaking, it would occupy less space, we should be able to give more subjects—especially in cases where the indifference of the drawing not infrequently influences the rejection—of churches, chapels, villas, &c.

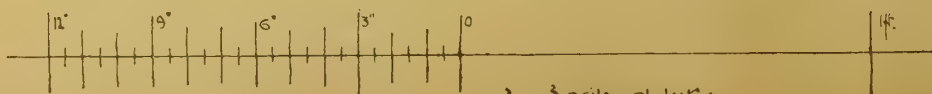
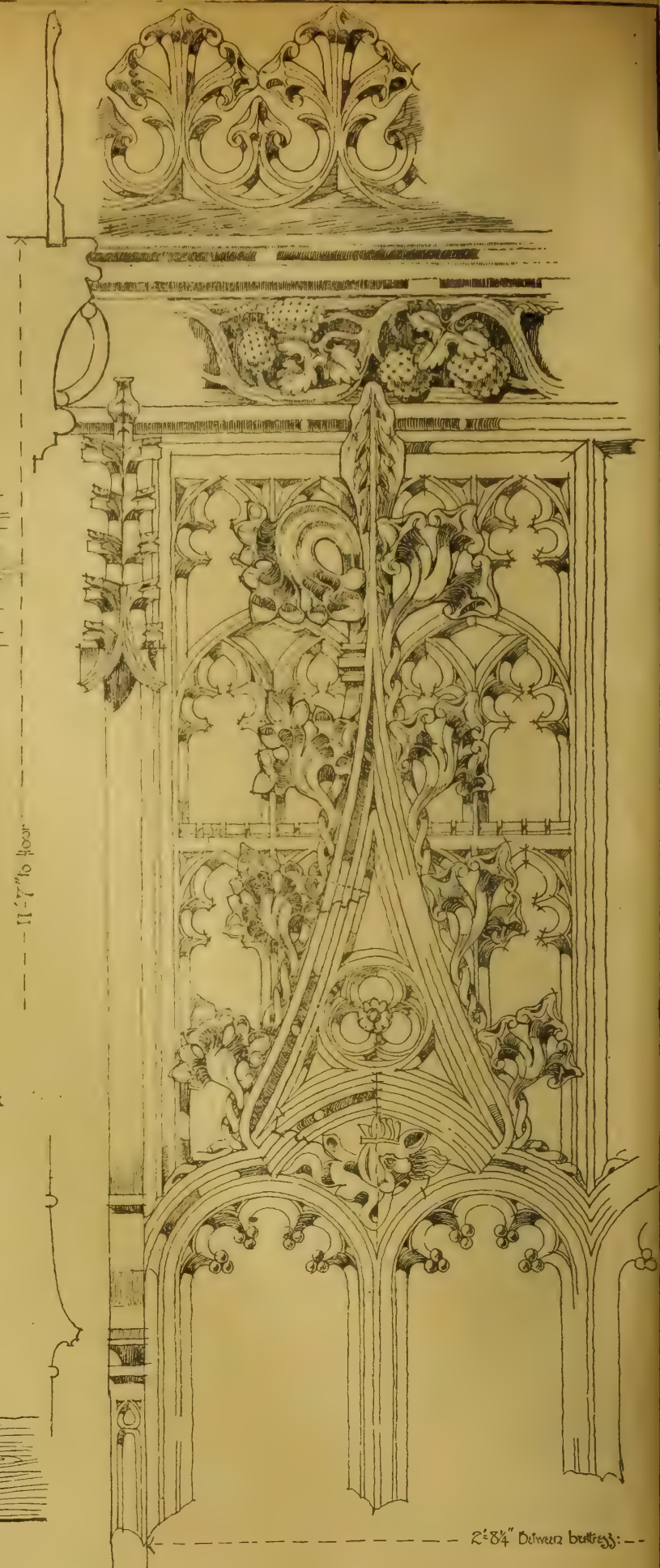
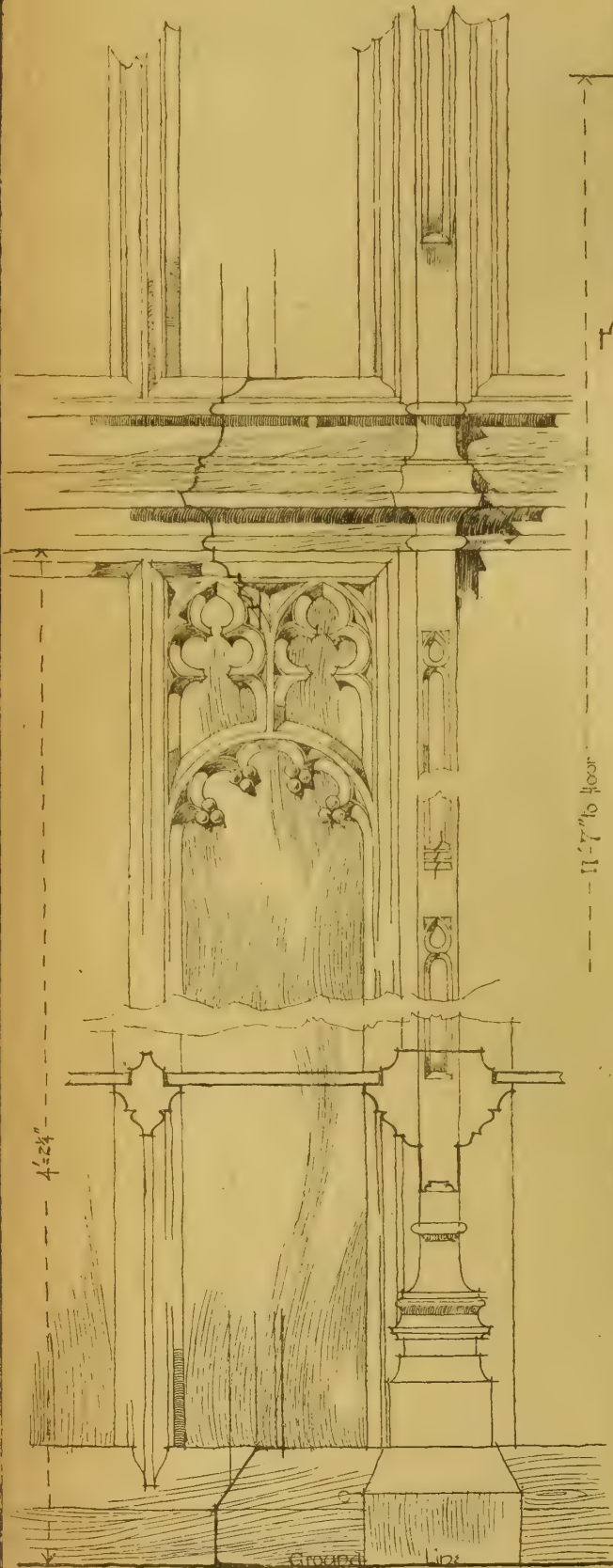
## ROYAL ACADEMY ARCHITECTURAL DRAWINGS, 1899.

THE days for sending in drawings and paintings this year have been fixed for March 24 and 25, the last day being Monday, the 27th. Sculpture will be received on the 28th.

Our friends and contributors who are willing to allow us to reproduce their drawings before they are sent to Burlington House, so that their works may be included in our series of illustrations from the Royal Academy Exhibition, to be published after the opening day, are invited to let us have them as soon as convenient for this purpose. We will return the drawings quickly, or, if desired, we are willing to forward them to the Academy direct, provided the necessary labels and letters to the Secretary are attached; and we will do this free of charge.



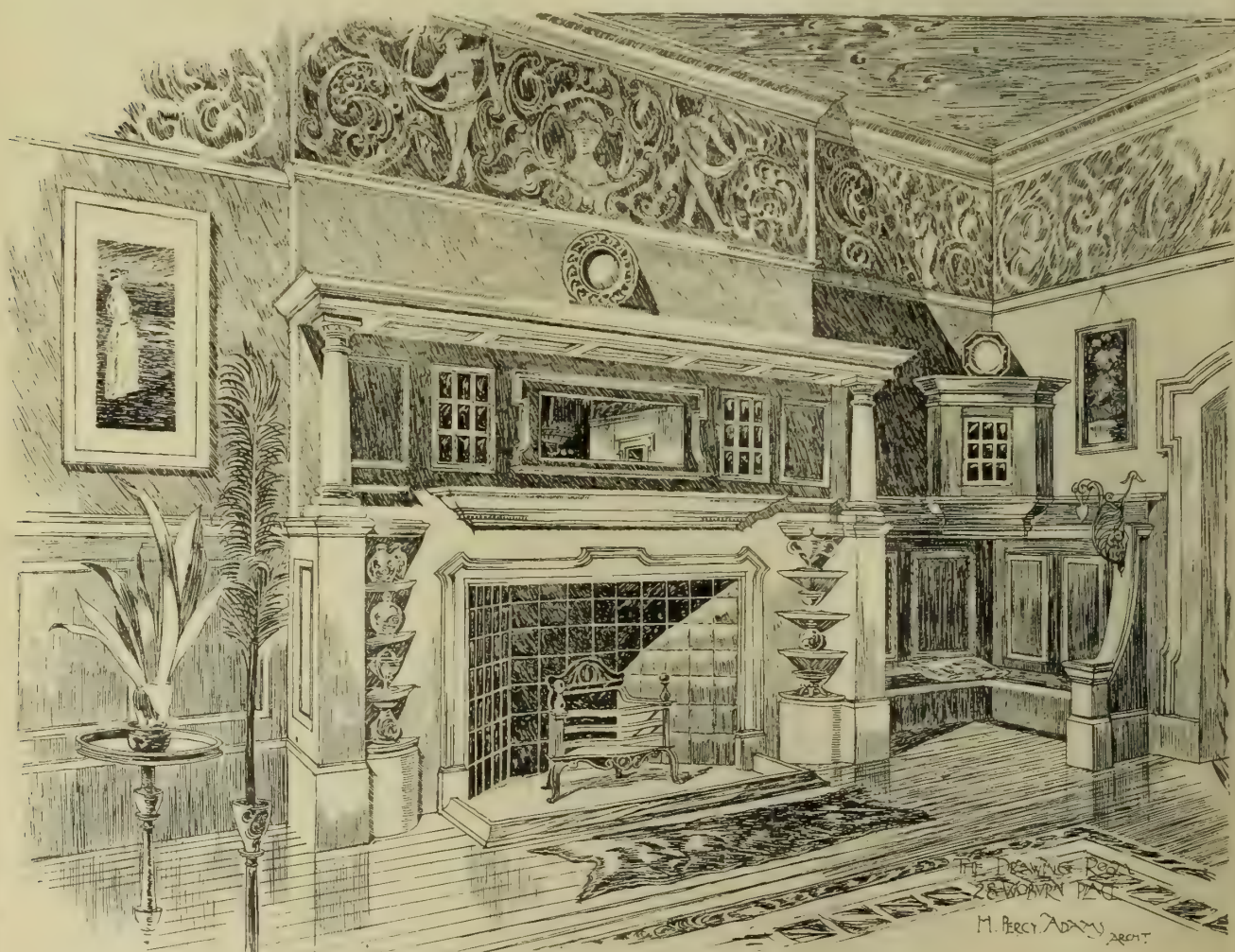
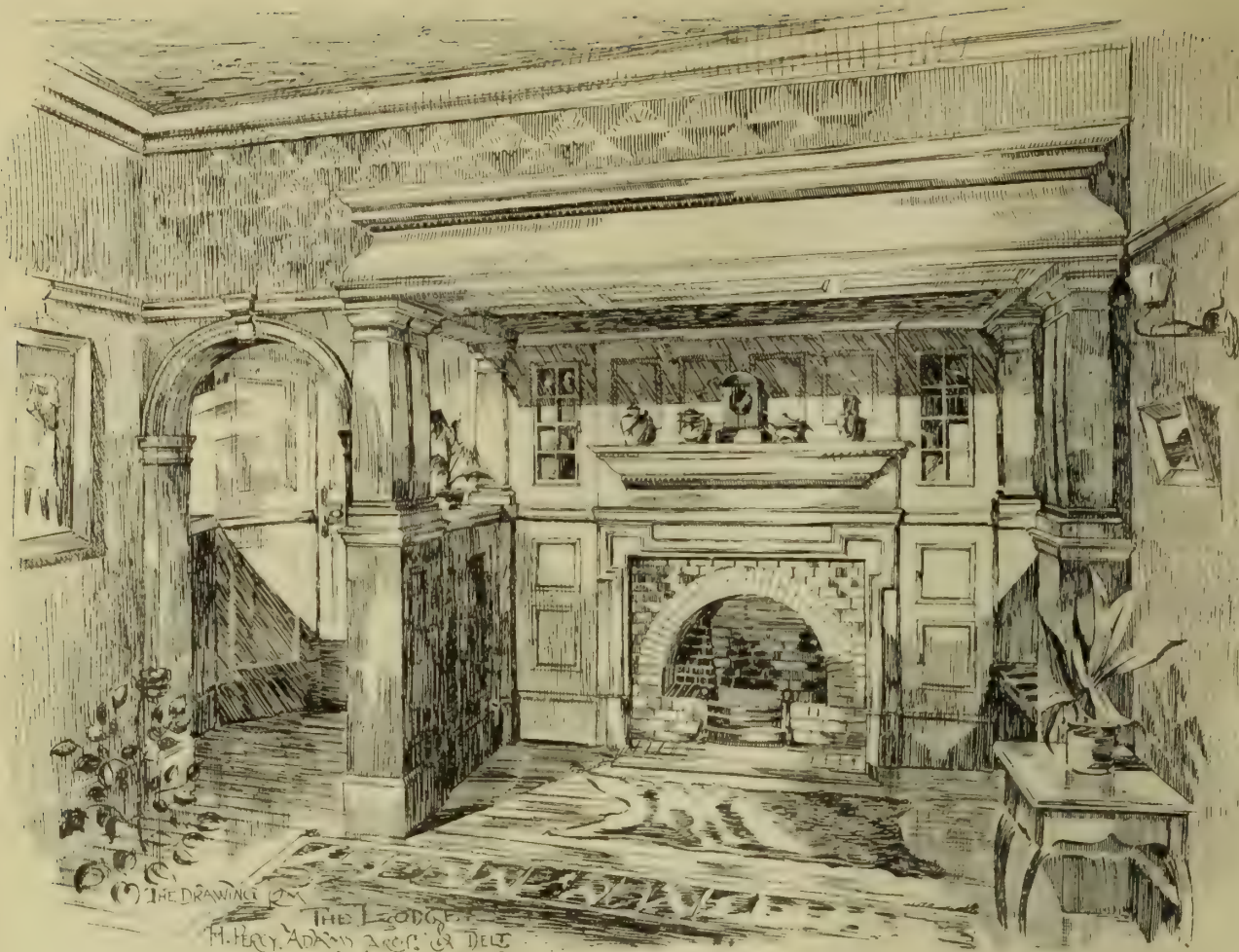
Oak Screen in York:  
 Master:: Details  
 J. Douglas Trail: May 1893















NEW TOWER AND SPIRE, ST. PETER'S CHURCH, ANDERLECHT.

L. J. VAN YSENDYCK, ARCHITECT.

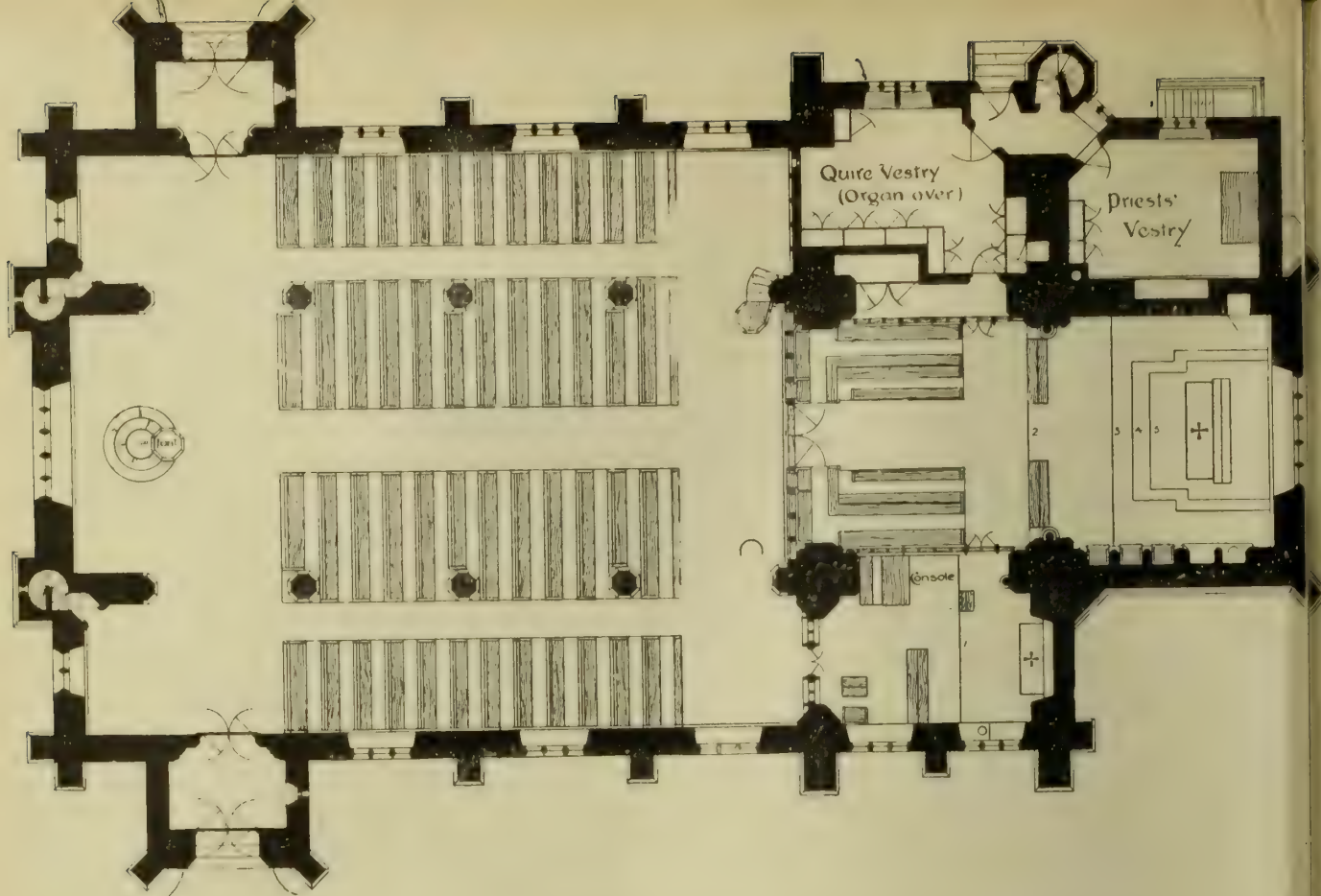












ST. MARY'S CHURCH,  
J. T. MICKLETHWAITE





RETTON-CUM-WETMORE.

OMERS CLARKE, ARCHITECTS.

















CROWN THEATRE, PECKHAM.

GRAND CIRCLE FOYER.

ERNEST RUNTZ, ARCHITECT.  
DECORATIVE PANELS EMBLEMATIC OF COLONIES.





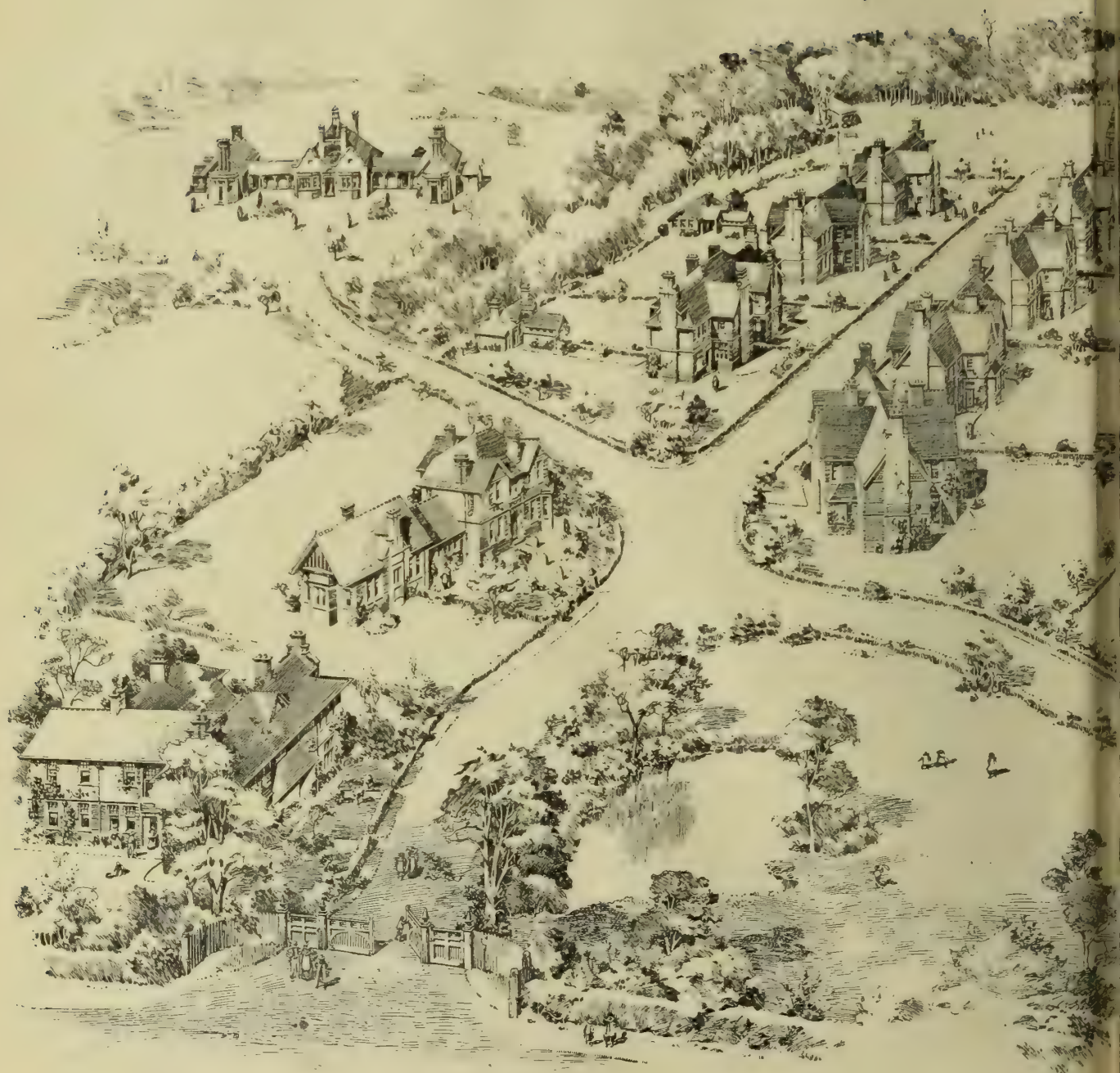






# NEW COTTAGE HOMES AT STYAL, CHESHIRE, FOR THE GUARDIANS OF THE CHORLTON UNION

JAMES D. PROBERT, A.R.C.A., ARCHITECT, 10, COVENTRY ST., LONDON, W.





MARCH 10, 1899.

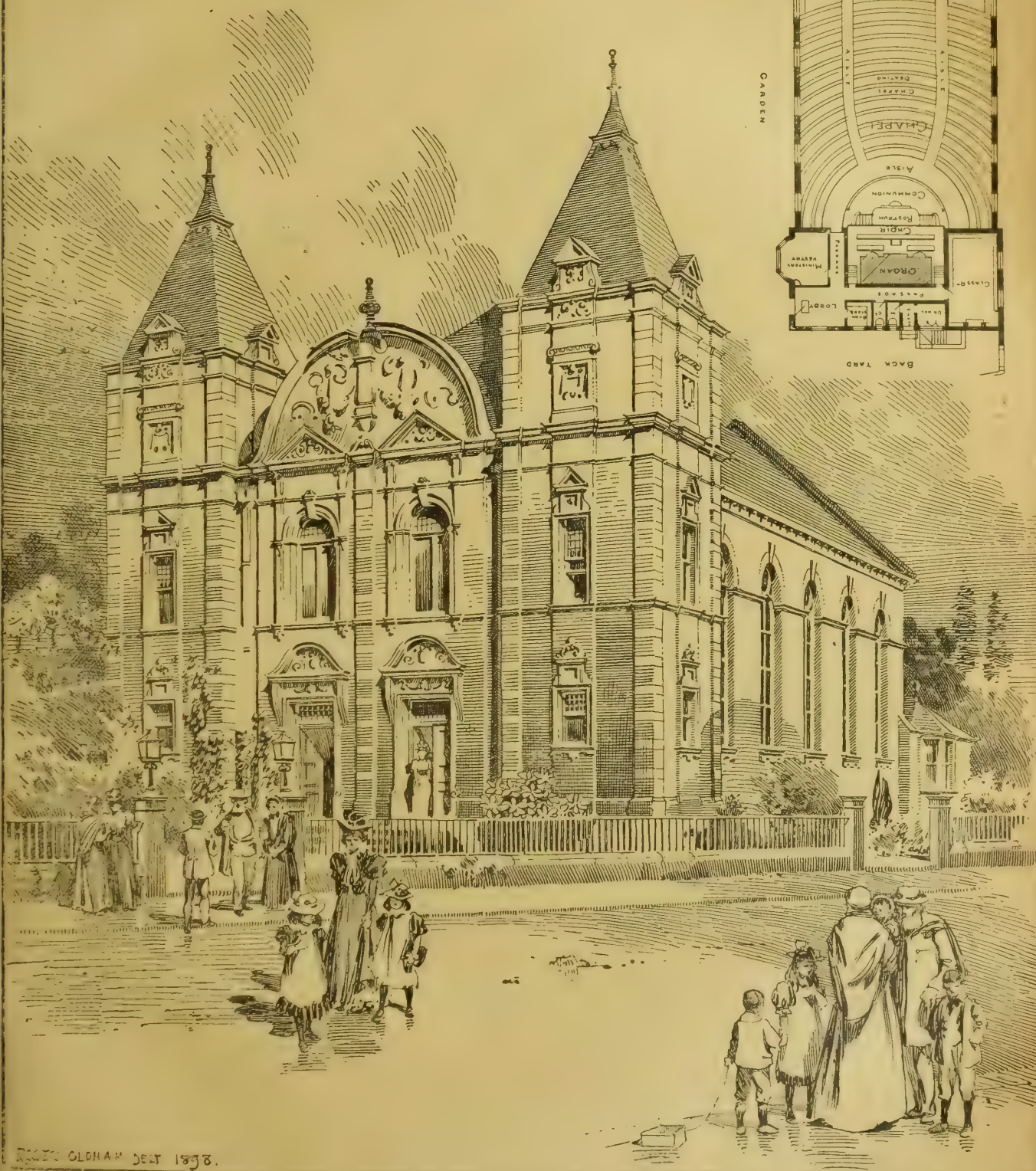








## UNITED METHODIST FREE CHURCH — ARMLEY.

WALTER HANSTOCK & SON  
ARCHITECTS

ROBIN OLIPHANT DELT 1898.

UNITED METHODIST FREE CHURCH,  
ARMLEY.

**T**HIS building, at Armley, Leeds, is intended to be built in Leeds red pressed facing bricks, with Park Spring ashlar dressings. The roofs are intended to be covered with best quality blue slating. The internal fittings are to be in pitch-pine and mahogany, and the ceilings and walls are in fibrous plaster decorations and plain filling. The size of the chapel is 57ft. by 41ft. and 26ft. high. It has a spacious organ chamber, large classroom, ministers' vestry, back entrance, with necessary conveniences. The only accommodation provided for in the way of gallery is at the end

over the front vestry, with two stairs constructed in the corner tower. The whole of the works have been recently let and the work is in hand. The total cost, including all decorations and fittings, engineering, &c., will be £2,653, exclusive of land. Messrs. Walter Hanstock and Son are the architects.

The Baptist chapel at Warboys, Hunts, was opened on Thursday in last week, after reconstruction from plans by Mr. Frederick G. Faunch, of Ilford, Essex. It is now 13th Century in style, and is faced with red brick and stone dressings. Messrs. G. Page and Son, of Buckden, Hunts, were the builders.

The West Lancashire Rural District Council have appointed Mr. John Orloff, at present surveyor to the Southport Highway Board, about to be dissolved, as surveyor to the Southport district, and Mr. William Banks as surveyor for the Tarleton district.

New board schools, including the provision of a swimming-bath, are about to be built at Long Eaton, from plans by Mr. E. R. Ridgway, of that town.

The additions to the Fever Hospital, Bolton, are being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke-flues, Shorland's patent exhaust roof ventilators and inlet panels.



## Engineering Notes.

**MERSEY DOCK IMPROVEMENTS.**—The Mersey Docks and Harbour Board have, after two prolonged debates, adopted recommendations of the works committee as to carrying out (at an estimated cost of £885,335) certain of the great works provided for in the Act obtained last year, the borrowing powers under which approximate to five millions. The instalment now to be proceeded with comprises the construction of a new branch of the Huskisson Dock, with double-story flat-roofed sheds (capable of being converted into three or four-story sheds if necessary) on the north and south sides, at an estimated cost of £482,782; the construction of a graving dock, 1,000ft. long and 95ft. entrance, to the south of the above-mentioned branch dock, and to cost £202,813; and the provision of a new quay on the north side of the Sandor dock, in connection with the foregoing works, with a two-story flat-roofed shed, at a cost of £199,738. The committee also advised some variation in the scheme for the New Queen's graving dock, 630ft. long and 80ft. wide at entrance. The controversy at the board has been almost entirely devoted to the sheds. While the committee advised two-story flat-roofed sheds, on the top of which cranes could work, some members advocated three stories and others four stories. The scheme as adopted will give 32 acres of shed space, and will be capable of accommodating 160,000 bales of cotton or 160,000 tons of grain at one time. The addition of more stories was advocated on the plea that it would afford more room for sorting cargo, while it was contended that the flat-roofed system, with its stores and cranes, involved darkness for the room below. An amendment in favour of an experimental three-story block of sheds was defeated by 16 votes to six, and the committee's scheme was adopted. The sheds are not to be warehouses, but temporary repositories for goods in transit.

Additions have been made to the joint infectious diseases hospital at Bucknall, near Stoke-on-Trent, at a cost of £5,170. Mr. Elijah Jones, M.S.A., Albion-street, Hanley, was the architect.

M. Sedelmeyer has presented to the Louvre Gallery in Paris a portrait of Lamartine, by the English painter Henry Wyndham Phillips. The portrait has been hung in the English Gallery.

The urban district council of Connah's Quay have adopted plans for draining the town prepared by Mr. Beloe, C.E., of Liverpool. The estimated outlay is £6,000.

The parish church of West Stafford, Dorset, has just been enlarged by an eastern extension, and the older portion of the fabric has been restored. Mr. C. E. Ponting, F.S.A., of Marlborough, was the architect, and Mr. Haskings, of Hungerford, the builder. Within the chancel under a window just filled with stained glass, representing the Resurrection, the work of Messrs. Burlison and Grylls, of London, a memorial tomb of the late rector, the Rev. Canon Reginald Smith, bearing a recumbent figure of the deceased, has been erected. It has been executed by Messrs. Harry Hems and Sons, of Exeter.

The Light Railway Commissioners held an inquiry at the town-hall, Bilton, on Friday, respecting an application of the British Electric Traction Company as to the construction of light railways in South Staffordshire, including Bilton, Willenhall, and Darlaston.

At Edgbaston, Birmingham, thirteen villa residences are in course of erection. Each house has three reception-rooms, large kitchen, &c., seven bedrooms, bath-room, linen-closet, and all the conveniences required in a superior class of house. At Sheldon, about five miles from Birmingham, six commodious villas have been completed. At Knowle, about nine miles from that city, a number of conveniently-arranged cottages are being erected, to open up a building estate of about six acres in extent. All the buildings are Gothic in style, and are being erected by various contractors. The architect for the whole of these erections is Mr. John Statham Davis, of Cobden Buildings, Corporation-street, Birmingham.

Mr. Justice Lawrance, on Tuesday, unveiled a stained-glass window erected in York Minster as a memorial of the late Sir Frank Lockwood, who represented the city in Parliament for 12 years. The memorial represents the figure of St. Paul, and is a reproduction of a window which, according to "Torr's Manuscript of York Cathedral," formerly occupied the same position in the eastern aisle of the north transept. Underneath it, engraved on a brass tablet, is an inscription written by Earl Rosebery.

## PROFESSIONAL AND TRADE SOCIETIES.

**THE AUCTIONEERS' INSTITUTE.**—The spring provincial meeting of the Auctioneers' Institute was opened at Derby yesterday (Thursday), and will be continued to-day. The council and members were received yesterday in the Guild-hall by the Mayor (Alderman E. T. Ann), after which the general business of the Institute was transacted by the council. The arrangements for the meeting are being carried out by a representative local committee, drawn from the surrounding counties of Derby, Nottingham, Leicestershire, and Stafford, with the Mayor of Derby at its head. Visits will be paid to-day to the Royal Crown Derby Porcelain Works, the locomotive works of the Midland Railway Company, and the new Technical College at Derby; also to the extensive cooperage, maltings, and brewery of Messrs. Bass and Co., at Burton-on-Trent. This evening there will be a dinner at the Royal Hotel, Derby, when the president of the Institute, Mr. Alderman Dobson, will occupy the chair, and will be supported by the mayor and corporation, Sir H. H. Bemrose and other members of Parliament, many of the leading professional and commercial men of the town and district, and the members of the council. The Institute now numbers considerably over 1,000 members.

**EASTBOURNE MASTER BUILDERS' ASSOCIATION.**—At the annual meeting of the association held at Hermitage's Rooms on Feb. 28, the report and balance-sheet for the past year were received and adopted, with thanks to the retiring officers. The committee for the year was elected as follows:—Mr. Joseph Martin, president, re-elected; Mr. E. Cornwell, vice-president, re-elected; Messrs. M. Martin, Stanbridge, Winter, Breach, Miller, Bainbridge, and Lacey. It was unanimously decided to join the S.E. Counties Building Trades Employers' Federation.

**SCOTTISH ARTS CLUB.**—The annual meeting of the Scottish Arts Club was held on Saturday night in the club-rooms, Rutland-square, Edinburgh. Professor G. Baldwin Brown, Hon. A.R.I.B.A., the retiring president, occupied the chair, and there was a large attendance. The reports submitted by the hon. secretary and hon. treasurer showed the club to be in a flourishing condition. The number of members at present is 236, and there is a substantial balance at the credit of the funds. Mr. W. D. McKay, R.S.A., who has been hon. secretary of the club for many years, was elected president; Professor Masson and Mr. Cox, M.P., were re-elected vice-presidents; Mr. Duddingston Herdman was elected hon. secretary, and Mr. G. Stratton-Ferrier was re-elected hon. treasurer. It was agreed to have exhibitions of the works of artist members in the club-rooms twice a year. A hearty vote of thanks was given to Professor Baldwin Brown for his services as president for the last four years.

A tower and spire are about to be added to St. Patrick's Roman Catholic College Church at Maynooth, from designs by Mr. William Hague, of Dawson-street, Dublin.

The Lowestoft Town Council have accepted tenders for machinery, underground mains, road work, and arc lamps, amounting in all to £16,892, and have resolved to apply to the Local Government Board for sanction for a loan of £30,000.

On Saturday the Highland District Committee of Perth County Council authorised the adoption of a scheme for a new water supply for Dunkeld special district, as prepared by Mr. Thomson, C.E. The Duke of Atholl has granted permission for the water to be taken from Loch Ordie burn, the amount required being about 45,000 gallons daily. The scheme includes the building of a reservoir to store 500,000 gallons, which will also serve as a filter by allowing the sediment to fall to the bottom. The estimated cost is £1,800.

At the Village Hall, High-street, Orpington, on Thursday last week, the Earl of Jersey (chairman), Colonel Boughie, and Mr. Gerald A. R. Fitzgerald, Light Railway Commissioners, held a Board of Trade inquiry as to the expediency of granting the application made by the Orpington, Cadham, and Tatsfield Light Railway Co., Ltd., for an order to authorise the construction of a light railway. The engineers for the promoters, Messrs. Stephens and Burstell, of London, explained that the proposed line was  $7\frac{1}{2}$  miles long, and was estimated to cost £63,000; the gradients were heavy, the steepest being 1 in 40, and there would be two intermediate stations. The commissioners intimated general approval of the scheme.

## COMPETITIONS.

**DARTFORD.**—The School Board met on Thursday, the 2nd inst., to receive the award of the assessor, Mr. W. Harston, on the designs entered for new schools in York-road. The assessor reported that he had carefully gone into the merits of the twenty-six sets of designs sent in, and he awarded the premium of 30 guineas to the design marked "School," and the second premium of 10 guineas to the one marked "Omdurman." The competitor who won the first premium is Mr. Henry Hall, F.R.I.B.A., of Doughty-street, Mecklenburg-square, W.C., and the winner of the 10 guineas is Mr. G. H. Tait, M.Inst.C.E., of Dartford. It was decided to publicly exhibit, at the board's rooms in Spital-street, on Wednesday and Thursday in the past week, the whole of the perspective drawings sent in, together with the ground plans of the successful competitors. The clerk was directed to intimate the result of the competition to the winners of the premiums, and to return, after the exhibition, the other designs to their authors; also to invite Mr. Hall to an interview with the board for the purpose of ascertaining whether he will prepare detailed specifications prior to the forwarding of his plans and designs to the Education Department for approval. The board further directed the clerk to insure the plans for one month at £1,000, and to return to those architects who sent, or send, back plans and conditions, their deposits of a guinea each.

The Police Commissioners of Stirling have been authorised to borrow £25,000 for the purposes of the electric lighting scheme of the burgh.

Mr. E. Onslow Ford, R.A., has had the honour of submitting, for the Queen's inspection, a model of the statue to commemorate her Majesty's Diamond Jubilee, which is to be placed in front of the municipal buildings at Manchester. Mr. Ford also submitted a marble bust of the Queen, which he has executed for her Majesty.

The Royal Commission on the London Water Supply sat on Monday and Tuesday, and concluded the hearing of evidence on behalf of the companies. They adjourned on the latter day until next Monday, when the examination of witnesses will probably be concluded.

The Dean of St. Paul's has consented to a memorial of the late Mr. George A. Spottiswoode being placed in St. Paul's Cathedral by the 6,000 Communicant members of the Lay Helpers' Association for the Diocese of London, of which he was for 22 years the chairman.

A lengthy report upon the question of the erection of artisans' dwellings by the corporation of Coventry has been prepared by the city engineer, Mr. J. E. Swindlehurst, and is under consideration by the artisans' dwellings committee.

The South Stoneham Highway Board decided, at their last meeting, to raise the salary of their surveyor, Mr. J. Cudlipp, from £140 to £200 a year. Mr. Cudlipp had just returned to work on the day of the meeting, having just practically recovered from a recent accident sustained while in the discharge of his duties, whereby his right ankle was broken.

The Court of Appeal decided on Monday that when an appeal was entered in a case under the Workmen's Compensation Act, and the party appealing had no means to meet the costs, should he be unsuccessful, they would order security to be given. If, however, an appellant could appeal *in forma pauperis*, then the case would be heard without security being given.

Mr. Case, C.E., who has carried out similar work at Cromer and Dymchurch, is erecting several groynes at Blackpool on the North Shore, opposite the Gynn estate, for its owners. The groynes, which are made of wood, run out to low-water mark, and are easy of construction, as much as 600ft. being put down at one tide. The corporation had proposed to construct them from south to north, and so lessen the work in connection with the promenade widening by accumulating sand, but this proposal was dropped, and they are now to be only erected opposite the new North Shore works.

An anonymous donor has presented a new illuminated turret Cambridge quarter-chime clock to the Leeds parish church, showing the time upon four external dials 8ft. each in diameter, which are lighted by electricity turned on and off by an automatic arrangement connected with the clock. The hours are struck on the tenor bell of 360wt., and the chimes on four smaller bells. The makers are Messrs. W. Potts and Sons, clock manufacturers of Guildford-street, Leeds, who have carried out their work from instructions received from Mr. C. R. Chorley, J.P., F.R.I.B.A., architect, Leeds, one of the churchwardens.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.). To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation advertisements) is 6d. per line of Eight words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLIX., LI., LIV., LV., LIX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

YOUNG INQUIRER.—(If you send a stamped envelope to the Secretary of the Royal Institute of British Architects, 9, Conduit-street, you will get the Institute scale of charges for architects. What a "Building Inspector" who "can only visit the job before office hours" is entitled to charge we cannot really say.)

RECEIVED.—W. H. and Co.—S. M. (Bradford).—R. K. L. Co.—F. N. M. (Salop).—J. G.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Le Nord," "McGilligan," "Butta," "Tokio," "Vulcan," "Quadrant," "Bikki," "Scruton," "Thistle," "First Attempt," "Vigornia," "Quercus," and "Pup."

## Intercommunication.

## QUESTIONS.

[12205].—**Measuring and Estimating.**—Is there any recent work on estimating and the processes employed to analyse items? Most books give no information on these details.—K. O.

[12206].—**Light Areas.**—Which is the best kind of reflector for reflecting the light through windows at the bottom of a light area five stories high?—OFFICE.

[12207].—**Deal Architrave Moulding.**—What is a fair price for a moulded architrave 2in. by 4in.? Should it be taken at per foot run or superficial, measuring the moulded edge?—STUDENT.

[12208].—**Dilapidation.**—Is a covenant to repair satisfied by the tenant keeping the house wind and water-tight and in painting and papering? If a roof is so bad that it cannot be kept weather-tight, is the tenant obliged to put in repair? The roof is very old and decayed.—A. LORRAINE.

[12209].—**Stiffening Floor.**—An old floor sags several inches in centre, and any heavy treading or dancing causes it to shake very much. Is there any inexpensive way of strengthening the joists without placing a beam underneath? Practical answers will be thankfully received.—ANXIOUS.

## REPLIES.

[12210].—**Walls.**—If you build up walls of two half-bricks, leaving a 4in. cavity in the centre, filled in with White's hygienic rock building composition, you will

secure a wall of double the strength of those built in the ordinary way, besides rendering it weather and damp-proof. I have used it on several occasions, and it will not fail.—BUILDER.

[12200].—**Walls.**—I should advise "Cheltenham" to build the walls of his villa hollow, and for a house of ordinary size, the walls may be 16in. walls, with the 9in. thickness inside if the timbers are heavy, and a 4in. thickness outside. But if only two stories, I prefer the greater thickness to be put outside. A 16in. wall allows a 2½ cavity. The two walls should be bonded together by vitrified bricks made for the purpose, or by galvanised iron cramps placed about 2ft. 6in. apart, every fifth and sixth course. If the walls are faced with superior bricks, the plan of having the 4in. outside may be best. If solid walls are preferred, there may be a sheeting of bitumen, such as Callender's Pure Bitumen, laid behind the facing as the work proceeds, especially if dampness is feared; or the walls may be built in cement mortar.—G. H. G.

[12201].—**Building Construction.**—"M. G. S." had better write for information to the Science and Art Department, South Kensington. I believe it is not necessary to have attended the elementary stage.—A. B.

[12202].—**Ink-Marks in Books.**—Ink-marks in books can be removed with oxalic acid and lime.—LIBER.

[12204].—**Westmoreland Slates.**—Some very nice toned sea-green slates are obtained from Tilberthwaite, near Conistone, close in texture, and which do not discolour. Green slates are often porous. There are "bests," "seconds," "thirds," &c. The best slates are of varying lengths—12in. to 30in. Write for particulars to quarries.—A. G. S.

## LEGAL INTELLIGENCE.

HORSHAM BUILDERS' AFFAIRS.—LOSS OF £12,000 ON ROEDEAN BUILDINGS.—At the sitting of the Brighton Bankruptcy Court last Thursday week, before the Registrar (Mr. A. O. Jennings), Peter Peters, of The Cedars, and Thomas S. Peters, of 9, Bartlett-road, East-street, trading as P. Peters and Sons, at East-street, Horsham, builders and contractors, appeared for their public examination. In reply to the Official Receiver (Mr. Howard Cox), Peter Peters said he was brought up as a bricklayer, and began business as a builder at Horsham twenty-five years ago without capital. He gradually improved his position, and for years had been in the habit of taking considerable contracts. He did a good bit of speculative building in the early part of his life at Horsham. Four years ago he went into partnership with his son, a draft partnership agreement being entered into. The capital he had in the business at that time was £1,181 15s. 4d. His son did not put in any capital. The Official Receiver: If you doubled the value of stock then you would have been £900 to the bad? Debtor: Yes, but I don't think I overvalued it. The Official Receiver: What do you now put your stock-in-trade and machinery at in your statement of affairs? Debtor: £6,300 is the estimate. The Official Receiver: Well, I am advised that your estimate of that could very well be divided by three. Continuing, debtor said he did not think that at the time he went into partnership the business was insolvent. The Official Receiver: Having regard to the fact that your balance in 1894 was only £1,181, and that that included an estimate of £11,000 to come from work in hand, and nearly £6,000 for stock, don't you think it was over-estimated? Debtor: No, I do not. Continuing, he said that at the time of the partnership being entered into he was possessed of other property, but every half-penny he had received had gone into the business. The overdraft on the bank now was £16,760, so that property to the extent of about £16,000 had gone into the bank since then. To enable him to do that he had borrowed £5,000 from Mr. Belcher and £2,750 from his sister-in-law. He had a big business, and never had too much capital. He first found the pressure somewhat severe in August or September last. He attributed the bulk of his loss to the Roedeian contract, which he entered into two years ago. His tender for that amounted to £47,335, that being about £1,100 lower than the next lowest tender. The Official Receiver said he understood from the architect that the deductions from the contract amounted to nearly £5,000. Debtor said there were no deductions to be made: on the contrary, there was a tremendous lot of additions. His son chiefly superintended that business, and he himself was there at every opportunity. Under the contract he was entirely in the hands of the architect, and nearly the whole of the material he sent to Roedeian was condemned by him. He had taken enough stuff there to do two such jobs, and, of course, that had caused a very big loss. Besides this, there was deviation or alteration in nearly every detail. When he was under pressure in August he had plenty of money, but could not get it in. Under the draft partnership agreement he was to draw £20 a month from the business, and although he had drawn more recently he should not think his drawings averaged more than £20 a month. He sold a brickyard at Warnham in August, and, after allowing for the mortgage, had about £800 left. That he put into the business. In August his accounts were taken, and showed him to be £11,000 to the good. The Official Receiver said on debtor's own showing his deficiency was now £8,800, though he (the Official Receiver) should put it at £10,000. Therefore,

since August last he had lost some £18,000. Did debtor not think the accountants must have over-estimated his assets? Debtor said he lost on the Roedeian job about £12,000. Mr. Belcher became guarantee at the bank for £5,000, and he gave him charges on all properties and contracts. After that Mr. Belcher lent him as much as £6,000 or £8,000. All his properties were charged in the first instance to the bank, then to Miss Seagrave, and then to Mr. Belcher, so that there was nothing to come from them. The Official Receiver: And the Brighton, Roedeian, and Newhaven works are all charged, and you don't expect anything to come from them. Looking at your position, don't you think that the balance-sheet got out in August was wrong? Debtor said it might have been a little too much in his favour. Asked as to why he had drawn £800 since August, debtor said he had private debts to pay. He had an expensive house and an invalid wife. The Registrar said the examination would be adjourned, and the Official Receiver would inquire into the matters. Thomas Samuel Peters was then examined. He said prior to going into partnership he had been managing jobs for his father. He had been in charge of the Roedeian job nearly all the time, and had scarcely had a day's holiday. He had been present on nearly every occasion when wages were paid, and had never known wages not called for by the men. There were on an average from 200 to 250 men at work there. He had nothing to do with the books. He did not think he had drawn more than £78 a year and expenses. The examination of both debtors was adjourned till April 20th.

A BRISTOL ARBITRATION: AWARD.—The award in the Dean-lane arbitration has been announced. The claimants were Messrs. J. R. and A. H. Bennett, and they asked for £12,000 to £13,000 as compensation from the Bristol Corporation, whose scheme of widening Dean-lane would interfere with Messrs. Bennett's colliery property, a slice of it being included in the scheme. The corporation said £5,000 was sufficient compensation. Mr. Robert Vigers, of London, sat as umpire for ten days—two in Bristol and eight in London—and his award is £8,186.

WORKMEN'S COMPENSATION ACT APPEAL.—On Saturday, in the Court of Appeal, Lords Justices A. L. Smith, Collins, and Romer sat to hear appeals under the Workmen's Compensation Act, 1897. McNicholas (appellant) and R. F. Dawson and Sons (respondents) was the appeal of Mrs. McNicholas, a widow, from the decision of the county-court judge of Bradford, sitting as arbitrator, who decided that the appellant's husband had not met with his death under circumstances that entitled her to compensation under the Act. Mr. Mackaskie said he appeared for the widow on appeal from the judgment entered for the respondents, who were a firm of builders in whose employment the deceased man was on the day that the fatal accident occurred. The county-court judge had decided in the respondents' favour on the ground that he was not satisfied that the accident "arose out of, and in the course of, the employment" in which the workman was engaged by the firm. He was engaged to look after a steam-engine, and had to attend also to a mortar-tank, which the engine worked. This tank was outside, but adjoined the engine shed. On the morning in question he called out to his mate—a labourer—to know if the tank was ready for the engine to be put in motion, and the reply came back, "All right." A few minutes after the steam had been turned on the labourer found his fellow-workman's body being whirled round on the engine-shaft. Beside the door that gave access to the shed, there was a little door at the opposite end. To get to it a man would have to pass under the engine-shaft, which he could only do by crouching down. It was McNicholas's duty after he had set the machinery at work to go outside the shed and attend to the filling of the mortar-tank, and respondents' foreman in his evidence said that strict orders had been given the men never to use the little door when "steam was on." The man in charge of the engine had also to see that the engine-shed was ventilated properly, and this door was opened when the fire required more draught. Mr. Ruegg, Q.C., for the respondents, said the evidence left it absolutely uncertain whether the accident to McNicholas "arose in or out of the work" that he was employed by the firm to do. They had got a judgment, and it was for the appellant to show by evidence of some sort that the learned county-court judge was wrong in deciding there was not sufficient evidence to show what the unfortunate man was actually doing when he got entangled with the machinery. The learned counsel then argued that the work the man was engaged on was not work "on or about a building," and relied on the fact that the steam-engine was in a low shed that did not come within the definition of "a factory." At the conclusion of the argument, Lord Justice A. L. Smith said: Could there be a doubt that if anyone were asked to say on these facts whether or no the deceased man met with his death by an accident arising out of or in the course of his employment with the respondents the answer



would not be "Yes"? The respondents had attempted to get out of their liability by saying that this was not a "factory"—that the man might have been attempting to leave the shed by the little door for his own purposes. The county-court judge did not find the man had gone to the little door "for his own pleasure." The appeal would be allowed. Lords Justices Collins and Romer delivered judgments to a like effect. Mr. Parkins mentioned that the parties had arranged what the amount of the claim should be if the appeal was successful, and he asked for judgment with costs there and below. Mr. Ruegg asked that there might be a stay. The question was of the greatest importance to builders. Lord Justice A. L. Smith said they would not grant a stay, and that the appeal would be allowed, with costs on the terms asked.

**SCULPTORS' CLAIM FOR PREPARING PLANS.**—At the Exeter County-court on Monday, before his Honour Judge Woodfall, a claim for making plans was heard. Messrs. Harry Hems and Sons, sculptors, of Longbrook-street, Exeter, claimed £6 3s. from Rev. Dr. Newton, vicar of Barnstaple, for making two plans of proposed screens to be erected in Barnstaple parish church. Plaintiffs' solicitor explained that in August, 1896, Messrs. Hems received from the defendant a communication to the effect that it was intended to erect a screen to separate the chancel from the body of the church, and plaintiffs had the order for the plans, going to Barnstaple for the purpose. Mr. Harry Hems, in his evidence, said one screen was to be of carved oak of the 15th century pattern, typical of many screens now in use. The defendant said he mentioned nothing whatever about a rough sketch; he could have made that on the back of a prayer-book. His Honour said plaintiff had no case, as he knew from the outset Dr. Newton was not going to erect the screen himself. Judgment for defendant with costs.

**WORKMEN'S LIABILITY ACT.**—At the Brompton County-court, on Saturday, before his Honour Judge Stonor and a jury, Charles Thomas Baldock, a painter's labourer, sued Henry Smith and Son, builders and contractors, of Wetherby-terrace, Earl's Court, to recover damages for personal injuries received owing to the negligence of defendants' servants. Plaintiff was employed in varnishing the roof of St. Philip's Church, Kensington, when, owing to the collapse of the scaffolding, which was defective and insufficient, he was precipitated from a great height. His wrist was broken in three places, and he had since been unable to follow his employment. Defendants denied liability, claiming contributory negligence. A photograph of the broken bones, taken by the assistance of the X rays, was handed to his honour, who allowed it to be taken as evidence. The jury found for plaintiff for £125, and costs.

**UNLICENSED HOARDINGS.**—The Westminster Trust, Ltd., of Victoria-street, were summoned by the local vestry at Westminster Police-court on Friday for allowing a hoarding to be erected on the public way after the license had expired. Mr. G. R. Wheeler, the surveyor to the vestry, said the hoarding in question was situate at the corner of Great Chapel-street and Victoria-street, and was an exceedingly high one. Originally the height was about 60ft., and during one of the recent gales was blown down. The attention of the vestry was drawn to it, and witness was instructed not to renew the license. It was re-erected, however. The license for the hoarding expired on December 1 last. Mr. Alldridge, secretary to the Trust, said his impression was that the license had been renewed. A cheque was sent to cover the fees sometime in December, but during the last few days this had been returned. The company let the hoarding to an advertisement contractor, who paid all the fees. Mr. Marsham imposed a fine of £5, with 2s. costs.

**THE STRAND AND CLARE MARKET IMPROVEMENTS.**—Mr. H. T. Steward, F.S.I. (Messrs. Hunt and Steward, 45, Parliament-street, S.W.), the arbitrator appointed to decide the value of properties acquired by the London County Council under the Housing of the Working Classes Act, 1890, in connection with the Strand and Clare Market scheme, commenced his inquiry at the offices of the Strand District Board of Works, Tavistock-street, Covent Garden, on Monday. The first claim was in respect of the Hope Tavern, Blackmoor-street, which is held on lease for a term of which 20 years are unexpired at Lady Day next at £70 a year. Mr. Thomas J. Weaver, public-house valuer, Theobald's-road, W.C., expressed the opinion that £8,000 could be got as a premium for a 60 years' lease. Witness had applied the 4 per cent. table. He valued the rental of £70 a year at 20 years' purchase, and a shed at the rear £237. His total valuation, including the usual 10 per cent. for forced sale, was £6,567. These figures were supported by the evidence of other experts. On behalf of the London County Council, Mr. Thornton (Messrs. Thornton, Lumsden, and Newman, 15, Coleman-street, E.C.), and Mr. Weatherall, F.S.I. (Messrs. Weatherall and Green, 22, Chancery-lane)

had taken the rental of £70 a year on the 4 per cent. table, £952; value in possession, £100 per annum, £1,919; 4 per cent. table, 25 years' purchase, £2,500. Their total valuation was £3,362. In regard to the Grapes Tavern, Drury-lane, and the Artichoke, Clare-street, the arbitrator was asked to make an award of £3,647 and £7,200 respectively.

**THE PROFITS OF BRICKMAKING.**—Mr. Daniel Watney sat as arbitrator on Wednesday week, at the Surveyors' Institute, Savoy-street, W.C., to hear the claim, "Bachelor v. the Brompton, Chatham, Gillingham, and Rochester Water Company," for compensation in respect of land taken under their Act of 1898 by the company for the extension of their works. The claimant, Mr. R. J. Bachelor, of Chatham, who is a brickmaker and contractor, is the owner of the Darley Farm, the Chatham Farm, and several other properties in the district, nearly 20 acres of which the Water Company has acquired. Since 1892 he has, in the Darley field, been engaged in making bricks, and in 1896 purchased the Chatham field for the extension of his works. During the three years 1896-7-8, the average cost of the bricks had been 15s. 4½d. per 1,000, and the selling 30s. 10d. per 1,000, whilst the profits during the same period had been over £10,000. He claimed the sum of £78,95 for the value of the land taken and compensation for disturbance. It was estimated, on behalf of the complainant, that there was enough brick earth on the land to make 48,149,201 bricks, and it was contended that he was entitled to the profits, discounted for 12 years, which he could have made if he had been left in possession. The inquiry was adjourned.

#### CHIPS.

The new Levenshulme town-hall, in Stockport-road, Levenshulme, Manchester, was opened last Friday in the presence of the council and a large number of ratepayers, the architect being Mr. James Jepson and Co., of Stockport. The building was erected by Burgess and Galt, builders, Manchester, at a cost of £6,000.

The Meriden Board of Guardians have adopted plans by Mr. H. Chattaway, of Coventry, for a new sick-ward and board-room to be added to the workhouse buildings at an estimated cost of £1,400.

The application of the Goole Urban District Council to borrow £6,500 for the purposes of public baths was inquired into at Goole on Wednesday week by Mr. H. H. Law, one of the inspectors of the Local Government Board. Mr. F. Chambers, surveyor to the council, explained the scheme, to which strenuous opposition was raised by some ratepayers.

The city council of Manchester have decided, on the recommendation of the Art Gallery Committee, to abandon the hitherto very successful autumn exhibition on the ground that the space available in the art gallery is insufficient, having been encroached upon by the increasing permanent collection of pictures.

Under the direction of Professor F. M. Simpson, of University College, Liverpool, acting at the request of the finance committee and in connection with the city surveyor, the alterations and re-decoration of the town-hall of Liverpool are now approaching completion. For some months the large ballroom has been under repair, a new roof being erected. The whole suite of reception-rooms has been redecorated.

The annual meeting of the Banffshire Building Trades Federation was held in the institute, Keith, on Saturday, Mr. R. Cameron, the retiring president, presiding. Mr. Thomas Stewart, Keith, was appointed president for the year, and Mr. T. G. Fleming was re-elected secretary and treasurer. An executive council was appointed, and were instructed to consider whether arrangements could be made with architects for all works exceeding £500 in value being scheduled.

A large block of premises for Manchester warehousemen is approaching completion at the High-street end of Albert-street, Birmingham. The elevation is faced with red bricks with dressings of stone. There are five stories, the top one being in a mansard roof, and a basement floor in addition. The building has been erected from designs of Messrs. J. A. Chatwin and Son, architects, of Birmingham.

A Local Government Board inquiry was held at Burton-on-Trent, on Tuesday, the corporation having applied for power to borrow £32,500 for purposes of sewage disposal and electric light extensions.

Mr. A. H. Jennings, a member of the city surveyor's staff at Winchester, has been elected assistant surveyor under the Erith Urban District Council.

New offices are now being erected for the Barry Dock Co., and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

## Our Office Table.

THE collections in the National Portrait Gallery are being rapidly augmented by gifts and purchases, and the walls of this new building promise soon to be thickly covered. The trustees have accepted as a gift a portrait of William Hone, the well-known satirist and author, painted by George Patten, A.R.A., and presented by Mr. Hone's daughter, Mrs. Joseph S. Soul. The trustees have also purchased eight works, viz.:—"Dr. Samuel Johnson," an unfinished sketch in oils, painted by James Barry, R.A.; this portrait, which was engraved in 1808 by Anker Smith, A.R.A., was for many years in the possession of the late Dr. George Tomlinson, Bishop of Gibraltar. "Charles, Second Earl Grey, K.G.," the "Reform" Prime Minister, painted by Sir Thomas Lawrence, P.R.A. "Col. Isaac Barré," the famous debater and orator in the days of William Pitt, painted by Gilbert Stuart; this portrait was given by Colonel Barré to his cousin, Colonel Phipps, from whose grandson it was obtained. "Robert Louis Stevenson," a pencil drawing, done at Sydney, N.S.W., on March 17, 1893, by Percy Spence; purchased from the artist. "John Manners, Marquis of Granby," the famous military commander, drawn in black chalk by Sir Joshua Reynolds, P.R.A., being apparently the original study for the well-known portraits in oil. "David Garrick," a pencil drawing, done from the life by John Keyes Sherwin, the engraver. "James I.," a small portrait on panel, as James VI. of Scotland; formerly in the Brühl-Finkenstein collection in Germany. "James Clerk Maxwell, F.R.S.," scientific discoverer and professor; a painting on china.

About two hundred of the best pictures at Hampton Court Palace are being removed from the places which they have occupied for many years to adorn the walls of Kensington Palace, which will be opened to the public in May. The pictures now being transferred to Kensington include the whole of West's collection, the best of which, including "The Death of General Wolfe on the Heights of Quebec," have been exhibited in Queen Anne's Drawing-Room, the central apartment of the suite of rooms on the eastern front, overlooking the gardens and the Home Park. While these pictures were being taken down it was found that underneath their outer covering of canvas and paper the walls were adorned with painting. The whole of the canvas was thereupon removed, disclosing the fact that the whole of three sides of the large room, which measures 41ft. by 34ft., was covered with paintings of more or less artistic value. These are in a very good state of preservation, except for the fact that they have been defaced by numberless small holes caused by the nails which had been driven into the walls upon which to hang the pictures. The ceiling of this room is, as will be remembered, occupied with a painting by Verrio, representing Queen Anne as Justice, with Neptune and Britannia holding a crown over her head, and various allegorical figures grouped around. The florid paintings on the walls now uncovered are by the same artist. Orders have been given for the holes in the walls to be carefully filled in, and when this has been done the services of artists of repute will be engaged to repair the damage, and, as far as possible, to restore the paintings to their original condition. This work will occupy many months, and while it is in progress the public will not be allowed access to the apartment. The newly-discovered paintings have been concealed in this manner for considerably more than a century.

In the Parliamentary Estimates in Class I. there is a net decrease on the net total for public works and buildings of £39,439 as compared with the total grants for 1898-99 in 1898, or of £14,439 after deducting the supplementary grant of £25,000 for diplomatic and Consular buildings. The decrease of £15,047 under the harbours estimate in respect of lighthouses abroad more than accounts for the reduction, as compared with the original estimates of this class for 1898-99. The estimate for art and science buildings contains an item of £1,000 for constructing a gallery and preparing accommodation for the Waddesdon bequest at the British Museum. The estimate for public buildings shows a net decrease of £5,000. The provision for Hertford House is less by £14,500, and that for the Record Office



by £16,000. On the other hand, provision is made for the first payment, £12,780, of the annuity for repayment of advances in respect of the purchase of sites for the new public offices under the Public Offices (Whitehall) Site Act, 1897. The gross total for surveys of the United Kingdom has risen by £5,615, but as the proceeds of the sale of maps and other credits are estimated to produce an additional sum of £4,750, the net increase stands at £865.

THE Parliamentary vote for the Houses of Parliament Buildings makes no provision for continuing in the next recess the work of mosaic decoration in the Central Hall; so, apparently, some time will yet elapse before Mr. Albert Moore's cartoons of St. Patrick and St. Andrew are reproduced in the two vacant panels. A sum of £1,000, however, is asked for to defray the cost of a hydraulic lift in the Speaker's house as a much-needed improvement; and £500 is proposed to be devoted to the reconstruction of the staircase from the newspaper-room to the basement. The vote for Public Buildings includes provision for the erection of a new wing at Dover House, and the construction of two passenger-lifts at the Royal Courts of Justice.

IN the report of the London Chamber of Commerce Special Committee on Secret Commissions an amusing instance of mistaken ingenuity in "working the oracle" is given. A church was in course of restoration, and when the roof was nearly all covered in it was found by the architect that the copper nails specified for the slating had not been used by the contractors. He firmly told the builder that all the slates would have to come off again, and be properly fixed according to the specification. The same evening a dozen bottles of prime port were delivered at his residence, accompanied by a polite note from the builder asking his kind acceptance of the little present. The architect, ever as tender-hearted as he was honourable, was the last man to hurt anyone's feelings, even if he did not agree with them; so next morning he despatched his servant to the builder's house with a hamper of sherry, and a note that ran something as follows:—"Thanks for your kind present. Favour me, in return, by accepting the accompanying dozen of dry sherry. You will have to use the copper nails." And he had.

UNDER the provisions of the Liverpool City Charter Act, two pseudo-Classic edifices in that city, the churches of St. John and St. George, are being demolished. The former edifice, built between 1775 and 1784, is being dismantled and raised by Mr. H. Hindley, contractor, of Leigh, and the principals of the roof will be transported to Birkenhead, to do duty in a new music-hall at Birkenhead. St. George's Church, completed thirty years earlier, in 1734, and also having taken about nine years to build, is in the hands of other contractors, although the work of demolition has not proceeded so far. The spire of this church was built in 1818 at a cost of £10,000, and a suggestion is being vigorously urged that an arrangement should be come to between the trustees and the Corporation to allow it to remain, whilst the rest of the spare ground is utilised. On the other hand, a committee of ratepayers, formed at a recent meeting, have under consideration a letter written by the Bishop asking that the tower and spire should not be removed, and have suggested to the Finance Committee that the whole fabric should be removed, and that upon the site there may be erected a tramway station.

"ZINC: ITS HISTORY AND USES" was the subject of a lecture delivered by Mr. D. W. Kemp before the Edinburgh and East of Scotland District of the National Registration of Plumbers, held in Dowell's Rooms, Edinburgh, the other night, Mr. H. F. Kerr presiding. The ancient history of zinc, Mr. Kemp pointed out, was connected with its calamine ore, which, when smelted in a crucible with copper, made the alloy brass. The modern history of the metal was confined to the present century. The home of the industry was Belgium, where its manufacture had been carried to very great perfection. Although there was abundance of excellent ore in various parts of England, it was extraordinary that the manufacture of zinc should remain almost stationary in this country, in face of a constantly increasing demand. The mines of Cumberland had actually been leased to the Vieille Montagne Zinc Company, the largest zinc manufacturers in the world, who employed about 300 miners at Nenthead, Cumberland. After raising the ore, it was then railed in its raw state to Newcastle. From

that place it was shipped to Antwerp, and thence it was sent by rail or canal to the works in the interior of Belgium. The ore was there manufactured into spelter or sheet zinc, much of which came back to this country in various forms for plumbers and other consumers. The important question was thus raised as to what our technical colleges were doing. The metallurgy and uses of zinc were then explained by 90 limelight views. A number of slides with statistics were exhibited, which showed that the production of spelter in the world was, in 1881, 260,000 tons; in 1891, 356,000 tons; and in 1897, the latest returns, 436,000 tons, of which Great Britain produced in 1881, 24,000 tons; in 1891, 29,000 tons; in 1897, 23,000 tons; while the consumption of zinc in Great Britain in building construction, galvanising, box-lining, telegraphy and telephones, and other uses had grown enormously. As an evidence of the *esprit de corps* in the zinc works of Belgium, it was stated that, although it was an extensive industry, employing many thousands of workpeople—the largest, the Vieille Montagne Company, employing over 8,000 persons—strikes or trade disputes were unknown. This was due to the liberal management.

A PARLIAMENTARY paper issued by the Board of Agriculture, giving a report of their proceedings during the year 1898 under the Metropolitan Commons Act, 1866 to 1898, states that schemes with respect to Barnes Common and East Sheen Common were duly confirmed by Parliament. Both commons are now under the management and control of the Barnes Urban District Council. A scheme with respect to Harrow Weald Common, in the parish of Harrow Weald, Middlesex, has been approved and certified by the board, and now awaits Parliamentary confirmation. The common, which is 46 acres in extent, has been vested in the urban district councils of Harrow, Wealdstone, and Wembley, and the rural district council of Hendon, subject to the rights reserved to the surveyors of the highways and proprietors of land within the parish of Harrow and hamlet of Pinner of using it as and for public gravel, stone, and sand pits. The scheme for vesting the management of Petersham Common in the Richmond Corporation, on the petition of the latter, has been drawn up, and will be further considered on the expiration of the period prescribed for the delivery of objections or suggestions.

THE fiftieth annual report of the Prudential Assurance Co. is a record one. In the ordinary branch the new premiums amounted to £353,113, and the total premiums to £2,967,501, being an increase of £193,237. In the industrial branch the total premiums were £4,960,756, being an increase of £167,165. The total assets of the company are £33,599,708, being an increase of £3,161,371. The security guaranteed by such a stable reserve can hardly be over-estimated.

#### MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Society of Arts. "Cycle Construction and Design." Cantor Lecture No. 4, by Archibald Sharp, A.M.I.C.E. 8 p.m.  
Bristol Society of Architects. "Bills of Extras," by G. H. Oatley. 8 p.m.  
TUESDAY.—Institution of Civil Engineers. Discussions upon "Water-tube Boilers for Marine Engines," and "Recent Trials of the Machinery of Warships." 8 p.m.  
Perth Architectural Association. "Art," by William M. Page.  
WEDNESDAY.—Society of Arts. "Liquid Fuel," by Sir Marcus Samuel. 8 p.m.  
FRIDAY.—Architectural Association. "Reflections on the English Renaissance," by Reginald T. Blomfield. 7.30 p.m.  
Glasgow Architectural Craftsmen's Society. "Electric Lighting of Buildings," by W. G. Peddie; and "Leveling," by Geo. Davidson. 8 p.m.

#### THE ARCHITECTURAL ASSOCIATION.

MARCH 17th.—ORDINARY MEETING at No. 9, Conduit-street, W. 7.30 p.m. Mr. REGINALD T. BLOMFIELD on "REFLECTIONS ON THE ENGLISH RENAISSANCE."  
MARCH 19th.—VISIT to the ROYAL DUCHESSE THEATRE, Balham-road, Three p.m. Trains leave Victoria (L.B. and S.C.R.) for Balham at 2.35 and 2.40.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

Mr. J. R. Davison, of Salt, near Stafford, has been elected surveyor to the rural district council of Woodbridge, Suffolk, from among 85 candidates.

Mr. George E. Clare, M.S.A., who has been practising at 66, Duke-street, Chelmsford, has taken into partnership Mr. Walter G. Ross, and opened a London office at 1, West-street, Finsbury-circus, E.C.

## LATEST PRICES.

IRON, &c.			
	Per ton.		Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	to	£8 10 0
Rolled-Steel Joists, English.....	6 10 0	"	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	"	6 10 0
Bar Iron, good Staffs.....	7 5 0	"	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	"	17 5 0
Do., Welsh.....	5 15 0	"	5 17 6
Boiler Plates, Iron—			
South Staffs.....	7 17 6	"	8 5 0
Best Smedhill.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
8ft. to 8ft. long, inclusive	Per ton.		Per ton.
gauge.....	£10 15 0	...	£11 0 0
Best ditto.....	11 5 0	"	11 10 0
Cast-Iron Columns.....	£8 5 0	to	£8 15 0
Cast-Iron Stanchions.....	6 5 0	"	8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	"	8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	"	7 15 0
Galvanised.....	10 10 0	"	11 10 0
"-Iron Sash Weights.....	4 2 6	"	4 5 0
Cut Clasp Nails, Sin. to 6in.	9 0 0	"	10 0 0
Cut Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/0 9/6 10/0 10/9 11/6 12/6 13/6 15/3 17/3			per cwt.
Cast-Iron Socket Pipes—			
3in. diameter.....	£5 10 0	to	£5 15 0
4in. to 6in.....	5 5 0	"	5 10 0
7in. to 24in. (all sizes).....	4 15 0	"	5 0 0
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....	105s.	to	110s.
Hot Blast, ditto.....	57s. 6d.	to	62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard			
Lists f.o.b.:—			
Gas-Tubes.....	per load		75p.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 5cwt. casks.			
Per ton.			Per ton.
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 8lb. per sq. ft. super.	17 0 0	"	18 0 0
Pig Lead, in 1cwt. pigs.....	15 10 0	"	16 10 0
Lead Shot, in 28lb. bags.....	20 0 0	"	21 0 0
Copper Sheets, sheathing and rods.....	83 0 0	"	84 0 0
Copper, British Cake and Ingots.....	76 0 0	"	76 10 0
Tin, Straits.....	106 0 0	"	107 0 0
Do., English Ingots.....	112 0 0	"	113 0 0
Spelter, Silesian.....	27 0 0	"	28 0 0
TIMBER.			
Teak, Burmah.....	per load	£13 0 0	to £15 10 0
Bangkok.....	"	10 10 0	" 14 10 0
Quebec Pine, yellow.....	"	4 7 6	" 6 5 0
Pitch.....	"	8 10 0	" 8 15 0
Oak.....	"	4 0 0	" 6 0 0
Birch.....	"	3 0 0	" 5 0 0
Elm.....	"	4 12 6	" 5 15 0
Ash.....	"	3 17 6	" 5 5 0
Danish and Memel Oak.....	"	3 5 0	" 3 15 0
Fir.....	"	2 0 0	" 4 0 0
Wainscot, Riga p. log.....	"	3 15 0	" 5 15 0
Lath, Danish, p.f.....	"	4 10 0	" 5 10 0
St. Petersburg.....	"	4 0 0	" 6 10 0
Greenheart.....	"	8 0 0	" 8 5 0
Box.....	"	4 0 0	" 15 0 0
Sequoia, U.S.A., per cube foot		0 1 9	" 0 2 0
Mahogany, Cuba, per super foot			
lin. thick.....		0 0 5½	" 0 0 7
Honduras.....	"	0 0 3½	" 0 0 4½
Mexican.....	"	0 0 3½	" 0 0 4
Cedar, Cuba.....	"	0 0 4	" 0 0 4½
Honduras.....	"	0 0 3½	" 0 0 4½
Satinwood.....	"	0 0 9	" 0 1 9
Walnut, Italian.....	"	0 0 8	" 0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in.			
by 1½in.—			
Quebec, Pine, 1st.....		£18 15 0	to £25 5 0
" 2nd.....		13 15 0	" 17 0 0
" 3rd.....		6 0 0	" 10 0 0
Canada Spruce, 1st.....		8 10 0	" 10 10 0
" 2nd and 3rd.....		7 5 0	" 8 10 0
New Brunswick.....		7 5 0	" 8 0 0
Riga.....		8 5 0	" 9 5 0
St. Petersburg.....		11 15 0	" 14 5 0
Swedish.....		9 15 0	" 16 15 0
Finland.....		9 15 0	" 10 5 0
White Sea.....		10 15 0	" 18 0 0
Battens, all sorts.....		5 0 0	" 16 0 0
Flooring Boards, per square of lin.—			
1st prepared.....		£0 9 6	" £0 16 3
2nd ditto.....		0 8 0	" 0 13 3
Other qualities.....		0 6 3	" 0 7 0
Staves, per standard M:—			
Quebec pipe.....			
U.S. ditto.....		£35 0 0	" £42 10 0
Memel, cr. pipe.....		210 0 0	" 220 0 0
Memel, brack.....		180 0 0	" 190 0 0
OILS.			
Linseed.....	per ton.	£17 5 0	to £17 15 0
Rapeseed, English pale.....	"	22 10 0	" 22 15 0
Do., brown.....	"	20 15 0	" 21 5 0
Cottonseed, refined.....	"	15 0 0	" 15 10 0
Olive, Spanish.....	"	28 10 0	" 29 0 0
Seal, pale.....	"	21 0 0	" 21 5 0
Cocoonut, Cochin.....	"	29 0 0	" 29 10 0
Do., Caylon.....	"	25 10 0	" 25 15 0
Palm, Lagos.....	"	23 15 0	" 24 0 0
Oleine.....	"	18 15 0	" 19 15 0
Lubricating U.S.....	per gal.	0 6 3	" 0 7 6
Petroleum, refined.....	"	0 0 6	" 0 0 6½
Tar, Stockholm.....	per barrel	1 0 0	" 1 5 0
Do., Archangel.....	"	0 15 0	" 0 18 0
Turpentine, American.....	per ton	23 15 0	" 29 0 0



## LIST OF COMPETITIONS OPEN.

Willesden—Board School (1,000 places; Assessor; 3 p.c. com.)	£50 and £25	W. Vincent, Clerk, Public Offices, Dyne-road, Kilburn (names by)	Mar. 14
Shoreditch—Additions to Town Hall (limit £12,000)		H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C.	" 22
Kilmallock—O'Sullivan's Monument		The O'Sullivan Memorial Committee, Kilmallock	" 23
Doncaster—House for Grammar School Master (limit £8,500; Assessor)	£50 (merged), £25	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster	" 30
Forfar—Isolation Hospital (Assessor)	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee	" 31
Swindon—Additional Fever Pavilion (24 beds)	District Hospital Board.	W. H. Kinneir, Clerk, High-street, Swindon	" 31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£150, £100, £50	The City Surveyor's Office, Bradford	April 14
Fleetwood—Board Schools, West-street (600 places)	10gs. (merged)	J. H. Kean, Clerk to Board, Fleetwood	" 18
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	£50, £20, £10.	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate	" 24
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50.	The City Engineer, Municipal Buildings, Leeds	June 1
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75.	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	" "
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair)		F. Moggridge, 18, King's-place, Portman-square, W.	" "
Wandsworth, S.W.—Guardians' Board-room, Offices, &c.	£100 (merged), £60, £40	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W.	" "
Hexham—Vagrant Wards at Workhouse	£20	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	" "
Staines—London-rd. Bd. School (250 places; £8 limit per head)		J. Anthony Engall, Clerk, Staines	" "

## LIST OF TENDERS OPEN.

## BUILDINGS.

Glenorchy—Additions to Teacher's House	Glenorchy & Inishail School Board.	Kenneth MacRae, Architect, Oban	Mar. 11
Battle—Repairs to Zion Chapel	Trustees	J. Eldridge, 18, Mount-street, Battle	" 11
Mirfield—Two Semi-Detached Houses at Battysford		T. H. Farrar, Architect, Fountain-street, Halifax	" 11
Devonport—Foundations, &c., at Isolation Hospital	Council	J. F. Burns, Boro' Surveyor, Municipal Offices, Kerr-st., Devonport	" 11
Leeds—Warehouse and Stables, Green-lane	T. Cleasby	J. W. Lawton, Architect, 83, Albion-street, Leeds	" 11
Southill—Three Blocks of Cottages		H. Harewood Hall, Architect, Shaw Cross, near Dewsbury	" 11
Eye—Kiln and Malting	Charles Fisher and Co.	G. Bishop, M.S.A., Architect, Cheapside, Stowmarket	" 11
Morecambe—House, South-road	J. Charlton	Marshall Bros., Architects, Back Crescent, Morecambe	" 11
Desford—Public School		J. Park, Mansie, Desford	" 11
Little Walham—House and Shop	Lewis Campin	Clare and Ross, Architects, 63, Duke-street, Chelmsford	" 11
Darlington—Additions to Workhouse	Guardians	Martin and Davis, Architects, Skinnergate, Darlington	" 11
Sheffield—Wesleyan Chapel and Schools, Northfield-road		W. J. Hale, Architect, St. James's-row, Sheffield	" 11
Chat Moss—Running-Sheds, Workshops, and Farmhouse	Manchester Corporation	G. Plant, Supt., Town Hall, Manchester	" 11
Omagh—Additions to Station	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	" 11
Llandudno—Slaughter-Houses	Urban District Council	E. P. Stephenson, Engineer, Church-walks, Llandudno	" 11
Tredegar—Altering and Cementing the Castle Hotel	City Council	Arthur O. Evans, Architect, Pontypridd	" 11
Nottingham—Branch Reading-room, Carlton-road	Corporation	W. B. Starr, Architect, 12, St. Peter's Gate, Nottingham	" 11
West Hartlepool—Electric Light Station, Burn-road	Water Committee	C. Stanley Peach, F.R.I.B.A., West Hartlepool	" 11
Nottingham—Engine-House, &c., Burton Joyce		Herbert Walker, Architect, Angel-row, Nottingham	" 11
Leven—Twenty-Four Workmen's Houses	General Prisons Board for Ireland.	J. Houston, Architect, Dummerline	" 11
Maryborough—Block of Buildings and Wall at H.M.'s Prison	Urban District Council	Max S. Green, Engineering Inspector, Dublin Castle	" 11
Cowes—Coal Stores	Gt. Northern (Ireland) Railway Co.	J. W. Webster, Engineer, Council Offices, Cowes	" 11
Dublin—Electric Power House, Amiens-street		The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	" 11
Oakworth—Six Houses at Lane Ends	John Kenyon, Ltd.	Judson and Moore, Architects, Oakworth, near Keighley	" 11
Rawtenstall—Alterations to White Horse Hotel	D. O'Reilly	Robert Neill, Architect, 9, Grimshaw-street, Burnley	" 11
Cork—Two Houses, Windmill-road	Town Council	W. H. Hill and Son, Architects, South Mall, Cork	" 11
Stroud—Restoration of Church Tower	Royal National Eisteddfod	Ruck and Smith, F.R.I.B.A., Architects, Maidstone	" 11
Hereford—Electricity Station, Wildmarsh-street	Urban District Council	John Parker, A.M.I.C.E., City Engineer, Hertford	" 11
Cardiff—Temporary Pavilion in Cathays Park		Geo. Thomas, F.S.I., Queen's Chambers, Cardiff	" 11
Durham—Steps from Framwellgate to River		W. T. Jones, Architect, North Bailey, Durham	" 11
Stotfield—Villa	Gt. Northern (Ireland) Railway Co.	A. and W. Reid and Wittet, Architects, Stotfield	" 11
Omagh—Station-master's House	Chas. Thompson	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	" 11
Darlington—Business Premises, Skinnergate	Town Council	Martin and Davis, Architects, Skinnergate, Darlington	" 11
Manchester—Annexe to Nurse's Block at Monsall Hospital	D. Thwaites and Co.	The City Surveyor, Manchester	" 11
Croydon—Additions to the Municipal Lodging-House at Pitlake	Thos. Crosby	The Borough Engineer's Office, Town Hall, Croydon	" 11
Morecambe—Additions to Battery Hotel		C. F. Thompson, Architect, The Arcade, Lancaster	" 11
Bridlington—Additions to 14 and 15, Oxford-street	Managers	J. Barnshaw, Architect, Bridlington Quay	" 11
Stockton-on-Tees—Shipbuilding Offices, &c.	Standing Joint Committee	C. H. Marriott and Sons, Architects, West Park-street, Dewsbury	" 11
Bala, Merioneth—County Intermediate School for Girls		H. Teather, Architect, 83, Wylie Cop, Shrewsbury	" 11
Huyton—Police Station	Wm. Henderson	H. Little, Architect, County Offices, Preston	" 11
Pontypool—Four Semi-detached Villas	Craig, Taylor, and Co.	B. J. Francis, Architect, Abergavenny	" 11
Scotby—Two Semi-detached Houses		J. H. Martindale, Architect, Viaduct Chambers, Carlisle	" 11
Thornaby—Shipbuilding Offices	Dr. E. Hall Batchelor	C. H. Marriott and Son, Architects, West Park-street, Dewsbury	" 11
Sowerby—Brick Filter Tanks	Herbert Taylor	W. Edleston Asquith, Bottom Mills, Sowerby Bridge	" 11
Bridlington Quay—Residence		Brodrick, Lowther, & Walker, Archts, Centri Camps, Bridlington Quay	" 11
Englefield—Stabling		C. H. Marriott and Sons, Architects, West Park-street, Dewsbury	" 11
Bishop Auckland—Conversion into Collegiate School of Hartford House	J. Walton Taylor, F.R.I.B.A., Architect, Newcastle-on-Tyne		" 15
South Norwood Hill—Converting Premises into Fire Station	The Borough Engineer's Office, Town Hall, Croydon		" 15
Birstall—Eighteen Houses	A. England, Secretary, Birstall, Yorks		" 15
Salford—Crushing-Machine House at Sewage Works	The Borough Engineer's Office, Town Hall, Salford		" 15
Burgreave—Lodge at Burial Ground	E. Winder, jun., Architect, Wharf-street, Sheffield		" 15
Morecambe—House and Shop, Cross-street	Marshall Bros., Architects, Back Crescent, Morecambe		" 15
Brynmanan—Shop and House	J. Cook Rees, Architect, Neath		" 15
Carlisle—Villa, Blackwell-road	H. H. Hodgkinson, Architect, Scotch-street, Carlisle		" 15
Mansfield—Mortuary at Workhouse	R. F. Vallance, Architect, Mansfield		" 15
Dublin—Thirteen Labourers' Cottages	J. Morris, Clerk of Works, 24, Cabra-parade, Dublin		" 15
East Dulwich, S.E.—Alterations to Workhouse, Constance-road	H. Jarvis and Son, Architects, 29, Trinity-square, Borough, S.E.		" 15
Glasgow—Exhibition Buildings, Kelvingrove Park	H. A. Hedley, Secretary, 141, Buchanan-street, Glasgow		" 15
Staincliffe—Alteration of Four Cottages	J. C. Barrowclough, Engineer, Batley		" 15
Cardiff—Board School, Cathays-terrace	E. W. M. Corbett, Architect, Castle-street, Cardiff		" 15
Maynooth—Tower and Spire to St. Patrick's College Church	W. Hague, Architect, 50, Dawson-street, Dublin		" 16
Inishowen, Co. Donegal—Lighthouse Keeper's Dwelling	Owen Armstrong, Secretary, Dublin		" 16
Leeds—Bandstand Foundations at Roundhay Park, Wortley	The City Engineer's Office, Municipal Buildings, Leeds		" 17
Park, Stanningly Park, and Hunslet Moor	D. Edwards, Secretary, 13, Tanymanod-terrace, Blaenau Festiniog		" 17
Blaenau Festiniog—Alterations to Tabernacle C.M. Chapel	T. W. Cotman, Architect, Northgate-street, Ipswich		" 17
Ipswich—Conservative Club, Newton-road, Rose Hill	A. J. Murgatroyd, Architect, 23, Strutt-street, Manchester		" 17
Ancoats—Sanitary Alterations to Cottages, Kennedy-street and Tame-street	Hon. Reginald B. Brett, Secretary, 12, Whitehall-place, S.W.		" 17
Manchester—South-Eastern District Post Office	Samuel Dyer, Architect, Bridlington Quay		" 18
Bridlington Quay—Additions to Beverley House, Quay-road	Goodey and Cressall, Architects, Victoria Chambers, Colchester		" 18
Colchester—Cookery-Room at North-street School	W. B. Wood, A.R.I.B.A., 12, Queen-street, Gloucester		" 18
Gloucester—Alterations at Y.M.C.A. Buildings	A. Lancelot Lang, Architect, 12A, Pedder-street, Morecambe		" 21
Morecambe—Mineral Water Works, Thornton-road	F. Hibbert, Secretary, 45, St. Peter's-street, St. Alban's		" 21
St. Alban's—Additions, &c., to Hospital	The City Surveyor, Manchester		" 21
Manchester—Twenty-two Cottages, Miles Platting	E. West, Surveyor, 23, Coombe-road, Croydon		" 21
Croydon—Workshop at Workhouse, Queen's-road	H. W. Gibson, Deputy Clerk, Shire Hall, Chelmsford		" 21
Thorpe-le-Soken—Additions to Police Station	R. Scrivener and Sons, Architects, Hanley		" 21
Hanley—St. Jude's Parish Church, Victoria-road	G. K. Mills, Secretary, Paddington Station, London		" 21
Fenny Compton—Cottage at Station	J. R. Brown and Son, Architects, 17, Market Hill, Luton		" 21
Luton—Schools, Waller-street Wesleyan Chapel	Nowell Parr, C.E., Engineer, Clifden House, Bolton-rd., Brentford		" 21
Brentford—Market Building Works, Kew Bridge			" 22
West Norwood, S.E.—Two Bathrooms at School Infirmary, Elder-road	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E.		" 22
Baintree—Dwelling House	Clare and Ross, Architects, 66, Duke-street, Chelmsford		" 22
Beddington—Lodge, Chapels, Roads, &c., at New Cemetery	R. M. Chart and Sons, Architects, Union Bank Chambers, Croydon		" 22
South Kirby—Wesleyan Church	G. F. Pennington, M.S.A., Central Chambers, Castleford		" 22
Croom—Sacristy	J. Moriarty, Main-street, Croom		" 23
Poplar, E.—Coroner's Court, Mortuary, &c., High-street	Lansell and Harrison, Architects, 38, Bow-lane, Cheapside, E.C.		" 23
Kingston-on-Thames—Female Infirmary, &c., at Workhouse	W. A. Hope, C.E., Architect, Portsmouth-rd., Kingston-on-Thames		" 23
Tooling—Stabling and Cottage at Dust Destructor, Alston-rd.	H. G. Hills, Clerk, East Hill, Wandsworth, S.W.		" 23
Winchmore Hill—Boiler and Engine House	Pennington and Son, Archts., Hastings House, Norfolk-st., Strand		" 23
Ipswich—Alterations and Additions to Borough Asylum	E. Buckham, Borough Surveyor, Town Hall, Ipswich		April 1
Englefield Green—Enlarging School, &c.	W. Menzies, Architect, Englefield Green, Surrey		" 1
Rauceby, near Sleaford—Superstructure of Lunatic Asylum	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W.		" 4



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, MARCH 17, 1899.

### THE NATURAL ENEMIES OF BUILDINGS.

OUR public and private buildings suffer very seriously from several causes which it should be the endeavour of the architect to lessen as much as possible. Our most costly architecture is reserved for the City, where the conditions are naturally the least favourable to the preservation of stone, or to the display of sculptural decoration. No one making any observation of buildings within a mile radius, say, of the Bank, could fail to notice the destructive agency of smoke and fog on several of the façades of stone, especially those in which there is much carving or detail. In some cases these façades are blackened surfaces in which all the finer details are choked up with a coating of thick soot, and their features almost entirely obliterated. From an architectural point of view, there is not much to regret; the blackened veil of smoke and dust have here and there done a service in throwing into obscurity and gloom a mass of intricate and petty detail, and in emphasising the main features and proportions. We often stop in amazement opposite a new building on which the carver has been allowed a free and unrestrained license—as in the new Carlton Hotel in the Haymarket, or some City office—and notice the execution of delicate and refined carved surfaces, which must, in the course of a few years at most, be completely lost to view. And we naturally pause and exclaim, What a waste of labour! Is it worth the expense? Would it not have been wiser to have expended all this art-craftsmanship in carving the walls of the hall, or even in making one handsome entrance, where the carver's skill would have been appreciated, or in decorating the interior walls of the saloon *salle à manger*, or state rooms with something better than ordinary commercial imitations? With the bitterest of ironies, that Nemesis of our London atmosphere speedily reduces all our efforts in this direction to a mere blank. The atmosphere is a destroyer and a leveller of the most ruthless kind, so that if an architect fails to use his common sense in the selection of the proper material, or in restraining his desire for elaborate ornament externally, he is the sufferer. On the choice of the right stone, numerous articles, essays, and papers have been published, though architects still go on building in our great smoky cities like Glasgow, Manchester, and London with soft limestones, or with the wrong variety of stone, regardless alike of its composition and of the proper position in a building of the particular bed of the stone. There are plenty of good weathering stones, as those of St. Aldhelm Box Ground, Corsham Down, Combe Down, of the Bath stone variety, if the proper selection is made and the stones are well set. There are some better suited for projections like cornices and weatherings, others for recessed faces. And we fear there is less attention given to the mode of setting, and the positions certain stones ought to occupy; the clerk of works is not always expert in the qualities and modes of working, and the architect, if he specifies a certain quarry and bed, and thinks he gets it, leaves the rest to the clerk or foreman. The other day, at the Architectural Section of the Philosophical Society of Glasgow, Mr. Oscar Paterson read a paper on "Atmospheric Influence on Architecture and Decorations," in which he pointed to the noxious condition of the atmosphere of that city, as the result

of the free escape of factory smoke and the oxidation of the sulphur in the coal into sulphuric acid. To this corrosive and virulent compound is due the erosion of the stone of the public buildings of Glasgow, as well as the destruction of vegetation. The "free molecules of carbon carried over in the soot of factory smoke settled on the stonework, and turned the natural brightness of the material into a gloomy and sombre grey, destroying at once the precision, fineness, and quality of the architecture." The sombre grey, or, rather, sooty veil of carbon which settles over our buildings in London, as well as in Glasgow, may, as we have just remarked, not be an altogether unmixed evil: the grey stone may, in some cases, mitigate the obtrusiveness of irritating or over-florid ornament, and tend to broaden the masses. But the evil is great in those buildings where the architecture is of a superior quality, and where this film of carbon completely destroys the precision and fineness of the mouldings. Can nothing be done to relieve our city architecture of this curse of smoke and fog? This is the question that confronts the modern reformer; but, from the opinion of scientific experts, like Professor Oliver Lodge, no charge of electricity is likely to prevent a London fog, and we are afraid it will be a long time before the idea of making gas at the great coal-fields, and of conveying it to London in huge pipes, is likely to be realised. But till it is forbidden to import crude coal into London, and the use of gas-stoves is made compulsory, we have no promise of amendment. Legislation only will effect a remedy. But if we cannot prevent the blackening of our buildings, we can do something to protect the stone from erosion and decay. Blackness not only disfigures our buildings, but the statuary of all our public squares. The coating of oxo-sulphides destroys all the features and modelling, and Mr. Paterson suggests a remedy based on experiments made at Berlin by the municipal authorities. We can bring to London and our smoky cities excellent stone that will resist acids, there are solutions manufactured (we have "Fluate," for example, for hardening and waterproofing the surface of our stonework), and we have other materials like terracotta and faience, by the employment of which discoloration can be avoided; though let us not again fall into the mistake of imagining that we can ever bring the brilliant skies of the South to this climate, or ever reproduce the architecture of Venice in our cities.

There is another deadly enemy to building—that of dampness. In spite of our building by-laws and other regulations, dampness prevails to an enormous extent. Quite fifty per cent. of our modern houses are situated on damp soils or undrained sites. We know of large estates in the south and western suburbs of London that have been built on marshy and waterlogged soils. People come and go, tenants are found to occupy the houses, though many habitations have never had a bed of concrete laid beneath them, and thousands more are flooded at every exceptional high tide or during heavy rainfalls. The by-laws of the London County Council under the Metropolis Management and Building Acts Amendment Act, 1878, have provided for layers of concrete 6 in. thick over the sites of all buildings. Section 122 of the London Building Act prohibits the erection of any building upon land below the level of Trinity high-water mark, or on any land incapable of drainage into a sewer. These regulations have no doubt produced an improved condition of things as far as possible; but they are still powerless to prevent the entrance of damp in other ways. Walls are still allowed to be built which are in no sense impervious to moisture. What with porous bricks and mortar, imper-

fect dampcourses, unprotected underground rooms, and leaky roofs, moisture enters in many unsuspected ways. Happily, we possess means for preventing the transmission of moisture through walls or from foundations, if only those responsible for building would use them. It is curious that architects are still found who prefer battering to cavity walls, or cement facing to such an impermeable vertical course as that of the "Hygeian Rock" composition; but so it is. If the added strength given by a vertical layer of this material is more than sufficient to compensate for the loss of cross-bond, there ought to be no hesitation. The architect has to reckon on the destructive agency of moisture, not only in rendering our houses unhealthy, but in promoting incipient decay, dry-rot, and the destruction of internal decoration. Dampness also acts as injuriously to electric light and power installations by causing a leakage of the current. In all these different ways it becomes very necessary to introduce safeguards which will check the absorption of moisture. By horizontal dampcourses, such as those afforded by Callender's pure bitumen, or by vertical plates of similar substances, it is possible to cut off all external moisture from our buildings. Modern hygienic construction, as well as protection of our architecture and decoration, call for the adoption of every expedient to arrest the destructive action of both these enemies to our city buildings.

### MODEL SPECIFICATIONS.—LVI.

#### ELECTRIC LIGHTING.

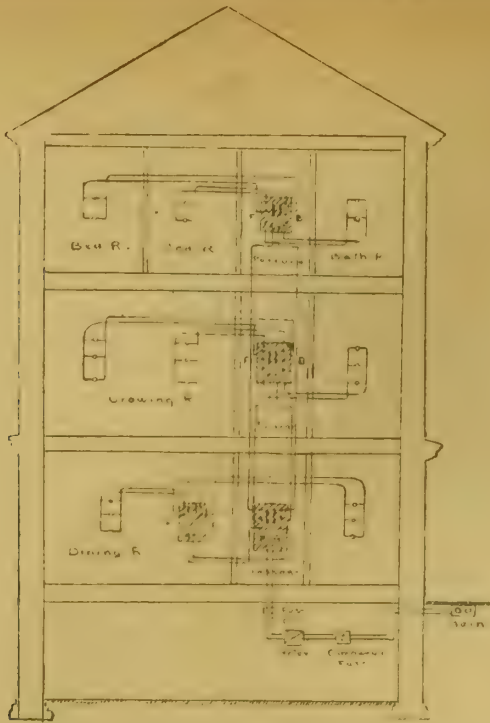
IT would be unnecessary to give the reader here any elementary knowledge of electric lighting, and we refer him to the numerous handbooks on this subject, and to the series of articles that have appeared in this journal. The regulations of insurance and electric supply companies are important. (See Mr. H. M. Leaf's book on "The Internal Wiring of Buildings.") We shall confine our remarks chiefly to the wiring of a building for incandescent lamps, and recommend that the architect should make himself familiar with the many terms and definitions of the units of force and work, such as "volt," "ohm," "ampere," "watts," &c., used to express respectively the electrical pressure, the measure of resistance of the conductor, the unit of quantity of current, rate of flow, also with the Rules for electric installation issued by the "Sun" and other fire offices. E.M.F. are initials that stand for electro-motive force, or the pressure of current along the wire, and this pressure as measured in volts. The "difference of potential," as it is called, is the difference of pressure between the ends of a circuit.

The best arrangement of circuits is to divide the current into a number of small circuits, as faults are then more easily found out. If the public supply is taken, the current is conveyed to a central distribution board, and from this small circuits are taken to the lamps. In a large building cables are run to other branch distribution boards (see diagram), where the circuits are again subdivided. This is the safer and more economical plan, and the clauses we give are on this system. The best places for safety fuses are the distribution boards where the small circuits branch off. All leads from mains should be fitted with them.

Instead of wood casings for the wiring, iron barrel is largely used, and has the advantage in installations in buildings where the wiring is put in in the early stage. The iron barrel can be fixed in the walls and floors, and the wires are then drawn through afterwards by cords. In this case special junction boxes are made instead of T-pieces at the angles.

The candle-power required per square of





100ft. of floor has been given as follows:—Halls and passages 20 to 30, dining-rooms 30 to 40, drawing-rooms 45 to 55, bedrooms 15 to 20c.p. This power is the first thing to be considered. It is necessary to be able to light a certain number of lamps in each room at one time, and these groups of lamps should be specified so that separate switches should be provided, and fuses for each group. Distinguish between the wires which feed the lamp called "light" wires, and those wires which are broken to take the switch called the "switch" wires. One is sometimes called the "positive," the other the "negative" wire. Each floor should have a "fuse" and switch-board, which should be of seasoned mahogany or teak polished, and let into wall to take the mains from the main switch in basement, and these should be insulated. Consult the regulations of the fire office and supply company, before deciding on the wiring. The meter and position of main fuse should be first determined (see sketch). It is necessary to determine the number of lamps and their candle-power. A 16c.p. lamp will light 60 to 100 square feet of floor. In large private buildings a pressure at the house of 100 or 110 volts is sufficient. The meter should be placed in a dry, fireproof building in the area where the company's meter and double pole fuses are set. The mains may be 19/14 in size, and pass on to a room or lobby where the distributing board is fixed. The latter should be of slate, and be mounted upon ebonite, so that there is no connection between portions having opposite polarities. On this distributing board there should be a D.P. switch and the branch fuses, and a switch on both the positive and negative branches. The secondary mains to each floor, 7/16 size, proceed from this board, which may be inclosed in glass. The secondary main is distributed from a fuse-board on each floor, and there is a switch below the board to cut the current off. From each fuse-board wires are taken to the lamps on each floor, a 7/18 cable. The highest insulation type of cable should be used, and one authority recommends white pine casings, shellac varnished inside, and thin sheet lead over the casing to protect the wire from any water. Ceiling-plates and switches of porcelain are preferred; also single-light pendants with a switch to each lamp. For basements, passages, and bedrooms 8c.p. lamps are sufficient—in fact, they are more economical in wear.

The rules and regulations of the Society

of Telegraph Engineers and Electricians for the prevention of fire risks should be studied before writing specification. These are a few:—"Conductors: All conductors must have a sectional area proportioned to the work, so that if double the current they are intended for is sent through them their temperature may not exceed 150° Fahr. All casings to be in sight and be accessible; all conductors to be insulated, and be kept well apart. It is a good plan to colour the positive 'lead' differently to the negative. Metal fastenings for conductors are to be avoided. Switches, &c.: These should be so constructed that when the handle is turned to and from the positions of 'on' and 'off' it is impossible for it to remain in any intermediate position, or to permit of heating. The handles should be completely insulated from the circuit. Switches, commutators, connections, lamps, and other fittings must be mounted on incombustible bases. Cut-outs mounted on wood bases should be rendered unflammable."

It is a good plan to provide a separate sum for lamps and fittings, stating they are to be supplied by any approved firm, such as Messrs. Strobe and Co., Osnaburgh-street; Perry and Co., Grafton-street, W.; Rashleigh Phipps and Co., Oxford-street; or the lamps and fittings may form a separate contract. It is better for the proprietor or his architect to select the electroliers, pendants, and brackets.

The following outline specification is given in Sir David Salomon's work, "Electric Light Installations." Although not complete, it may serve as a groundwork:—

- "All work should be first class.
- "Building—i.e., engine-house and accumulator house should be substantially built, fireproof, well-lighted, dry, and with good ventilation.
- "Machinery foundations should be placed on virgin soil, and must be substantial.
- "Special precautions should be made against vibration.
- "In some cases the foundations must not be built up with the earth in contact, but a small air-space should intervene; a brick wall being built to keep the earth in position round the foundations.
- "Dynamoes, alternators, engines, and other apparatus to be supplied by well-known makers, and from firms of standing.
- "No machinery of apparatus to be inserted which is new and untried.
- "In the case of gas-engines particularly, select the maker who has had the longest experience.
- "The accumulator should be obtained from one of well-known firms.

"Mains between the engine-house and dwelling-house, or the point where the light or power is to be supplied, should by preference be a concentric cable of the highest insulation, lead-covered on the outside, and drawn into a cast-iron pipe, with manholes at such points as may be found necessary; the whole of this underground system being made completely water-tight.

"It may prove an advantage to lay in the same pipe a telephone wire for communication between the point of distribution and the engine-house.

"Mains in the house, the small wiring, and the casing should be first-class in all respects.

"No wiring in the house to be imbedded in the walls.

"In those instances where the casing is let into the wall so that the cover may be level with the general surface the casing must be painted or protected in some way from any moisture that might reach the wood from the plaster or other material of the wall.

"No wiring to be under floors or in any position that may be inaccessible.

"Where casing is found to be impossible, composition metal tubes may be employed, but none of greater length than will easily permit of being threaded by passing through it first a stiff wire.

"Where alternate current is employed, both leads must be drawn into the same metal tube.

"The section of all cables and wires to be determined by a temperature test.

"All cables and wiring to be stranded.

"Any cable or wire passing through a partition or anything of a similar nature should be carried through an earthenware pipe by preference.

"The distance between all conductors having opposite polarities should be at least 1in.

"Should it become necessary to place conductors under floors, the floor-boards must be screwed down over such places.

"Switches, connectors, ceiling-plates, lamp-holders, and other fittings should be of the best construction, of non-combustible materials, and insulated from the walls and ceilings.

"No fitting to be used as a return, and all circuits to be insulated metallic circuits.

"Twin-wires to be well insulated, and no wall connectors to be placed without a switch.

"Arc lamps and motors to be well protected.

"In damp situations and in stabling, special precautions must be taken against damp and deleterious gases.

"No sub-circuit should carry more than 6 to 10 amperes.

"All joints to be thoroughly well made, and outside the house placed in joint-boxes filled with pitch.

"In the house there should be a main switch-board, and upon it a D.P. switch, an ammeter, a voltmeter, and the fuses of the branches which lead to subsidiary fuse-boards on each floor.

"Every fuse-board to have a D.P. switch to cut off the current from that floor.

"All lamps in bedrooms to be capable of being pulled up to a suitable height, and down to the floor when fixed near toilet-tables.

"Connectors to be placed by the bedside, and also where the inmates are accustomed to work.

"All connectors, switches, and fuses to be placed within easy reach.

"All switches to be placed at a convenient height on the shutting doorpost inside the room, the exception being the switches required for subsidiary or portable lamps.

"Floor and table connections to be so arranged that when not in use a flap can shut down over them for their protection, and be level with the floor or table.

"All apparatus, fuses, &c., should be labelled.

"All disputes to be settled by arbitration.

"Provide a schedule of prices for extras."

1. *Notice.*—Give all notices to Electric Supply Company, pay fees and charges for making connections to mains.

2. *Generally.*—The materials and workmanship to be of the best kind, and to conform to the regulations of the Sun Office and Supply Company. All fittings, whether switches, ceiling, wall-plates, &c., to have dry wooden blocks behind, shellac-varnished, or plates of ebonite. All screws used to be insulated from circuit.

3. *Distribution Board.*—The circuits to be grouped on a suitable distribution board of polished teak or polished mahogany. Or—

The main switch-board and distributing switch-boards, "cut out" or fuse-boards to be of enamelled slate, the positive and negative portions insulated. The slates to be mounted or framed in teak or mahogany, with glazed doors, and the screws to be insulated by ebonite rings. Each board to have a cut out and switch in the positive side, and a cut-out on the negative side. Or—

The main double-pole switch and fuse for 50 amperes to be fixed close to entrance of mains, and a pair of 19/16 to be run in area to two sub-



distribution boards at back of staircase. From these boards run 5 ampere circuits to lamps.

4. *Main and Branch Switches.*—The main switch to be "double pole," with instantaneous break with no intermediate position between "off" and "on," and is to be fixed as directed by the company's engineer, and is to be mounted on a teak (or mahogany) board, with cover, &c., complete. The other switches to be approved type (or "Tumbler") with instantaneous break, so as to prevent arcing, and all switches to have incombustible bases of a material approved.

5. *Safety Fuses.*—The fuses to be placed where required (not on the ceiling or skirtings), but on the distribution boards where the small circuits leave the mains. Provide a main D.P. fuse to control the whole of the lights in basement, and one on each floor, and for each group of lights. All fuses must have sufficient break to prevent arcing, fitted with fireproof bases, and covers properly insulated.

The lamp switches to be placed on the wall near the opening stile of door, so as to be convenient for lighting (or as ordered).

The installation to be divided into small circuits, carrying not more than 5 amperes.

6. *Cables and Wires.*—Supply and fix in a proper manner, and under the direction of electrician (or architect), all the necessary copper branch cables and wires required of the sizes scheduled, the smallest wire to be 3/22.

The cables to start from a main distribution board of teak in basement, and to be fitted with the best mode safety fuses.

The sectional area of conductor to be so proportioned that the current shall not exceed 1,000 amperes per square inch of copper.

The conductor to be of stranded copper wire of not less than 96 per cent. of the conductivity of pure copper, tinned, and insulated with pure indiarubber, vulcanised and finished with braided tarred flax, &c.

All cables and wires to have an insulation resistance of 300 meg-ohms.

7. *Joints.*—All joints (when required) to be properly scarfed, soldered, and insulated with three layers of rubber strip, wrapped with waterproof tape.

8. *Colour Wires.*—Colour the positive and negative conductors red and blue, and place them in separate grooves in the casings. The wires to be brought to the positions given on the schedule, and made ready to the electroliers and other fittings.

9. *Casings.*—All wood casings to be coated inside and out with shellac varnish, when cables passing through walls and partitions, iron barrel or composition tubing to be used.

10. *Separate Switches.*—Provide a separate switch to every joint for floor and bracket-sockets.

11. *Voltage.*—The voltage is not to exceed, say, 100 volts. The Board of Trade limit the voltage in private houses to 200 volts.

The architect to approve of all switches, distributing boards, safety-fuses, cables, casings, blocks, ceiling-plates, &c., and samples of these to be deposited.

12. *Incandescent Lamps.*—The incandescent lamps to be of Edison Swan, or other approved manufacturer. Specify candle-power and voltage of lamps, or give a schedule of wiring to the several points on different floors. Thus—

Take from distributing fuse-board A in basement pairs of 3/22 wires to lobby or vestibule, one or two points; kitchen brackets and pendants four or six points; servants' hall, two or three pendants, &c.

Take from distributing board B on ground floor the following 3/22 wires:—hall, two or more pendants; dining-room, a pair of 7/22 wires to six-light pendant, and 3/22 wires to six brackets; to drawing-room, one six-light pendant and six wall-brackets, &c. (These various points can then be numbered, and the number of lamps on each floor is thus determined.)

13. *Making Good, &c.*—Make good to all plaster-work ceiling decorations.

The working of the installation to be guaranteed for — after completion, and the contractors to make good all defects that may appear within twelve months after completion of contract.

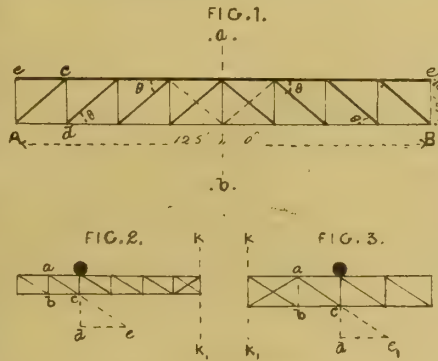
The whole to be done to the satisfaction of consulting engineer, architect, and in accordance with the requirements of the supply company and insurance company.

In making sidings for two new foundries which are being erected at Camelon, near Falkirk, the railway company have laid bare many interesting relics of the old Roman city of Camelon. Various pieces of Roman amphora, Samian ware, cooking utensils, and two silver coins of the reign of Nero and Hadrian have been found.

# THE CANTILEVER BRIDGE: ITS DESIGN AND CONSTRUCTION.—VIII.

SINCE all cantilever bridges may be regarded as consisting of three separate and distinct principal parts—namely, the two double cantilever arms and the central independent truss or girder, the analysis of the stresses upon these three subdivisions of the structure can be conveniently studied each independently of the other. It has already been remarked respecting the central truss, which we propose considering first, that for the purpose of ascertaining the stresses upon the different members of it, there is no difficulty in treating it as a simple braced girder supported at each extremity.

A word may be said here regarding the nature of these supports, for they differ a little from the conditions prescribed by theory for the stability and equilibrium of beams and girders under similar circumstances. The principal two of these are that the bearings of the trusses should be, or, at any rate, supposed to be, immovable; and, secondly, that they should be maintained at one and the same level. But the ends of the central independent, or, as it is sometimes termed, "suspended" girder, rest upon the free extremities of the cantilever arms. Now, however strong and rigid these parts of the arms may be made, they cannot be theoretically, nor also even practically, perfectly exempt from some slight deflection and vibration, when a heavy



rolling load covers the whole span of the central truss, and suddenly and with a considerable amount of impactive violence and shock, impinges upon the point where the central and cantilever spans are connected together. It is of no consequence how the connection may be made—whether the central truss be continuously and solidly riveted up to the ends of the cantilever spans or hung to, or suspended from, them by means of pivots, hinges, or slotted pins—the rolling load passes rapidly and weightily on to the weakest part of the whole structure.

It is manifest that, viewed from this practical point of view alone, the free ends of the cantilever spans do not altogether fulfil the conditions laid down for a "fixed support." They are equally defective when confronted with the second stipulation, which is to the effect that they should both be maintained at a constant level. Let us take the case of a train advancing from either end of the bridge, and suppose it to have covered one-fourth of the central span. The pressure upon the two free ends of the cantilever arms is not equal, and there is no doubt but that under the difference of pressure, since the reactions are unequal, they will not be at the same level. These departures from the strict dictates imposed by theory are, however, so slight that they would not affect either the stability or the durability of the structure, even if they were of considerably greater magnitude than what they usually are. This remark, although true for the majority of the girders and bridges belonging to those types which have a horizontal soffit, does not apply with equal force to those of the arch or suspension principle. The great, and occasionally the troublesome, difficulty which the designer has to deal with in determining the type of girder or truss to be adopted for any particular bridge does not arise in the central member of the principal span of a cantilever bridge. This follows from the fact that since, owing to the comparatively great depth of the cantilever and anchor-spans, they must be open-web trusses, so in order to preserve uniformity of design and of general appearance, must the central independent girder belong to the same system. A solid plate

girder interposed between the free ends of a couple of open-web cantilever arms would appear very unsightly, even in structures which, unfortunately, make no great pretence to æsthetical or architectural merit. In other respects, there is no objection, from a constructive standpoint, why a plate instead of an open-web girder should not be employed, provided that the span does not exceed 150ft. at the most.

Having acknowledged the fact that it is imperative to select an open-web truss for the central independent girder, the next point to be settled is what particular form or type of truss is the most suitable for the purpose. The selection is often a little embarrassing, as there are so many types from which a choice may be made. Omitting the Bollman, the Fink, the trellis or primitive open-web form, and some others, which, like them, have since become obsolete, we have the Howe, the Warren, the Pratt, the bowstring, the Pettit, the N system, the lattice, and the polygonal. It is desirable, although not absolutely necessary, before fixing upon the particular form of bracing to be adopted for the central truss, to determine whether it is to belong to the through or to the deck system. As the merits and claims to attention of these two classes of bridges have been already investigated in our former articles, we need not refer further to them.

A skeleton elevation, drawn to scale, of the central independent truss of a cantilever bridge is represented in Fig. 1, and affords, as we shall proceed to demonstrate, so far as a mere diagram can, sufficient data to calculate the stresses upon all the different members of the structure. The one indispensable dimension to be ascertained, and upon which, in combination with other details, the whole design chiefly depends, is the span, which, in this instance, is 125ft. The next, and a very important datum, is the depth at the centre of the truss, which depends absolutely, unless the question of headway should arise, upon the length of the span. Putting L for the span, and D for the depth of the truss, and substituting for them, in order to establish the above statement, the symbols  $x$  and  $y$ , we have the general equation—

$$y = f(x) \dots \dots \dots (1)$$

That deep trusses are cheap has passed into an axiom, and the axiom may be accepted up to a certain limit only in practice, although theoretically it holds good for any ratio of depth to span. An increase in the depth of either girder or truss is attended with a commensurate decrease in the stresses upon the flanges or booms, or chords as the American engineers term them. But an increase in the mere depths does not influence in any way, nor to any extent, the value of the shearing stresses, and, consequently, neither the value of the stresses upon the diagonal members of the open web, for the latter stresses are simply functions of the former. The decrease in the stresses upon the flanges is obviously accompanied by a corresponding diminution in their sectional area, which signifies that less material is required for them, which is equivalent to a saving in weight of metal and in the cost of the girder. So long, therefore, as the span and load remain constant the depth of the girder has theoretically no influence on the shearing stresses or the stresses upon the web. Nevertheless, it affects the diagonal members of the web in a manner which speedily reduces it to very reasonable proportions. In Fig. 1, let  $l$  equal the length of any diagonal bar  $ac$ ;  $cd$  therefore is equal to the depth equal to  $D$ , and  $\theta$  is the angle  $c ad$ . From the properties of a right-angled triangle we have, substituting these values—

$$D = l \times \sin \theta,$$

and since—

$$\frac{1}{\sin \theta} = \operatorname{cosec} \theta,$$

the formula becomes, which gives value of  $l$ —

$$l = D \times \operatorname{cosec} \theta.$$

A very usual value for  $\theta$  is  $45^\circ$ , which is equal to  $1.4121$ , or, as a rough approximation when this angle is adhered to, we have—

$$l = \frac{3 \times D}{2}.$$

An increase in the depth of a girder is, therefore, attended by a *pari passu* increase in the length, and consequently in the weight, of the diagonal members of the web. But a very considerable increase might be given to the depth of the truss before the additional weight of them would counterbalance the reduction—due to the same



cause—of the weight of the flanges. What really puts a limit to the augmenting indefinitely the depth of a truss is that the corresponding augmentation in the length of the diagonals calls for greater net sectional areas—at least, so far as the members exposed to stresses of compression are concerned, and for a large amount of extra material to afford the requisite degree of stiffness to not only the ties and struts composing the web, but to give the proper amount of rigidity to the whole structure. Besides the limiting conditions there are others of a practical character which prohibit the use of very great depths altogether disproportionate to the span. It should be borne in mind that economy of the material itself, which is frequently the least expensive of all the various items comprised in an extensive and important engineering work, does not necessarily signify an equivalent economy in the construction of it in the workshop or in the erection of it on the ground. It may, therefore, be laid down as a general rule, applicable to every description of constructive work, that the limit of any particular theory lies in its application to practice.

It has been stated that as an increase in the depth of a truss was attended by a diminution in the amount of the stresses upon the flanges—a statement that admits of a simple proof. Let  $w$  equal the total load uniformly distributed over a truss, and the rest of the notation as before. It is unnecessary to adduce or prove the general formula, giving the stress upon any part of the flanges of a girder. One particular case will suffice, and it is that which applies to the stress at the centre of the flanges which is obtained from the expression, putting  $S$  for the stress—

$$S = \frac{WL}{8D} \dots\dots\dots(2)$$

It is worth mentioning that this equation is universal, and applies alike under the same conditions of loading to the arched, suspension, bow-string, plate, and open-web types. From (2) it is seen that the amount of stress upon the flanges is in the inverse proportion of the depth, and, therefore, the greater the depth the less *ceteris paribus* the stress. The truth of the second assertion has now to be demonstrated—namely, that an increase in the depth has no effect theoretically upon the shearing stresses, or the stresses upon the diagonal members of the web.

Let the diagrams in Figs. 2 and 3 represent the elevation of half of two triangular trusses under exactly the same conditions of span and loading, in which the value of  $\theta$ —that is, of the angle which the diagonal members make with the horizontal—is the same in both examples. The depth of the truss in Fig. 3 is, however, greater than that in Fig. 2. Suppose a single weight or a summation of several weights situated between the centre  $K$  of the truss, and the point of application be placed upon any one of the triangular apices as shown in Fig. 2; it is required to trace its action and ascertain the stress it produces upon the diagonal bar  $ac$ . In the first place, the weight is supported by the vertical strut, and is transferred to the lower end of it at  $c$ . When it arrives, or is presumed to have arrived, at this point, it tends to deflect the truss there, and exerts a pull upon the inclined bar  $ac$  and the panel length of the truss  $bc$ , subjecting both of them to tensile stresses, which can be thus determined. Upon any convenient scale plot the line  $cd$ , and make it equal to the weight placed upon the apex. From the point  $d$  draw a line parallel to the panel length in the direction of  $de$ , which, in this instance, will be horizontal, and produce the inclined bar  $ac$  to meet it at  $e$ ; then if  $ce$  be measured on the same scale, the length of it will give the tensile stress upon the diagonal  $ac$ . It is also evident that the length of the line  $de$  will be equal to the stress upon the panel length  $bc$ , though we are not just at present concerned with the stresses upon either the upper or lower flanges, which will be subsequently investigated. Let the same weight be now placed upon an apex in Fig. 3, in which the truss has a greater depth. The action of the weight is exactly the same as in the previous instance, and a repetition of the graphical method of determining the tensile required will give the same result, and we shall have  $ce$  equal to  $ce_1$ . The same result might be arrived at analytically. Since the triangles  $cde$  and  $cde_1$  are similar to the triangle  $abc$  in both Figs. 2 and 3, the same method of calculation may be employed as was adopted for obtaining the length of the diagonal  $AC$  in Fig. 1. Taking  $W$  to represent the weight, and making  $S_1$  equal to the stress upon the

diagonal bar  $ac$ , we have for both examples, using the same notation as before—

$$S_1 = W \times \text{cosec. } \theta \dots\dots\dots(3)$$

We may now pass on to a consideration of the number of triangles to be introduced in the truss, or, in other words, the length of the panels. Each separate panel is the length of that part of the truss situated between any two apices, and they are always equal to one another. Occasionally, but rarely, a shorter panel is located at the ends of the truss, but the practice is not one to be recommended. Once the depth has been fixed, the length of the panel is determined by the value given to  $\theta$ . If, on the other hand, the value of the angle  $\theta$  be fixed, the length of the panel becomes simply a function of the depth. American engineers adopt a wider range for the depth of their trusses than we do in England. Our limits for depth are from about one-twelfth to one-ninth of the span, whereas in the United States a very general practice is to employ a depth ranging from one-fifth to one-tenth of the span, and for long spans the proportion may be considered to average from one-seventh to one-eighth of the span. Under the first assumption, putting  $l_1$  for the length of panel, and using the same symbols, the equation is—

$$l_1 = D \times \cot. \theta \dots\dots\dots(4)$$

and in the second—

$$l_1 = l \times \cos. \theta \dots\dots\dots(5)$$

With respect to the length of panels, it is important to keep in view the nature of the stress—whether tensile or compressive—to which the up-rights of the net are subjected. If the vertical members undergo stresses of compression as in Figs. 2 and 3, the diagonals will be in tension, and longer panels may be used than in the example in Fig. 1, in which the conditions are reversed, the vertical bars being in tension, and the inclined ones in compression. The usual practice in designing horizontal trussed girders with parallel upper and lower flanges or booms is to make the length of the panel equal to the depth of the girder, a proportion which works out both for struts and ties, and in point of economy also, exceedingly satisfactorily. The value of  $l$  is then obtained from the simple expression—

$$l = \sqrt{l_1^2 + D^2}.$$

As the example in Fig. 1, which has been selected for analysis, is a truss belonging to the through-bridge type with the load on the lower flange, the vertical members  $Ae$  and  $Be$  are superfluous or redundant, and are frequently omitted in actual practice in bridges of large span with long panels, as the saving in the weight of the booms is in those instances worthy of consideration. It is a great mistake, however, and one against which the young designer should carefully guard, to cut or fine down material too much simply because the dictatus of pure theory may admit of it. True economy is quite distinct from parsimony in iron and steel as in money.

T. C.

#### TECHNICAL EDUCATION IN THE BUILDING TRADES.

A REPORT upon the present state of education and training in the building trades has been prepared by a special sub-committee, and has recently been adopted by the Technical Education Board of the London County Council. Evidence was given before the sub-committee, of which Mr. Richard Roberts was the chairman, by Dr. Walmesley, the principal of the Northampton Institute in Clerkenwell; Mr. Millis, of the Borough Polytechnic; Mr. Henry Holloway, of the firm of Holloway Bros., who spoke specially of the great decline in apprenticeship in the building trades during the last few years; Mr. Robert Mitchell, educational director of the Regent-street Polytechnic, who declared that the objection by the masters to apprentices far exceeded any obstacles placed by the men or the trade unions; the last witness's brother, Mr. Charles F. Mitchell, head of the technical and architectural schools at the same Polytechnic; Mr. Peer, secretary of the labour bureau at the same institute; Mr. H. Phillips Fletcher, A.R.I.B.A., director of the Trades Training School, Great Titchfield-street, W.; Mr. Howard Colls (Messrs. Colls and Sons); Mr. S. Barker, organiser of manual instruction under the London School Board; Mr. A. A. Ellis, Camberwell Green Science and Art Evening Classes; Mr. George Cole, secretary of the London dis-

trict of the National Association of Operative Plasterers; Mr. Sidney H. Wells, principal of Battersea Polytechnic; and many working foremen and practical plumbers and carpenters. The sub-committee make the following distinct recommendations:—

1. That every effort be made to lengthen, with Parliamentary sanction, the present term of school life, including a raising of the legal age for leaving school, and that between 13 and 15 opportunity should be afforded for special instruction in manual training and drawing.
2. That no restriction whatever should be placed upon the persons attending theoretical classes in technical subjects apart from the general requirements that the members of the class should be capable of profiting by the instruction afforded.
3. That, with a view to enabling artisans to become qualified as general foremen, mechanics belonging to any branch of the building trades be permitted to attend both the theoretical and practical classes in other branches of the building trades.
4. That learners under 19 years of age and improvers should be permitted to attend practical classes, provided that they show sufficient familiarity with the trade to render their efficient training possible without undue interference with the progress of the class.
5. That sub-committees should be appointed to visit and report upon the classes in each trade, and discharge the other duties indicated in the report.
6. That, in the teaching of the purely trade classes (evening) and in the examinations connected with them, more stress should be laid on methods which secure mechanical skill and quickness of workmanship, as well as on theoretical knowledge, and students should not be encouraged to expend an undue amount of time and labour upon elaborate models of no practical use.
7. That, as far as possible, the teachers should be actually engaged in the trade in which instruction is given by them. In order to secure this, special classes should be instituted to qualify competent mechanics to be teachers, and for this purpose the polytechnics should be used as centres of normal training.

The Technical Education Board is now considering the best means of giving executive effect to these proposals and recommendations.

#### ARCHITECTS' REGISTRATION IN PRACTICAL OPERATION.

THE biennial report of the Illinois State Board of Examiners of Architects has just been published, signed by Mr. Dankmar Adler, of Chicago, the president, and by Mr. Peter B. Wright, of the same city, secretary and treasurer. The work of the board has been to a certain extent experimental in character, as Illinois is "the first State in the Union that has recognised the professional standing of the architect by an enactment which acknowledges his responsibilities and duties to the people." The board was organised in September, 1897, at Chicago. Up to the end of November, 1897, 426 applications for licenses had been filed; 300 had been approved, the remainder being under consideration, and 132 licenses had been paid for. On the issue of a report to that effect, an extraordinary and somewhat unexpected demand for licenses from architects already in practice set in; the number of application forms originally printed was exhausted, and a fresh edition was printed. Many of these were not returned, but by February, 1898, 714 applications had been approved, 73 rejected, with the intimation that the applicants were at liberty to sit for examination. One person took action against the board for refusing to grant him a license, but this has not yet been brought to hearing. On March 1 last year, under the provisions of section 5 of the Architects' Licensing Act, the first complete roll of licensed architects was made up by the secretary and published. An examination committee had been appointed by the Board, and at the first examination, held in January last year, 19 candidates presented themselves. A comprehensive and indeed stiff syllabus, dealing with building materials, construction, and sanitation, was set before the 13 candidates who submitted to the three days' examination, and only one had to be rejected, Mr. Ira B. Worsfold, of Waukegan, Ill., having the distinction of passing at the head of the first examination, gaining 84 marks out of a possible 100. The second series of examinations was held in June last at the State University at Urbana, and at these about half the candidates passed, the qualifying proportion of marks having been raised from 50 to 70 in a possible 100. It was decided at future examinations to accept the diploma of graduation for a full four years' course in architecture or architectural engineering at the University as sufficient for a license; moreover, that the applicant must produce satisfactory evidence that he has acquired the ability to apply this knowledge to design and construction. Seven hundred and twenty-nine licenses were in



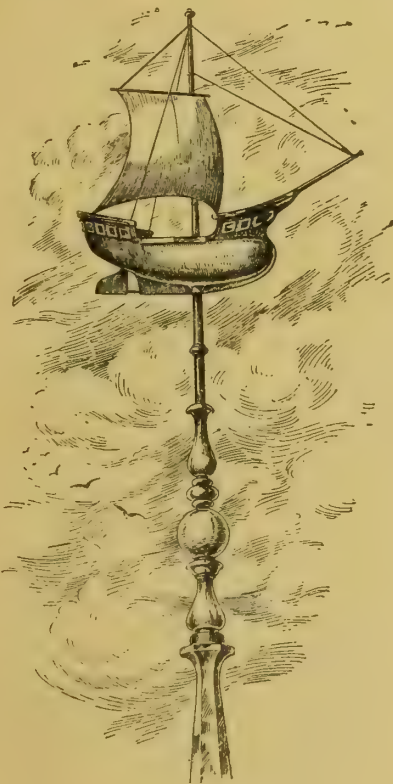
force on the 1st July, 1898, and all but 64 of these have been renewed, of whom some holders have removed from the State, one has died, and a few have retired. The results of the licensing system have been, the Board state, to show a general acceptance of, and acquiescence with, the requirements of the law, although many complaints have been raised against those who had not taken out licenses and others assuming to act as architects. A committee of the Chicago Architects' Business Association has been appointed to prosecute violators of the law, the Board having decided that it was out of their province to take action in that direction. Appended to the report are a circular of information as to the scope of the Act, and two forms of architects' licenses. The report is published at the secretary's office, 112, Chamber of Commerce, Chicago.

### VICTORIA DIAMOND JUBILEE MEMORIAL, SINGAPORE.

[SELECTED DESIGN.]

WE publish this week a perspective view and two plans of the design for the theatre and assembly rooms at Singapore awarded the first premium in an open competition inaugurated by the Diamond Jubilee Permanent Memorial Committee, Singapore. The principal front of the building faces west, the central portion being occupied by the main hall and grand staircase, while the north wing contains the assembly rooms, and the south wing, which is entirely cut off by the party-wall, contains the theatre. The assembly rooms and theatre are shown combined in one block, in compliance with the conditions laid down for the competition, and, as will be seen from our illustrations, the building is symmetrical, consisting of a central square tower and four smaller square towers, two at each end, connected with the central tower by rectangular main blocks with sloping roofs. There are two floors in the main blocks, and three in the towers. The main entrance to the assembly rooms is below the central tower. On entering, we pass through an entrance-hall, 42ft. by 20ft., into a main hall, 42ft. by 41ft., in which is placed the grand staircase, 12ft. wide. Adjoining the latter is a passenger lift connected with each landing. From the main hall we enter a supper-room, 80ft. by 50ft., with service-room screened off by movable partitions; a smoking-room, a card-room, retiring-rooms for ladies and gentlemen, two kitchen lifts, and two offices for the staff are also provided. On the first floor is the ballroom, 113ft. by 50ft., with organ space, a card room, and retiring-rooms for visitors and performers of both sexes. On the second floor in the central tower is a domed octagonal smoking and card room 32ft. diameter. Behind the tower, on the roof, is a kitchen, scullery, servants' rooms, and bath-room, connected with the ground floor by two lifts and a service staircase. This theatre has been designed in consultation with Mr. Horace T. Bonner, A.R.I.B.A., known in connection with the Croydon Theatre. The entrance is at the south end, and the exits and staircases are so arranged that, in case of panic, the audience can leave the building in a few minutes. The auditorium contains on the ground floor seats for 125 in the stalls, 275 in the pit, and eight in the boxes; a crush-room, 50ft. by 24ft., at the south end, and refreshment and retiring rooms for ladies and gentlemen are also provided. The first floor of the auditorium contains seats for 134 in the dress-circle and 14 in the boxes. There are also separate refreshment-bars and retiring-rooms for ladies and gentlemen. On the second floor in the towers at the south end are an electrical storage-battery room and a general storeroom. The stage of the theatre measures 50ft. by 35ft., and is entirely cut off from the rest of the building on the north by a party-wall extending above the roof, on the south by another wall and by a fireproof curtain, and on the east and west by fireproof doors. The lower ground floor, under the dressing-rooms and verandahs, contains a manager's office, a room for band and supers, and a storeroom for scenery in use, easy access to which is obtained direct from the stage and from outside beneath the verandah. A room for painting scenery and for general storage is proposed to be placed in a separate building in the grounds. East of the stage on the ground-floor are the actresses' dressing-rooms, with lavatory and verandah; on the first-floor, the actors' dressing-rooms, lavatory, and verandah; and on the second-floor,

the supers' dressing-rooms, lavatory, and verandah. The general dimensions of the building give a total length, exclusive of carriage porches, of 345ft., with a width of 133ft. The ground-floor, floor to ceiling, is 20ft., the first-floor assembly-room is 35ft. high, and the theatre from floor to ceiling of dome is 50ft. The clock tower is 127ft. high. The soil is removed from the lavatories in buckets, according to the custom in Singapore, and the native attendants have access to the lavatories by means of spiral staircases in the turrets. The dynamos for electric lighting are placed in a separate building in the grounds, to avoid vibration in the main building. The lifts, which are intended to be electrically driven, are on Messrs. Waygood and Co.'s system. Singapore is infested with white ants, which destroy woodwork in a very short time. Special care has therefore been taken in the design to substitute steel and cast iron for wood wherever possible. The walls



of the building will be of red brick and grey granite. The dressings, cornices, mouldings, and sculpture will be of terracotta and Indian patent stone. The arches and verandah columns will be of local grey granite. The interior columns, also girders, joists, and roof-frames, will be of steel. The grand staircase will have marble treads and balustrades, and will be supported on steel joists cased in marble. The floors of the main entrance-hall and supper-room will be laid with marble and mosaic; the floors of verandahs, cloak-rooms, lavatories, &c., with Sills' patent Indian tiles, Raniganj tiles, and mosaic; the floors of ball-room and stage and the doors will be of Moulmein teak. The sloping roofs will be covered with tiles and slates, and the domed roofs with copper. The architect is Mr. Francis Sills, A.R.I.B.A., who is known in Calcutta and Bombay in connection with the erection of many of the largest buildings there, and the engineer is Mr. W. A. Francken, A.M.I.C.E., who is also known in connection with large engineering works in the North-West Provinces, India.

### A UNIQUE VANE.

THE above illustration represents a rather unique vane, which has just been manufactured for the municipal buildings at Blackburn by the well-known firm of metal-workers, Messrs. Benham and Froud, Ltd., of Chandos-street, W.C. The vane represents, as will be seen, an ancient ship, and is made entirely of hammered copper, thickly gilt, from a design by Mr. Henning, of the firm of Messrs. Potts, Son, and Henning.

### NOTES FROM EDINBURGH.

THE seventy-third annual exhibition of the Royal Scottish Academy contains nearly one hundred fewer pictures and drawings than that of the preceding year; the difference is occasioned by the larger size of many of the oil-pictures. Very slight alteration is made on the general arrangements of the interior of the galleries, which are all that could be desired. The only departure from previous arrangements is in the selection of the north or entrance octagon for accommodation of the water-colours and some of the architectural drawings, the remainder of the latter being in the small octagon. There are a few good water-colour sketches of architectural subjects and a few interiors, and one very fine one of the "Post's Corner in Westminster Abbey," showing the graves of Lord Tennyson and R. Browning, by James Cate. This is a fair-sized picture, allowing the architectural detail to be seen, and in the style of Roberts's well-known works. The light is well managed to bring the tombs into relief.

The architectural drawings in this entrance-room are all, or nearly all, of large dimensions, and nearly all in black and white; but the association of such subjects with the brighter water-colours is not satisfactory. It answered better when architectural perspectives were all water-colour sketches, and there never has been, and probably never will be, a better arrangement for the architectural section, or such a one as to secure for the Academy an exhibition anything like representative of the architecture of the day. The dominant feature of the exhibition is the number of larger and smaller country mansions. Public buildings are also numerous, but not, with one or two exceptions, of much importance.

565. "Perspective View of Scotsman Buildings to the North," by Messrs. Dunn and Findlay, is a very large drawing, showing the north frontage of the large block of building, which is to form the whole of the west side of the new North Bridge-street. It has also a considerable frontage in Market-street, where the height of the elevation, with its ten stories, rivals the altitude of the old town. Its facade, however, is vastly different, with a large infusion of Classical details. Messrs. Dunn and Findlay send also large drawings and geometric elevations of the frontage of the buildings to the street—i.e., both to N.B. street and Market-street, below, which faces the north. The buildings, as a whole, appear to follow the leading lines and divisions of the competition drawings selected by the corporation, and illustrated in the BUILDING NEWS for Oct. 16, 1896; but the variations are considerable, partly by way of reducing ornamental work, and partly by alterations in the style of the dormers and other gables. The colonnade—a conspicuous feature of the upper part of the north front—is retained; the higher and lower gables, flanked with small octagon turrets, remain. In the N.B.-street frontage the large central gable is improved by giving it more of the aspect of the large, many-windowed Flemish house gable, and the two lesser gables to the street are not so angular and stiff as the Queen Anne samples of the competition drawing. This queer treatment of the gable seems to be growing popular, and specially with its absurd, or at least unnecessary, finishing with a semicircular pediment. This is retained also in the Market-street lower building; but it cannot be considered any improvement on the natural termination of this important feature. The North Bridge-street elevation has apparently all the shop fronts of the plain ordinary description. The perspective view is from Prince's-street, and shows, as the competition drawing did, a portion of the bridge and the east end of the street opposite the Scotsman side. 666, "Baltimore, North-East View," and 676, "The Same House, as altered for the Proprietor," are two sketches in pencil, softly shaded, of a large mansion, built apparently to weather storms of wind and rain, and which has much of the old castle-keep, with machicolated parapets and small windows of the Scotch Baronial. The work is by W. Leiper, R.S.A.

560, "Dawyck House, Peeblesshire," by T. A. Campbell, is another and larger mansion—apparently a large addition to an older one. The main feature appears to be a central tower; but as it has no greater altitude than other portions of the design, it may not be so intended; the other portions are in the ordinary modern style



of domestic buildings, but are not very compactly arranged. The entrance to a square gravelled carriage-way is by a low parapet wall, decorated on one side with a curious turret, terminating in what is not unlike the pinnacle of a Gothic spire. 569, "Kincardine, Deeside, N.B., by Niven and Wigglesworth, is another example of the larger mansion house, in the Scotch Baronial style, but with less of the old and more of the modern house—good-sized windows, &c., as shown in the perspective. It is a good example of picturesque arrangement, and without any needless variety in the projections of the plan. 561, "Red House, Ayr," is a large perspective view of both the house and its flower gardens, by James A. Morris. A small plan indicates the arrangements outside and inside the building—a great help to the proper understanding of the design, which comprises large additions to a large original. The most prominent feature is the addition of a dining-room and billiard-room, connected with the old part by a long corridor and courts. The gables of these two rooms have very deep oriel windows carried up through the two floors, with parapet and flat roofs, which rather drown the gables. The dining-room appears to be at an inconvenient distance from both kitchen and drawing-room; but there is very liberal arrangement for service in the courts and corridors. 678, "A Border Mansion House," by Leadbetter and Fairley, is another large mansion of three floors, but more compact in its arrangements, without any attempt at variety of ground plan. It is designed in the more homely Scotch house style. There are several mansions and houses on a smaller scale. 461, "House at Wester Coates, Edinburgh," by T. R. Patterson, a pleasing design of two floors in the Italian style, with deep overhanging eaves; 463, "Design for Country House," by W. Beattie Brown, jun., in the cottage style. 675, "Summer Hill, Kirkcudbrightshire," by Leadbetter and Fairley, a design with half-timbered work in the gables. The main building shows a great expanse of roof with double attic floor. 677, "House at North Berwick," by G. W. Browne, A., is another house in the English Cottage style, in geometric elevation, with steep roof and attic. 570, "Houses at North Berwick, Colinton, and Gate Lodge at Brigland," by R. S. Lorimer, are small etchings also in English Cottage style. 454 is a similar collection of small etchings of "Lodge and Entrance-Gates, a Clubhouse for Burntisland Golf Club, and Fitzgerald Memorial Hall at Torphichen," by Leadbetter and Fairley. The clubhouse is a large edifice for such a club, with two floors, and the lodge at gateway is of cubical proportions, with the commonplace aspect much improved by a lofty projecting chimney-stack, and an upper floor corbelled out to meet the chimney, and turret forming circular corner to the upper part. 458, "Proposed House, Dalkeith," by W. H. Mason, is a plain building, with well-proportioned front, in the Scotch style. 473, "Competitive Design for the Glasgow Exhibition of 1891," shows the principal pavilion, a building of great length, with central dome. The view shows also a double transept, the intervening wall space tastefully designed with arched lights, &c.

The examples of street architecture and public buildings are numerous; but, with a few exceptions, present nothing of novelty or note in the architectural detail. 670, "Library and Museum, Campbelltown," J. J. Burnet, A., is a long building of two stories' height, with a corner site, which is treated as octagonal. The greater portion of the edifice has a considerable amount of decorative detail, and a conspicuous feature is a lantern at the angle. A portion of the design, probably the museum, is in a plainer style, and thus preserves better the proportion of the rest. 671, "Royal Bank Offices, Dundee," by G. W. Browne, A., is a water-colour elevation, very nicely coloured, and shows a building of four stories, the two intermediate floors being decorated with Ionic pilasters and circular arading. The doorway is at one end, and the appearance of the ground floor is not improved by a recess, with door to some place of business, the name of the firm written in large letters on a lengthy lintel. The top story has low, broad mezzanine windows in the Renaissance style, with sculptured grotesques between the usual heavy cornice and deep balustraded parapet. Mr. Browne sends also, in 667, three bank offices of B.L. Company's Banks in Falkirk, Renfrew, and Melrose, that in Melrose having a Queen Anne gable and large

circular-headed windows as its outstanding features. 679, "Proposed Town Hall for Bathgate," by J. E. Fairley, does not show the principal front. The design has a tower with pyramidal slated roof, too much concealed by its large domed windows. 462, "Institute at Motherwell for the Y.M.C.A.," by A. Cullen, is a large building with the usual details of the Queen Anne style in two stories. 465, "Design for Business Premises, Glasgow," by Edward C. H. Maidman, is a geometric elevation of a lofty piece of street architecture of five stories, in water-colour, with shops below and a range of arched windows on the second floor, two larger in the centre and narrow window at each side. 474, "Business Premises, West Calder," by J. G. Fairley, is also a design of five floors in water-colour. 476, "Design for Meffan Institute, Forfar," by Swanston and Legge, has its tower and elevation in Queen Anne style, with wide arched openings on ground floor. 460, "General Accident Assurance Offices, Perth," by J. P. K. Young, has a little more of architectural detail, in the Queen Anne style, with the usual large openings on ground floor, a building of three floors. 474, "Technical School at Dunfermline," by D. Barclay, is a large edifice, the principal architectural feature being the somewhat elaborate projecting doorway carried up through the two floors, and finished with turrets and small portion of the gable between them. 571, "Girls' Cottage Home, Drymen," by J. A. Campbell, is not a large edifice, but picturesquely treated in Cottage style. 669, "The Sir W. Fraser Homes," by A. B. Paul, is a much larger institution. The design shows an arrangement of two-storied buildings ranged around a central court. 668, "Bangorm Asylum," M'Arthy and Watson, is not a large institution, and has no specially decorative features in its composition. 564, "Sailors' Orphan Homes, Kilmalcolm," David Barclay, is a building of two floors, with a tower as its principal feature. The number of the preceding examples of public buildings indicates a revival of business in the building trade, as there has not been so many in recent years. Of church architecture there is only one exhibit—472, "St. Stephen's Church, Craigie, Perth," by G. P. K. Young. This is a large perspective of a church complete, with nave, aisles, clerestory, and transepts, and possibly a chancel, with tower and spire on north side of the west front. It is designed in the Early English style, without much of decorative detail. The transept visible has great projection, and from a double range of windows appears to accommodate a gallery. It seems to have narrow-passage aisles, and the tower and spire are well proportioned to the size of the building. 445 shows the interior of "New Chancel of St. Patrick's," Edw. J. G. Fairly. This is a vigorous etching, showing a Classical interior, with its heavy plaster decorations, very similar to the interior of banking offices. The church has flat plaster ceiling, and the chancel has semicircular openings and square chancel, with altar, reredos, &c. This church was originally a large galleried church of the Anglican Communion, and has been vastly improved by removal of its galleries. 459, "Interior of Wilson U.P. Church, Perth," by Q. B. Wilson, is not a church-like one, having a roof of very wide span carried partly on piers of wood or brick, and has too much of the storehouse or railway shed in its aspect. 490 is an excellent perspective of the "Interior of the Upper Hall of the Signet Library," by G. Kay Green. 566 shows in a beautifully coloured geometric elevation the apse of "Lesmahago Church," by A. N. Paterson. The church apparently is one of the old galleried churches of wide span. The apse is semicircular, or nearly so, judging from a small plan appended to the drawing, which is on a large scale, and shows all the architectural detail, which is Classical in style. The apse has a domical ceiling, decorated with panels to correspond. The walls are tinted green. The pulpit, which has a high floor to command the side galleries, stands on the north side of the apse opening, and at the other is an elaborate stand for what seems to be a large font in white marble. The Communion table is placed in the centre at the apse wall, or near it, the pulpit platform being four steps above the church floor. The pulpit has an octagonal rostrum carried on two pillars, with wrought-iron stair and railing, and has decorated panels, with symbolic carvings above the top rail, which is concave, to allow of their being properly spaced. The apse opening has elaborate Classical details,

probably in plaster pilasters, with the capitals decorated with cherub faces. The soffit of arch is carried on two of these capitals, cut short a little below the necking, which has not so good an appearance as the scroll truss usually employed. 662, "Pulpit of Church of the Good Shepherd," by R. S. Lorimer, is more quaint than pretty. An Anglican pulpit, with three steps into it, ungainly long panelled rostrum, with two plain supports in front, Later Gothic carvings, and linen-pattern panels at the pulpit back to imitate a Mediaeval carpenter's work.

#### CHIPS.

The town-hall at Stonehaven, N.B., is about to be improved internally from plans by Mr. George Gregory, architect, of that town.

Mr. W. W. E. Fletcher, an inspector of the Local Government Board, has held an inquiry at Leigh into the application of a Joint Hospital Board, comprising the Leigh, Atherton, Tyldesley, and Golborne District Councils, and the Leigh Rural District Council, for sanction to borrow a further sum of £8,500 for the purposes of the infectious diseases hospital belonging to the board of Astley. Mr. J. H. Stephen, the architect to the Joint Board, explained the proposals, which is to be a total outlay of £20,000.

The committee of management of the Aberdeen Art Gallery have accepted tenders for the installation of electric light in the gallery, and have also approved of a scheme by Mr. A. Marshall Mackenzie, A.R.S.A., for the general improvement of the gallery. The whole of the ground floor will be devoted to museums, and the upper floor to picture galleries.

The partnership heretofore subsisting between S. H. Horton and J. S. Price, of Effingham House, Arundel-street, Strand, W.C., architects and surveyors, has been dissolved.

During the past few months the St. James's Schools, Slaithwaite, have been enlarged at a cost of about £1,500, and they were reopened on Saturday afternoon. The architect was Mr. Joseph Berry, of Huddersfield. The schools, which were built fifty-eight years ago, have been modernised and rearranged on the central hall system. Besides the erection of the parish room, two additional classrooms, a cloak-room, lavatory, and a covered playground have been provided. The open playgrounds have been macadamised, the heating apparatus overhauled, more light has been introduced, and the ventilation improved.

St. Cuthbert's Catholic College, which stands on a bleak eminence overlooking Beaufort, or Bear Park, Durham, was founded by Dr. Gibson, the Catholic bishop, in 1804, for refugees escaping from France during the Revolution. The committee, to commemorate the jubilee of the restoration, are having a new clock fixed in the tower, which shows the time upon two illuminated dials and chimes the quarters, the necessary work being executed by Messrs. Wm. Potts and Sons, clock manufacturers, of Guildford-street, Leeds. Messrs. Wm. Potts and Sons are also making a new illuminated turret striking clock for Carlisle Town Hall, for the mayor and corporation; and making four new illuminated dials, 7ft. each in diameter, for the town-hall, Darlington, Co. Durham, for the mayor and corporation of Darlington.

The extensions to the Ingham Infirmary, South Shields, are being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke-flues, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The Board of Trade have recently confirmed an order authorising the construction of a light railway in the county of Lincoln, from Grimsby to Saltfleetby, with a branch to Cleethorpes.

The ancient Independent Chapel in Fetter-lane is to be pulled down to make way for the extension of the premises occupied by a printing firm. Elton Chapel was established so long ago as 1660. The existing building dates from the year 1732.

The urban district council of Buckley, Flintshire, have adopted plans purchased by Mr. Bayrs, C.E., of Birmingham, for the drainage of the district at an estimated cost of £12,500.

A generator for the electricity works of the Plymouth Corporation is being built at Prince's Rock in that town, from designs by Mr. J. H. Rider, and under the supervision of the borough surveyor, Mr. J. Paton. Messrs. Pethick Bros., whose works adjoin the site, are the contractors, and the outlay is estimated at about £17,000. The buildings comprise boiler-house, 100ft. by 54ft., engine-house, 100ft. by 40ft., workshops, mess-rooms, and other accommodation for the staff and men, and a chimney 180ft. in height. A refuse destructor is to be built on part of the site.



## OBITUARY.

SIR DOUGLAS GALTON, K.C.B., F.R.S., the well-known writer on railway and sanitary questions, died on Friday last at his town residence, 12, Chester-street, S.W., in his 77th year. Born at Hadzor House, Worcestershire, he was trained at the Royal Military Academy, Woolwich, and received a commission in the Royal Engineers in 1840. In 1847 he became secretary to the Railway Commission that investigated the application of iron to railway structures, and many of the experiments necessitated by the inquiry were carried out under his supervision. Shortly afterwards he was appointed an inspector of railways, and became secretary of the Railway Department of the Board of Trade, a position he gave up in 1860. He served on the Royal Commission on Railways in 1866, showing himself a strong opponent of State purchase. A dozen years later he took part in an important series of experiments with automatic brakes. These experiments were designed to discover the coefficient of friction between surfaces moving at a high velocity, and they yielded valuable results as to the effect of brakes in bringing a train to a standstill. More than forty years ago he objected, but ineffectually, to the scheme proposed by the Metropolitan Board of Works for the disposal of London sewage at Barking, arguing that it ought to be taken at least down to Sea Reach. Captain Galton formed one of the Commission which, after the Crimean War, visited the barracks and military hospitals of Great Britain and Ireland, and subsequently those of our stations on the Mediterranean, and the general health of the Army was greatly improved as the result of the sanitary measures instituted by him and his fellow commissioners. The Herbert Hospital at Woolwich was also constructed from his designs. Later on he was a prominent member of the Sanitary Institute. He invented an improved stove, which bore his name, and several heating and ventilating appliances. He also rendered important services to the cause of submarine telegraphy. So far back as 1859 he served as chairman of the submarine cable commission. A few years later he was a member of the consultative committee, of which Lord Kelvin is now the only survivor, which was asked to advise the Atlantic company on the electrical and mechanical questions involved in the proposed cable of 1865. In 1860 Sir Douglas Galton became Assistant Inspector-General of Fortifications, and two years later Assistant Under-Secretary for War, a post he held until 1870, and from the latter year till 1875 he was Director of Public Works and Buildings in the office of Her Majesty's Board of Works. For twenty-five years he acted as general secretary of the British Association—an office which he resigned in 1895, when he became president of that body at its Ipswich meeting.

THE death is announced of Mr. HENRY GODDARD, architect, of John o' Gaunt's House, Lincoln, at the ripe age of 85. He was a native of Leicester; in 1838 he went to Lincoln, and entered into partnership with Mr. Nicholson, an architect and surveyor. He was architect to the Great Northern Railway Stations between Doncaster and London, including the station at Doncaster, but not the one at King's Cross. In that capacity he was associated with the father of the present Lord Brassey as contractor, and he was also intimately connected with the great railway king, Hudson. He was surveyor to Trinity College, Cambridge, county surveyor to the ports of Lindsey, and diocesan surveyor and architect to the County Asylum at Bracebridge, near Lincoln. Mr. Goddard was on the Commission of the Peace for the city, a freeman of Leicester, and it is believed he was the oldest Freemason in the county of Lincoln. On December 4, 1838, he married Eleanor Ann, daughter of the late George Baker, of Nottingham, and the venerable couple celebrated their diamond wedding last December. In death they were not divided, for Mrs. Goddard, who was the junior by three years, only survived her husband four days.

St. Mark's new infant school, Holland-street, Manchester, designed by Messrs. Potts, Son, and Henning architects, and erected by Messrs. Bullivant, was opened last week. It consists of a central hall, with classrooms on either side, teachers' room, ample cloakrooms, with lavatories, &c. The playground is asphalted, and is provided with a covered shed for assembling purposes. The school will accommodate 312 scholars. The cost has been £2,400.

## Building Intelligence.

BEDDINGTON CORNER, MITCHAM.—On Saturday Lord Middleton opened the new isolation hospital at Beddington Corner of the Croydon Rural District Council. The buildings comprise an entrance-lodge; administrative block, with accommodation for doctor, matron, nine nurses, and eight servants; scarlet-fever pavilion, ten beds; diphtheria pavilion, ten beds; isolation block, with four wards of two beds each; discharging block, mortuary, and stables, laundry, and disinfecting block. The disinfecting block, which is to serve as a disinfecting station for the whole district, is fitted with a Washington-Lyons disinfecter. The floors of the wards, &c., are laid in Ebner's terrazzo paving, laid in situ. All the buildings are of stock bricks, and are covered with Broseley roofing tiles. The buildings have been erected under a contract with Messrs. D. Stewart and Sons, of Wallington, at a cost of £15,898. The furnishing has been carried out by Mr. H. W. Pearce, of Croydon. The architects are Messrs. R. M. Chart and Son, of Union Bank Chambers, Croydon.

PETERBOROUGH.—The foundation-stones were laid last week of a new Liberal club in Borough-bury. It is built on an L-shaped site. There is a tower at the Westgate end, surmounting the entrance. On entering the door of the club there is a hall, out of which a broad stone staircase leads up to the club-rooms. A smoking-room, 20ft. by 15ft., with bar, is approached from the staircase half-way up, and a little higher on the staircase there are a reception-room, a committee-room, a reading-room, divided by partitions so as to be easily converted into one hall 53ft. by 22ft. There is also a billiard-room for two full-sized tables, and another committee-room is provided on the second floor. At the north side of the building is a caretaker's residence, consisting of kitchen, living-room, and offices, two bedrooms, and a drying-ground over them. Outside, the building will be of red brick with buff terracotta dressings. Mr. Alan W. Ruddle, of Borough-bury, is the architect, and Mr. C. L. D. Gray, the builder.

YEovil.—The new premises for the Capital and Counties Bank at Yeovil, are being erected at the corner of High-street and Princes-street, and facing directly down Hendford-street. The architect is Mr. J. Nicholson-Johnston, A.R.I.B.A., of Yeovil. The style chosen is freely-treated Renaissance, and the material used for the exterior is Ham stone. The edifice has two stories above the actual banking premises, and above them again, recessed behind a balustraded parapet, is an upper floor, lit by dormers. The main entrance is on the angle of the two sides, and is built on the sweep, and there are oriel windows over this doorway on the first and second floors. The skyline is broken by gables of Flemish inspiration. All the stone carving upon the two fronts has been executed by Messrs. Harry Hems and Sons, of Exeter. Messrs. E. R. Bartlett and Sons, of Yeovil, are the general contractors, and Mr. Loxton is their foreman of works.

At the annual meeting of the Royal Birmingham Society of Artists, held on Saturday, Professor Sir W. B. Richmond, K.C.B., D.C.L., R.A., was elected President of the society in succession to Sir E. J. Poynter, P.R.A., whose term of office had expired. All the other officers and the professors were re-elected.

At the instance of the London County Council, Horace A. Curtis was summoned to Southwark Police-court on Friday for not properly securing tideboards at his wharf, Bankside. The prosecuting counsel said these tideboards were to prevent streets adjacent to the river being flooded. On two dates mentioned, consequent on the absence of these boards, the neighbouring streets were flooded. The defendant was ordered to pay a fine of £20 and 2s. costs.

The commissioners of Troon, N.B., considered on Monday a joint plan for the proposed sea-wall, submitted by Messrs. Eaglesham, Ayr, engineers for the burgh, and Mr. Macdaggart Cowan, the Duke of Portland's engineer. They estimated the cost of the scheme, which included contingencies and ten thousand cubic yards of banking in the northern-most part, at £8,915. The whole of the commissioners were appointed a committee to consider the plan, and afterwards consult with Mr. Turner, the Duke's factor. His Grace is to defray half the cost of the undertaking.

## Engineering Notes.

GREAT CENTRAL RAILWAY EXTENSION.—The new portion of the Great Central Railway's extension to London, opened on Thursday in last week by Mr. Ritchie, and brought into practical working on Wednesday, extends from Arnesley Junction, a few miles north of Nottingham, to Quainton-road, Bucks, a distance of 91 miles, after which running powers are exercised over the Finchley-road, whence two miles of fresh line run direct into Marylebone terminus. The engineers who have been responsible for the carrying out of the extension are Mr. Edward Parry, M.I.C.E., for the northern section, from Arnesley to Rugby, a distance of 52 miles; and Sir Douglas Fox and Mr. Francis Fox, M.I.C.E., for the southern and Metropolitan sections—the southern section extending from Rugby to Quainton-road, a distance of 39 miles, and the Metropolitan section from Finchley-road to the London terminus. The contractors for the various sections were Messrs. Logan and Hemingway, Mr. Henry Lovatt, Messrs. Topham, Jones, and Raiton, Messrs. Thomas Oliver and Son, Messrs. Walter Scott and Co., Mr. J. T. Firbank, M.P. and Messrs. John Parnell and Son.

## PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND.—On Tuesday week last the above association held their ordinary meeting at the Grosvenor Hotel, Mr. J. Holloway, vice-president, in the chair. A paper upon the structure and design of Egyptian temples was read by Mr. M. Glover, and was illustrated by numerous photographic lantern slides. The lecturer, after dealing with Egyptian legends of prehistoric times, traced the rise and fall of the various cults or worships, and then compared the ancient monuments of other lands with those of Egypt, giving as examples Stonehenge, in Wiltshire, and Ake, in Central America. After describing the tombs of the Egyptians from earliest times to the reign of Cheops, the builder of the Great Pyramid, Mr. Glover showed many illustrations of the domestic life of the people, taken from the incised mural decorations of the temples. A vote of thanks, proposed by Mr. G. Sheridan, and seconded by Mr. R. Butler, was heartily accorded to Mr. Glover at the termination of the address.

THE AUCTIONEERS' INSTITUTE.—The spring meeting of the Auctioneers' Institute of the United Kingdom was held at Derby on Friday. The morning was devoted to inspecting various objects of local interest, and afterwards the members assembled in the Guildhall, under the presidency of Alderman Edward Dobson, of Bradford. The report of the finance committee showed a balance in hand of £642. On the recommendation of the management committee, it was decided to form a Lancashire branch of the institute, with Manchester for its centre. The central committee also recommended that the Western Counties Auctioneers' Association be incorporated in the institute and form a local branch. This recommendation, which will make an increase of 60 in the membership, was unanimously adopted, thus bringing up the total membership to 1,141. The report as to the benevolent fund was received and regarded as satisfactory, £500 being in hand. Several questions relating to commissions were referred to a committee.

EDINBURGH ARCHITECTURAL SOCIETY.—At meeting of this association, held on the 8th inst. in the Royal Institution, Mr. Harold Tarbolton read a paper on "Plaster Work of the Renaissance period in Great Britain, and its Subsequent Phases." Mr. Tarbolton traced the history of plaster decoration from the somewhat isolated attempts of Italian craftsmen to pursue their art in England, and, on the death of their patron Henry VIII., the influx of Germans and Dutch with their strange and sometimes crude displays of decoration; and subsequently the introduction by Inigo Jones of the later and much-modified Italian modes. The starting-point of all plaster work was the moulding of old ceilings, which might be divided into two kinds—those with enrichments modelled in a cast from an impressionable medium such as clay, and those modelled *in situ*. Having described the two processes, Mr. Tarbolton remarked that no beautiful detail and delicacy of execution in plaster work, as in every



other craft, could condone any offence against proportion. Let them take all that was best in conception from the old work; they had magnificent examples within reach. He wished especially to emphasise the importance to architects of a personal and practical knowledge of the crafts. They could not fully understand the capabilities and imitations of any material until they knew its nature and ways of working. Until they had handled clay and worked with hawk and tool in hand and modelled *in situ*, it was next to impossible to appreciate the subtleties of the craft in plaster work. Architects should at least know thoroughly the interpretation and manipulation of one or more crafts in their endeavour to catch the spirit and vigour of the Earlier Renaissance workmen. A great work was being done in the School of Applied Art in Edinburgh in familiarising students with materials and their workings, and he was confident they would see the result in the work of the next few years.—On Saturday afternoon the members of the association visited Colinton Castle and Redhall, by permission of Colonel J. M. Trotter and Mr. D. Chalmers. On arriving at Colinton the party were met by Dr. G. W. Balfour and Dr. Rowand Anderson, the latter of whom acted as leader at both places. On the way to Colinton Castle the Episcopal Church, erected from the designs of Dr. Anderson, and recently decorated, was examined.

**SOCIETY OF ABERDEEN ARCHITECTS.**—At the second annual general meeting of this society, the office-bearers and council for the ensuing year were elected as follows—viz.: Mr. James Souttar, president; Mr. Arthur Clyne, vice-president; Mr. John Rust and Mr. A. H. L. M'Kinnon, joint hon. secretaries and treasurers; committee—Messrs. William Kelly, A. Marshall Mackenzie, George Marr, George Watt, and Robert G. Wilson.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—At the monthly meeting of this society held on Tuesday night, Mr. J. Smith, vice-president, in the chair, Mr. E. Prioleau Warren, of Westminster, gave a lecture on "Theory, Practice, and Tradition." He said the value of theories in the training of students of architecture is twofold. Theories provide an excellent mental exercise and incitement to study; and such of them as are of approved authenticity, logical quality, and obvious derivation from experience pass into tradition, become axiomatic, and form part of the necessary groundwork of all architectural training. They are practically statements of first principles, and should form the initial exercises of the student. The appliance of first principles must, to be really useful, become instinctive, almost unconscious, and is never more valuable than in the critical consideration of architecture, old or new. A sound theory, soundly remembered and applied, is an admirable corrective of appreciation or depreciation too thoughtlessly bestowed. Few things, after the prime necessities of trained imagination and constructive instinct, can be of more importance to an architect than the discriminating, the critical faculty, and it could never have been of greater importance than to-day. We have inherited the legacy of high upon a century of architectural unrest, we are beset by such a profusion of conflicting literature, we have reached such a chaos of conflicting styles, tastes, ideas, and examples, that the course of the student is a maze of confusion. It is often said that the profession of an architect is a modern one; it appears to be understood that he has evolved himself, has created his profession and its modern condition, as they stand. That is an impossible view. The evolution was gradual, and very clearly traceable from the Mediæval master builder upwards. The Renaissance brought new and foreign ideas and forms, and with them the need of a trained interpreter, a man of education. The architect has to supply the imaginative element that makes building architecture; he is rendered necessary by the inability of the working builder to originate and organise comprehensive schemes. The difficulties of producing real architecture under modern conditions are great and complex. Commercialism is against us; the rush and hurry of the age are against us; and perhaps our worst obstruction is the almost absolute lack of real sympathy with architectural ideals, the extreme paucity of educated taste which we meet with in our patrons, and our public traditions are broken, and have to be revived, or created afresh. The enormous help and value of strong tradition, the

immense benefit of a real vernacular expression in architecture, are abundantly apparent to those of us who carefully study the past, who read between the lines of architectural history, and who are struggling to apply true principles under exasperatingly antagonistic conditions. There is, however, hope for the future: we seem to have done with revivals, with mere copying of a dead past. Our danger in that respect lies in a too violent tendency in the opposite direction—the exaggerated swing of the pendulum, the eccentricities of architectural revolt. We do now, at any rate, upon the whole, build, in a technical sense, well; better, indeed, than the last four centuries built in England. We have to see to it, that, building soundly, we also build beautifully. On the motion of Mr. C. Hadfield, seconded by Mr. E. M. Gibbs, and supported by Mr. Mitchell-Withers and the chairman, a vote of thanks was accorded to the lecturer.

**YORK ARCHITECTURAL SOCIETY.**—Twenty-three members of this society paid a visit to Sheffield on Saturday, and were received at the Midland Station by Messrs. C. Hadfield (past-president), J. B. Mitchell-Withers, Thomas Winder (members of council), W. C. Fenton (hon. secretary), and C. F. Innocent, representing the Sheffield Society of Architects and Surveyors. The visitors included Messrs. George Benson (president of the York Architectural Society), W. G. Penty and A. Pollard (past-presidents), and A. B. Burleigh (hon. secretary). The party were conducted to the Town-hall, after paying a passing visit to the Corn Exchange, and viewing the High-street improvements. All the principal features of interest in the Town-hall were examined, and gratification was expressed on inspecting the magnificent staircase, council-chamber, and reception-rooms. Under the guidance of Mr. Charles Hadfield, the Royal Hospital was then visited (the extensive buildings being from his design), and its general arrangements were described by him. The visit concluded with dinner, to which the visitors were entertained by the Sheffield Architectural Society at the Thatched House Hotel.

#### ROYAL ACADEMY ARCHITECTURAL DRAWINGS, 1899.

THE days for sending in drawings and paintings this year have been fixed for March 24 and 25, the last day being Monday, the 27th. Sculpture will be received on the 28th.

Our friends and contributors who are willing to allow us to reproduce their drawings before they are sent to Burlington House, so that their works may be included in our series of illustrations from the Royal Academy Exhibition, to be published after the opening day, are invited to let us have them as soon as convenient for this purpose. We will return the drawings quickly, or, if desired, we are willing to forward them to the Academy direct, provided the necessary labels and letters to the Secretary are attached; and we will do this free of charge.

#### CHIPS.

An organ built by the Hope-Jones Electric Organ Company was opened on Saturday in St. Cuthbert's parish church, Edinburgh.

Sir W. C. Brooks has defrayed the cost of restoring the tower of the ancient parish church of St. Martin, Ashton-on-Mersey. The total cost of the restoration, which has been carried out from the designs of Mr. George Truefitt, London, is about £800.

The Local Government Board has just made an award in an arbitration case between the Hauts County Council and Bournemouth Corporation, by which nearly £10,000 was in dispute. Bournemouth claimed this sum from the county authorities for maintenance of main roads for three years, but the latter only offered £6,300, contending that charges for scavenging and watering main roads in the borough should not be borne by the county council. The award allows a sum of £6,500, practically supporting the contention of the county authorities.

Mr. James B. Hinks, who has, after thirteen years' service, resigned his position as assistant architect in the surveyor's department of the Liverpool Corporation, has during that period been engaged upon many public works, including the front of St. John's Market in Eliot-street, the new fish market in Great Charlotte-street, the building at the corner of Church-street and Parker-street, the Hatton-garden fire station, and the free libraries in Kensington and Everton.

#### COMPETITIONS.

**BRADFORD.**—The Markets and Fairs Committee of the Bradford Corporation have recommended that the architects in the city be invited to send in competitive designs for the proposed extension of Rawson-place Market, prizes being offered of £100 for the best, £50 for the second best, design submitted, the first prize, in case the corporation engage the successful competitor to carry out the works, to merge in the architect's commission, which is to be at the rate of 5 per cent., 1½ per cent. to be paid for preparing quantities.—At Tuesday's meeting of the town council the Watch Committee reported the following award in the recent competition for the new fire-brigade station:—Messrs. Mawson and Hudson, Bradford, first; Mr. W. J. Morley, Bradford, second; Mr. Owen Roberts, Liverpool, third. Mr. J. S. Toothill said there was a good deal of dissatisfaction regarding the adoption of the plans. He had protested against the site itself, and did so again. Ald. Sheldon said that there was a good deal of dissatisfaction among local architects, and asked the chairman to make some explanation. Mr. T. Crosland understood that the dissatisfaction was not in the city, but among people in London. The committee thought the accommodation for the firemen would have to be in flats; but the architects had shown that they could put self-contained houses on the site, and that plan of the three was the one which secured the prize. The report was adopted.

**BRISTOL.**—The Libraries Committee have again considered the difficulty which had arisen with regard to plans for the library for North Bristol, to be erected in Cheltenham-road. The committee formulated their requirements with the aid of the city engineer, and invited all the Bristol architects whose names appear in the Directory to enter the competition by sending in designs. Some plans were received, but the great majority of the members of the profession stood aloof, pending the result of a request that the committee would appoint an architectural assessor to adjudicate on the various drawings. The Libraries Committee were much surprised at this request, considering that experience gained in connection with public libraries over a number of years qualified them to say which plan best suited their requirements, and flatly declined to appoint an assessor. Negotiations have taken place with the architects' society; but the Libraries Committee have resolved to stick to the position they have assumed. The committee have received a certain number of plans, and the intention is to proceed to the consideration of these. It does not seem probable that a satisfactory design will be selected under such conditions.

**MILLBANK ESTATE DWELLINGS.**—At Tuesday's meeting of the London County Council, the Housing Committee reported as follows:—"On Nov. 16, 1897, the Council approved the conditions upon which certain selected architects were invited to send in competitive designs for a specimen block of dwellings which, if found suitable, might be erected on a plot of land on the Millbank Estate, Westminster. On the same day the Council voted a sum of £300, and authorised us to divide it between the competitors in such proportion as the assessor, Mr. W. D. Caröe, should determine. We have now to report that the assessor has made his award, dividing the sum of £300 between five competitors in the following manner:—Spalding and Cross, £150; Joseph, Son, and Smithem, £75; Howgate, Leeds, and Keith, £25; H. W. Dobb, £25; Gibson and Russell, £25. We are considering as to whether it will be possible to erect a block of dwellings according to Messrs. Spalding and Cross's plans without incurring any charge upon the county rate, and as to this we will report later."

Mr. Robert H. Bicknell, Local Government Board inspector, held an inquiry at Tong, between Leeds and Bradford, on Friday, with reference to the district council's application for sanction to borrow £1,000 for works of sewerage.

Mr. Joseph Marden Gribble, a builder, of Newton Abbot, 53 years of age, on Sunday walked to Chudleigh Bridge in the evening and returned with him. The following morning he was found hanging, quite dead, in a loft at the rear of his premises. At the inquest in the evening, it was shown that, although he had been in financial difficulties for many years, Mr. Gribble's position lately had very much improved. A verdict of "Suicide while temporarily insane" was returned.



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VICTORIA DIAMOND JUBILEE MEMORIAL, SINGAPORE.—HOUSES AT HAMPSHIRE.—PENCIL STUDIES OF CARVINGS, BY CHARLES BIACONI.—ADDITIONS TO BAROCHAN HOUSE, RENFREWSHIRE.—NEW PREMISES ON THE SITE OF BEDFORD CHAPEL, NEW OXFORD STREET, W.C.—NEW LIBERAL CLUB, BLACKPOOL.—SKIPTON AND DISTRICT COTTAGE HOSPITAL.—FURNITURE FROM CHRISTIE'S SALE ROOMS.

## Our Illustrations.

VICTORIA DIAMOND JUBILEE MEMORIAL, SINGAPORE.  
(For description see p. 367.)

## HOUSES AT HAMPSHIRE.

RED bricks of a good colour, with fine mortar joints, were used for the facings of the lower parts of these houses, and for the centre of one pair, as shown, the plastered upper portions are rendered in Portland cement, with fine white marble chippings thrown on. The roofs are covered with red tiles. The halls and staircases are panelled in painted wood. Mr. James Tomblin was the builder, the work being executed from the designs of Mr. W. F. Harber, architect.

## PENCIL STUDIES OF CARVINGS BY CHARLES BIACONI.

WE are again indebted to Sir Charles Robinson for the loan of the pencil drawings which we have reproduced to-day. They were made in Italy by Charles Biaconi, and form a part of a series which, judging from the title page accompanying them, was prepared for James Barry, R.A., who was born in 1741 and died in 1806. These sketches appear to have been chosen with the view of providing the painter with detail studies of ornament, and as such they cannot fail to be interesting. They may have been intended for publication, seeing that the sketches are set out on sheets of uniform size. When in Rome, Barry's chief studies were directed to the antique statues and marbles, and in 1777, after his offer to decorate St. Paul's Cathedral had been declined, he undertook the ornamentation of the meeting room of the Society of Arts in the Adelphi. On this gratuitous labour he devoted seven years of his life. The subjects chosen illustrate human culture, and this series of works forms undoubtedly his best monument. It consequently claims a special notice in the history of art. The paintings are six in number; four are 15ft. long and two are 42ft. long, and all just upon 12ft. high. They exemplify the great truth "that the attainment of happiness, individual as well as public, depends on the development, proper cultivation, and perfection of the human faculties, physical and moral." Their treatment and accessories are appropriate to the Society whose meeting-room they enrich. The first is of Orpheus reclaiming mankind from a savage state; the second is a harvest home or thanksgiving to Ceres and Bacchus; "The Victors of Olympia" is the subject of the third picture; "Navigation, or the Triumph of the Thames" comes fourth; the fifth depicts "The Distribution of the Society's

Rewards"; and the sixth, "Elysium and Tartarus, or the State of Final Retribution." These paintings were etched on a large scale after their completion in 1784. Barry, always a very poor man, was soured by want of success, and he quarrelled with his contemporaries. He attacked their work in his Academy lectures, and was, in consequence, removed from his professorship; subsequently, in 1799, he was dismissed from his membership of the Royal Academy altogether. Poverty always embittered his career, and therefore it is little likely that he was at any time in a position to pay a commission to a draughtsman like Biaconi, and it is not known under what conditions these drawings were made. Barry was the victim of a temper that never yielded, and adverse criticism only produced wilful obstinacy; but, for all that, he inured himself to a life of lonely impecunious independence in order that he might work out that which he considered the true aim of his art. Wrong-headedness had much to do with his lack of worldly prosperity, but no one can doubt his thoroughness of intention or his ability. After laying in state at the rooms of the Adelphi, he was buried in St. Paul's Cathedral midst the distinguished of his time and the great ones of his art.

## BAROCHAN HOUSE ADDITIONS, RENFREWSHIRE.

OUR illustrations show extensive additions completed recently from the plans and under the supervision of Mr. Charles S. S. Johnston, architect, of Edinburgh, at Barochan House, Renfrewshire, one of the seats of Mr. Charles Bine Renshaw, of Barochan, member of Parliament for the western division of the county, and the first chairman of the Association of County Councils in Scotland, who, with Mrs. Renshaw, was lately the recipient of a number of handsome gifts on the occasion of their silver wedding, presented by the Renfrewshire Hunt, the County, the tenantry of Barochan and Garvocks, the tradesmen and employés, and others. The older part of this mansion dates back to the 16th century, when it was erected by the Flemings of Barochan, an old family in whose possession it remained until the death of its last surviving representative of the name in the middle of this century, when it passed by inheritance to their relatives, the Hamiltons of Craighlaw; and after another change was acquired by its present proprietor, who has carefully preserved all its older features. It still retains such interesting features as the vaulted cellars and kitchen, the tower with turnpike stair, and a priest's chamber or hiding-place, used in "Reformation" times. The new additions comprise a large block of buildings on the north side, with one-storied kitchen offices and recreation-hall on the right, and entrance-hall, business room, upper hall, billiard-room, and suites of bedrooms on the left. The principal entrance-door—which in the original building was under the tower—had in the early part of this century been changed to the south front, but has now been moved back to the new north front, and the old entrance-court is converted into a flower-garden, containing a red sandstone sundial. The new entrance courtyard is inclosed on two sides by a massive Dumfriesshire red sand-stone balustrade, and the whole of the new hewn work is built of the same kind of stone, while the rubble walls are rough-cast with Portland cement. The finishings of the halls and billiard-room are of oak, and the recreation-hall has a Burmese teak floor supported by an ingenious arrangement of railway buffer-springs, which give the floor an agreeable spring of about  $\frac{1}{2}$  in. for dancing purposes. A range of old useless cellars that extended along the whole west front on the face of the cliff and below the ground-floor level has all been utilised for the kitchen offices by simply driving a stair and passage through the solid rock behind them, and the new kitchen court there is paved with tar macadam. The whole mansion is lighted by electricity, engineered by Mr. Thomas Young, C.E., of Glasgow. The mansion stands in extensive policies, abounding in ancient trees; and, besides these additions, the proprietor has erected a new gate lodge and gates, laundry offices, and an ornamental stone bridge over the burn which flows through the grounds, from plans by the same architect. The contractors-in-chief were Messrs. Anderson and Henderson, Glasgow, and the clerk of works Mr. James Allan, of Leith; whilst Messrs. Thomson and Wright, consulting sanitary engineers, of Edinburgh, were associated with the architect in the carrying out of the drainage, sanitary arrangements, and water supply.

## NEW PREMISES IN NEW OXFORD STREET, ON THE SITE OF BEDFORD CHAPEL.

THE building now in course of erection on the site of the late Bedford Chapel, New Oxford-street, from the designs of Mr. G. D. Martin, architect, 3, Pall Mall East, S.W., is constructed so that the ground floor, basement, and mezzanine floor could be let as a whole, if desired, or divided into eight shops on the ground floor with stores in the basement, and showrooms on the mezzanine floor. It has frontages to New Oxford-street, Shaftesbury-avenue, Phoenix-street, and Dyott-street respectively, and will consist of eight floors, inclusive of basement. The shops will be separated by red granite pilasters. The principal elevation fronting New Oxford-street is surmounted by two handsome turrets, and the whole will be constructed of red brick and Portland stone. The upper floors will contain 32 suites in all, nine being family and 23 bachelor suites, there being a large kitchen on the top floor, with lifts for the service of the latter. The floors and partitions will be of fire-proof construction. The building will be lighted by electricity, and there will also be a hydraulic passenger lift. The contractor is Mr J. Carmichael, of Wandsworth.

## NEW LIBERAL CLUB, BLACKPOOL.

THE foundation-stone of the above club premises was laid by Earl Carrington on March 16th of last year, and they will be formally opened during the present month. The premises are situated in a very central position in the town (Victoria-street), and have frontages to two streets. The ground floor is utilised for shop purposes. The facing of front is of solid ashlar from the Nelson quarries. The rear elevation is of Accrington pressed brick, with Nelson stone dressings. The accommodation on the first floor includes the reading-room, smoke-room, assembly-room, and secretary's office. On the second floor is placed the card-room, billiard-room (with accommodation for four tables), and the steward's room. A lift runs from top to bottom. A feature of the building is the stained-glass staircase window executed by Messrs. Swain, Bourne, and Son, of Birmingham, in which are introduced excellent representations of the late Mr. Gladstone, Lord Rosebery, Sir Wm. Harcourt, and Mr. John Morley. The usual conveniences are placed on each floor. The total cost, inclusive of land, amounts to £8,000. The contract was let to Mr. S. Butterworth and Sons, of Blackpool. The plans were prepared by Mr. Herbert Wade, of Blackpool, under whose superintendence the work has been carried out.

## SKIPTON COTTAGE HOSPITAL.

THE block plan given with the view of this building, printed among our illustrations to-day, displays the general arrangements. Male and female wards right and left of the administrative block in the centre, a very usual disposition of parts, and the sanitary provisions contrived in external pavilions. The laundry and mortuary are located in a distinct building to the left of the hospital. Mr. Edward C. H. Maidman, of Edinburgh, is the architect.

## SALE-ROOM SKETCHES OF FURNITURE.

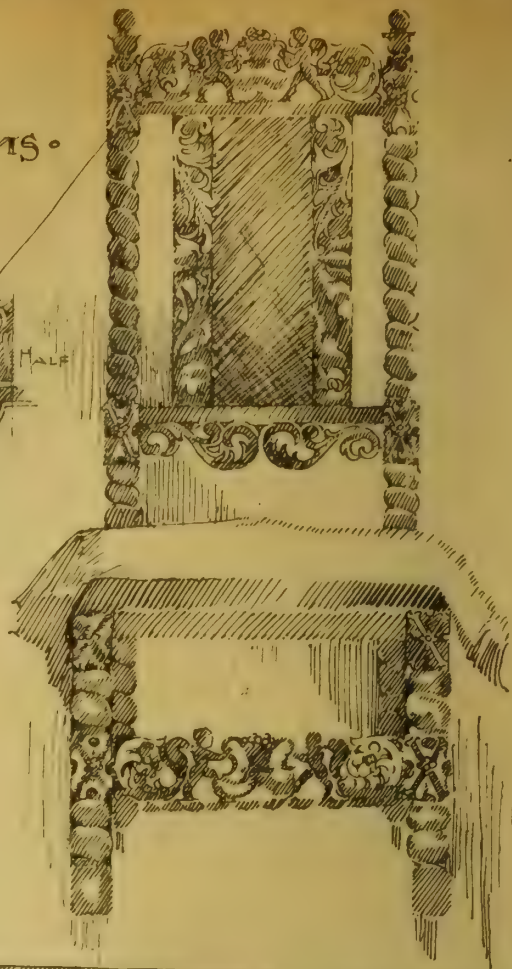
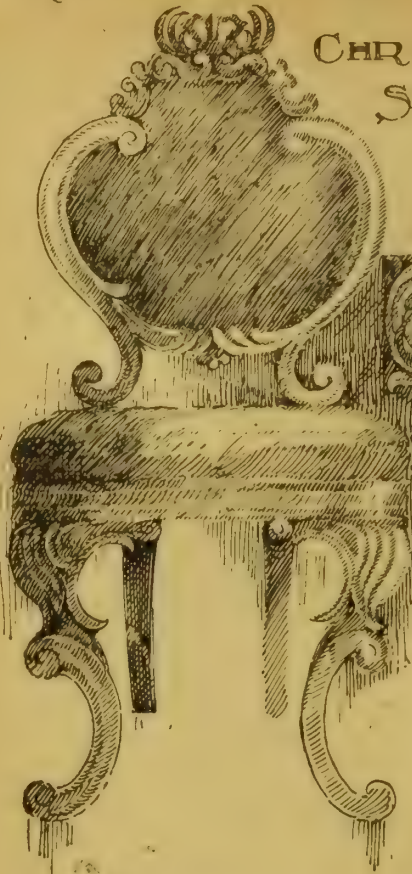
THESE sketches were recently made at Messrs. Christie's Rooms in King-street, and comprise a gilt chair carved with graceful sweeping scrolls, the back being surmounted by a crown. The oak chair is of Charles II. period, carved at top and bottom rail with cherub and floral design. It has spiral legs, with cane seat and back. The armoire of walnut, with folding doors, the upper portion carved with cherubs, foliage, and birds; the panels to doors are also carved, and with terminal female figures and leaf design.

\* \* THE photographic processes of reproduction are now so available that we venture to suggest that in many cases it is hardly worth while to send us drawings for reproduction. For measured work, for details, competitions, and the like, the services of the draughtsman will, of course, always be indispensable; but for average executed buildings, statuary, furniture, &c., a photograph is frequently in every respect as useful; and as, generally speaking, it would occupy less space, we should be able to give more subjects—especially in cases where the indifference of the drawing not infrequently influences the rejection—of churches, chapels, villas, &c.

The new English Church at Lucerne will be dedicated by the Bishop of London on April 14.



FURNITURE FROM  
CHRISTIES  
SALE ROOMS.

























THE BUILDING LEVYS. MAR 17, 1899.



26  
Second floor



HOUSES at HAMPSHIRE. W. F. HARRIS ARCHT.

PHOTO LINT

W. H. H. 1861







NEW PREMISES ON THE  
SITE OF BEDFORD CHAPEL.  
NEW OXFORD STREET LWC.  
FOR A. J. SANDERSON ESQ<sup>RE</sup>.  
MR C. D. MARTIN ARCHT.

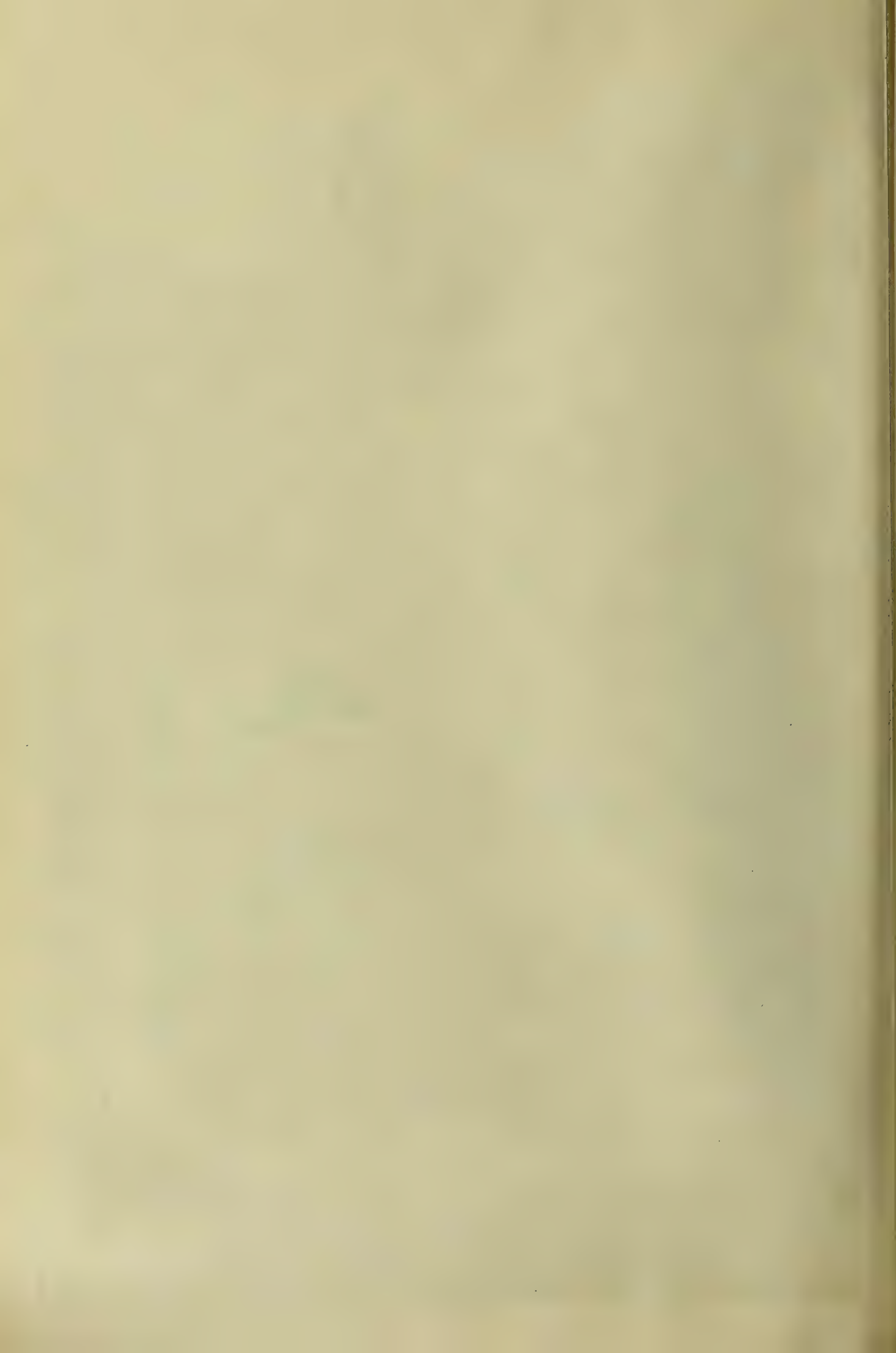




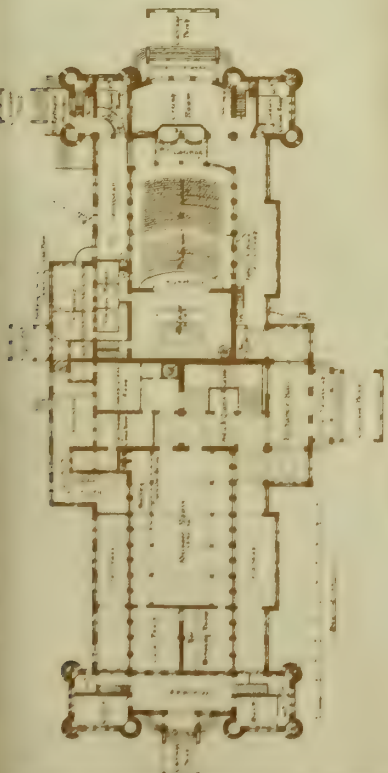
NEW LIBERAL CLUB  
VICTORIA STREET  
BLACKPOOL. HERBERT WATTS  
ARCHITECT.



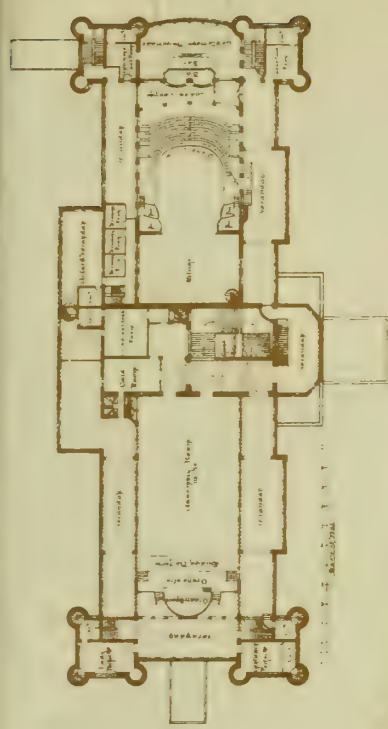








Victoria-Diamond Jubilee Memorial

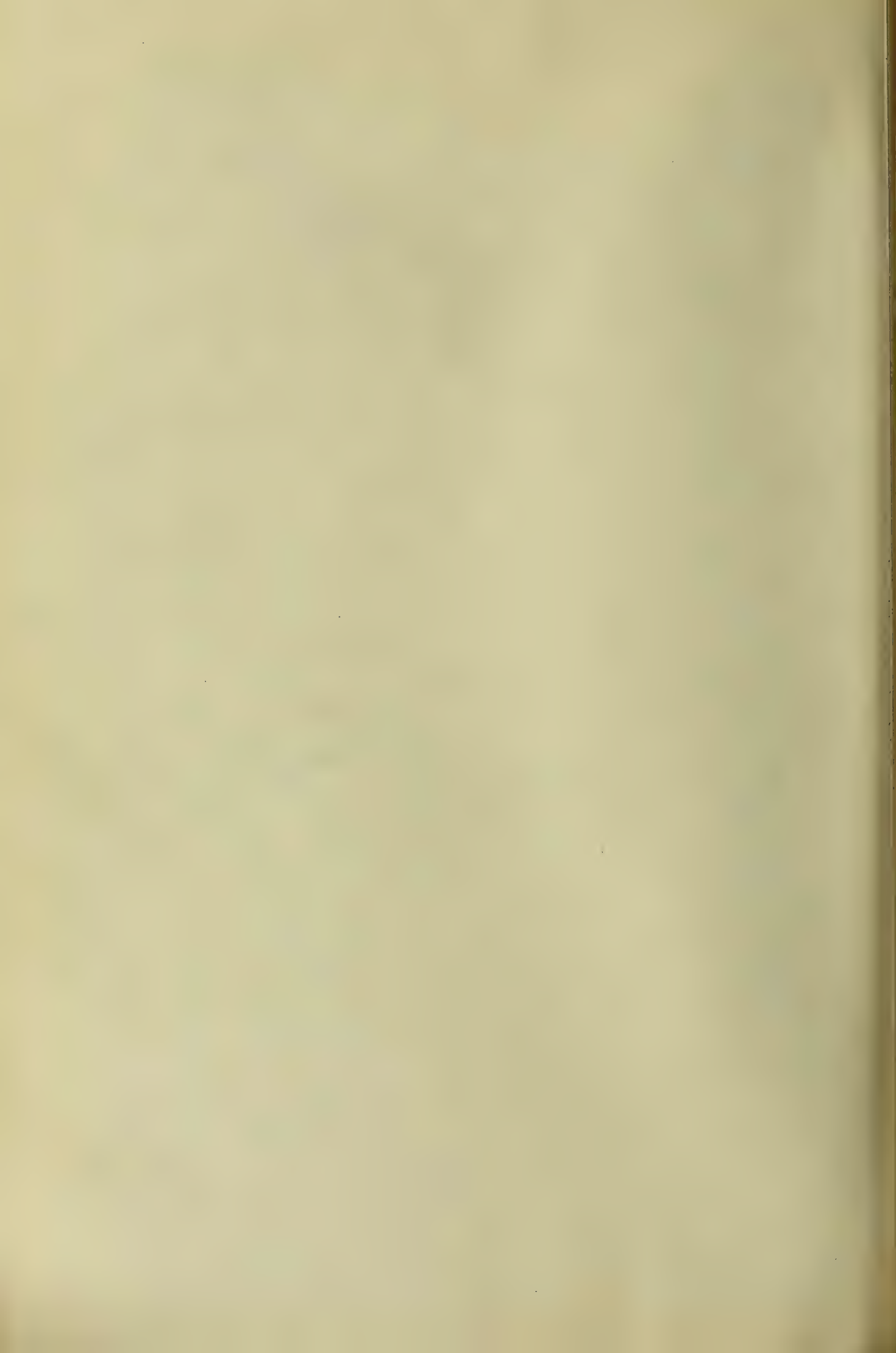


First Floor Plan

Victoria-Diamond Jubilee Memorial  
 Singapore (First Renowned Design)  
 Francis Gills A.R.B.A.  
 W. H. Franklyn A.M.C.E.











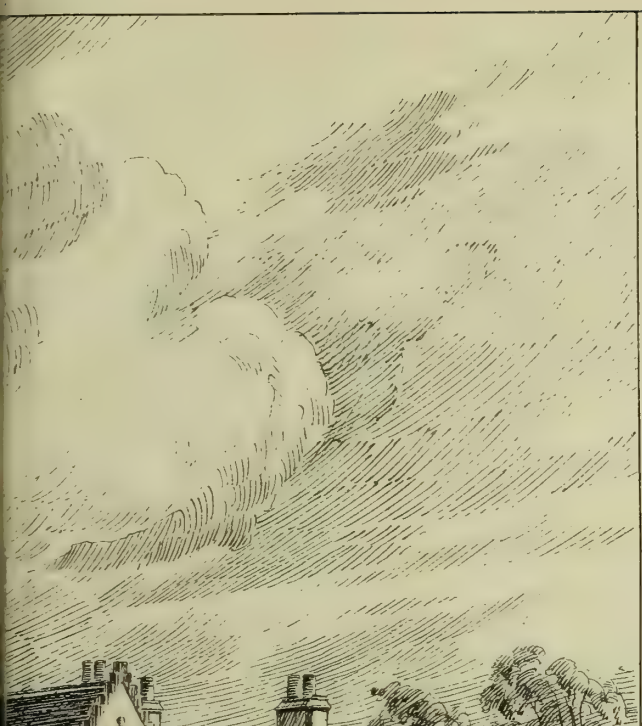




ADDITIONS TO BAROCHAN HOUSE



8. MAR 17, 1899.



6517  
187' x 187' P. 25  
W. T. S.



PLAN OF FIRST FLOOR

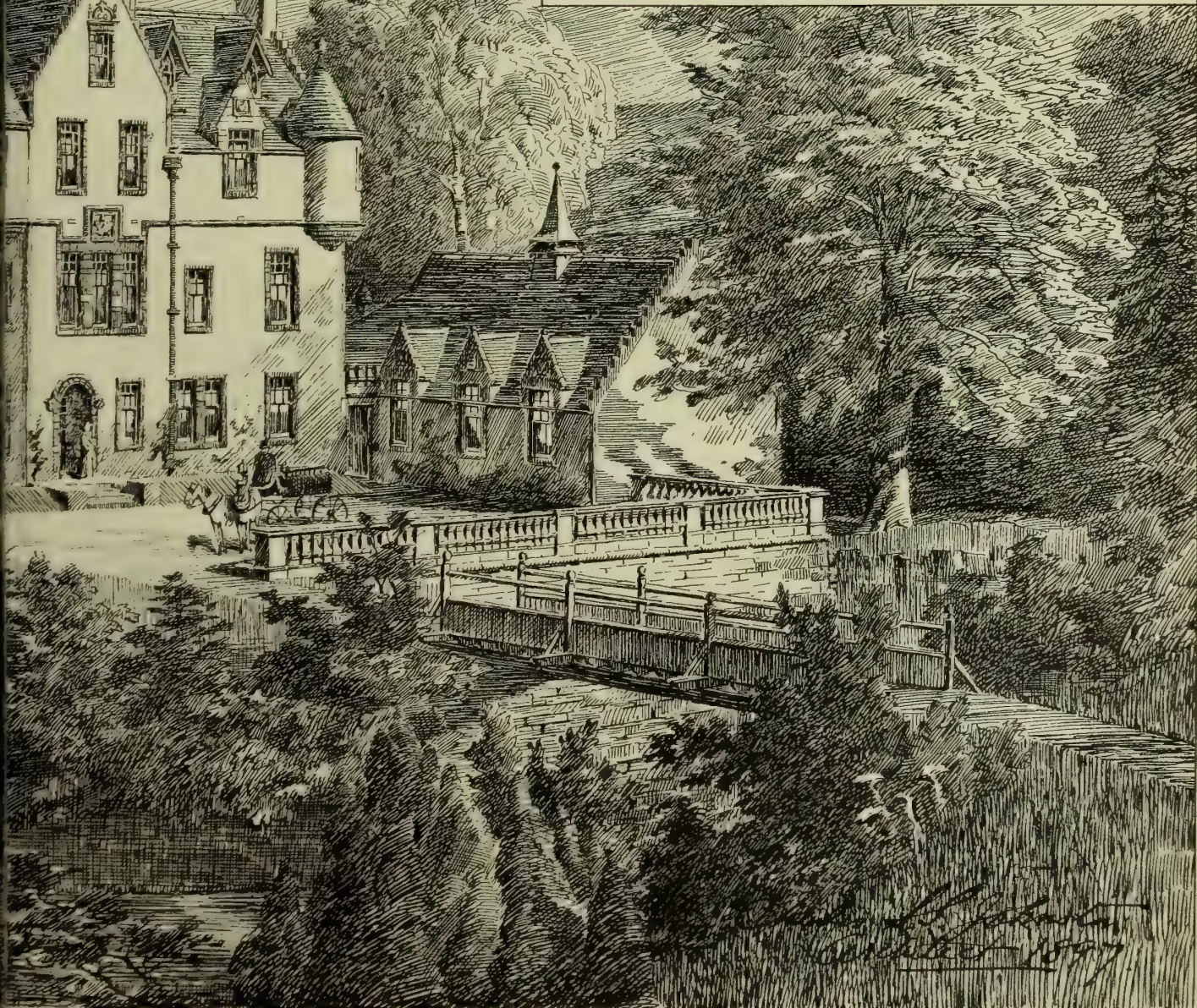


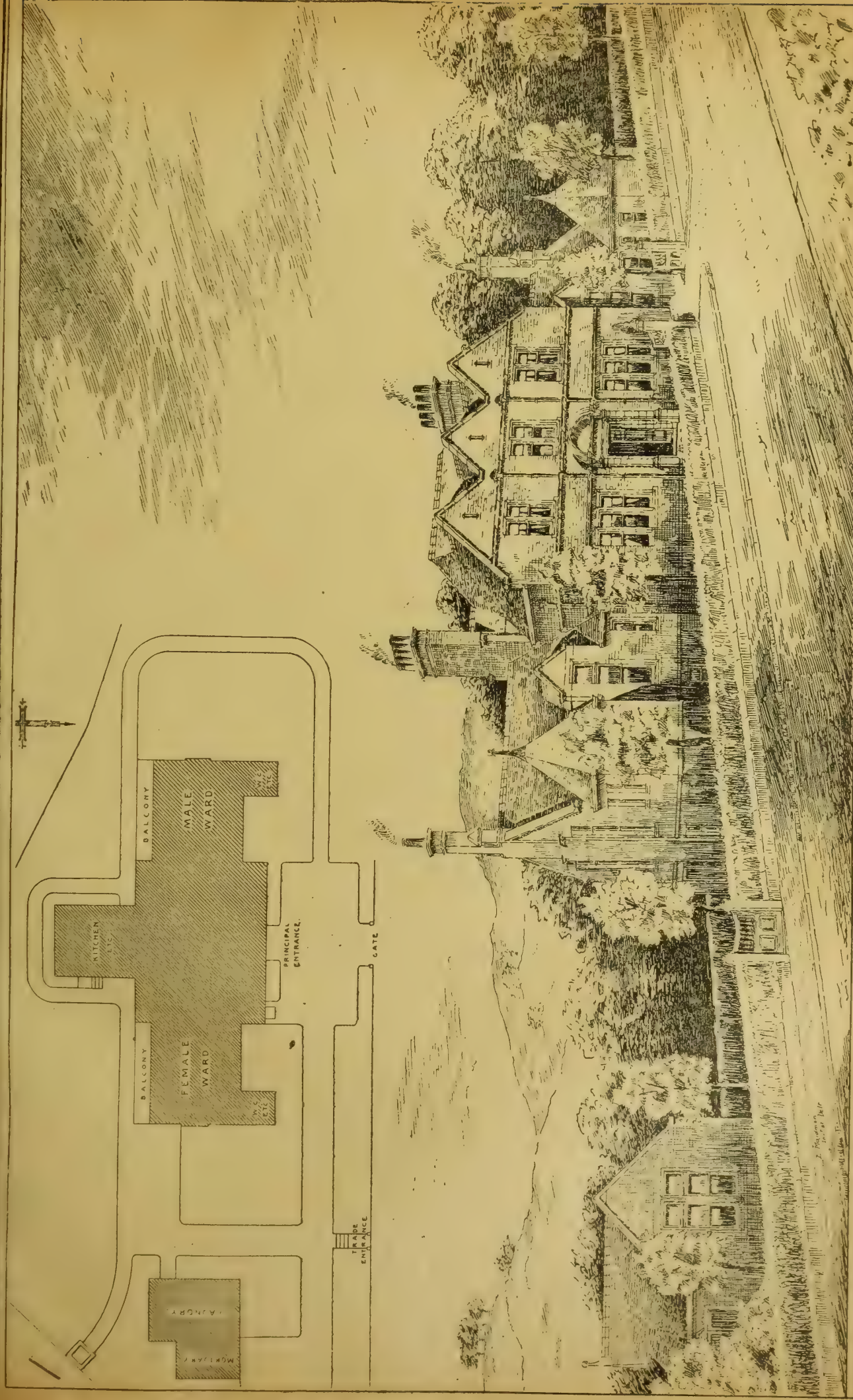
Photo Lithographed & Printed by James Akerman 6, Queen Square, W.C.

ENFREWSHIRE · CHAS · S · S · JOHNSTON ARCHT









SKIPTON & DISTRICT COTTAGE HOSPITAL

EDWARD C. H. MAIDMAN ARCHITECT EDINBURGH & T



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 382, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLVI., XLIX., LI., LII., LIV., LV., LIX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

R. D.—ELECTRIC LIGHT.—(Try Mr. G. E. Cockburn for an estimate. You will find his advt. elsewhere.)

RECEIVED.—S. G. H.—T. M.—A. E.—T. P. and Co.—A. H.—P. J. G.—F. W. T. and Son.—L. K.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Balbus" and "Claude."

## Correspondence.

## THE MILLBANK COMPETITION.

To the Editor of the BUILDING NEWS.

SIR,—May I ask you to be so kind as to publish the inclosed letter which I have addressed to the Clerk L.C.C. ?—I am, &c.,

ROBERT WILLIAMS.

20, Northbrook-road, Lee, London, S.E.

## THE MILLBANK COMPETITION.

SIR,—After four months and a-half the award in the above competition is just to hand.

May I point out that the mere announcement of the five premiated designs is scarcely the fair treatment which might reasonably be required at the hands of the London County Council?

Believing that the L.C.C. always desire to act fairly, I feel certain that it will give the following its immediate attention:—

1. All the designs should be exhibited (mine being, probably, the worst finished of the lot proves the sincerity of my request).

2. The assessor's report, especially as to the designs which he considered "*prima facie* suitable" to forward for estimation by the "officers of the Council," and generally as to the whole matter, should be published.

3. The report of "the officers of the Council" to whom the "*prima facie* suitable" designs were submitted, should also be published.

4. The award as to the money is against the conditions, which state that:—"A sum not exceeding £300 will be awarded among the competitors in such proportion as the assessor may determine."

The plain meaning of these words can be no other than that the £300 was to be divided amongst the whole of the

competitors in varying sums as the assessor should determine; and it was after reading them in this light that I entered, at the request of the Council, into the labour and expense of this competition.

The assessor, as an architect, has my sincere respect. I am, Sir, yours faithfully,

ROBERT WILLIAMS.

To the Clerk of the London County Council.

March 14, 1899.

## LEEDS MARKETS COMPETITION.

SIR,—I inclose copy of a letter from the President of this Society to the Lord Mayor of Leeds re the Leeds Markets Competition, and I shall be pleased if you could insert it in your next issue. —I am, &c.,

FRANCIS D. BEDFORD, Hon. Sec.

Leeds and Yorkshire Architectural Society, Leeds, March 13.

Leeds, 13th March, 1899.

MY DEAR LORD MAYOR,—As President of the Leeds and Yorkshire Architectural Society, and representing the views of the council of that body, I wish to call your attention, and also that of the chairman of the Markets Committee, to the "Conditions to be observed by competitors" in the pending competition by architects for the proposed market-hall and market shops in Vicar-lane.

These conditions are dated from the borough engineer's office; but they have evidently been drawn up by someone who is utterly inexperienced and ignorant of the terms upon which architects will enter into any such competition.

I inclose a copy of these conditions.

Referring to condition 8, it is promised that the drawings will be submitted to a professional assessor.

In order that competitors should have confidence in the judgment of the assessor, it is much to be preferred that he should be nominated before the issue of the conditions; that he should prepare the conditions, and that his name should be made known to the competitors.

The assessor is to select six designs as the best of those which he considers comply with the conditions, placing them in order of merit.

These six designs will be submitted to the Markets Committee, but the committee reserve to themselves the right to select any three out of the whole number of designs submitted in competition, and to award the prizes as their own judgment may dictate.

In view of that condition, one fails to see the use of an assessor at all.

It is to be presumed that the Markets Committee desire to have the best building they can possibly obtain, by means of competition of competent architects.

But the above quoted "conditions" opens the door wide to the selection of a design by personal influence rather than by merit.

There is, no doubt, in condition 14, a paragraph which I quote, "Any attempt to influence members of the corporation will be a disqualification." That is well; but how is the attempt to be discovered and proved? "No motto, device, or distinguishing mark must be used." That is also well; but designs can be seen and well noted before they leave the architect's office.

I well remember in a certain competition in this city that the then members of the corporation were invited to view certain designs before they were sent in.

There are throughout these conditions many things which are objectionable to those who desire to compete, but I do not propose to enumerate them.

I would, however, draw your attention to Condition 5, which has evidently been drawn up by someone utterly ignorant of architectural technical terms.

"Geometrical drawings of the basement and each floor, coloured in the ordinary manner."

"Geometrical sections coloured in the ordinary manner, and on the lines and of the number necessary, &c."

What other method than geometrical can be used for plans and sections, and what is the ordinary manner?

No elevations are asked for, but "four perspective drawings, two showing two front elevations, and two showing internal elevations."

There has certainly been a confusion of mind here; but, apart from that, it is the fact that perspectives are now absolutely prohibited in all well-conducted competitions, for reasons which are well known.

Having in view that the proposed building is intended by the markets committee to be of "first-class quality, and of ornate character," I would submit that, in order to attain that object, the committee should reconsider the matter, withdraw the conditions and appoint an assessor who would advise them in the general conduct of the competition, prepare revised conditions, and guide them to a proper selection, avoiding all personal influence.—I remain, my dear Lord Mayor, yours respectfully,

GEORGE CARSON, President.

FRANCIS W. BEDFORD, Hon. Sec.

Leeds and Yorkshire Architectural Society.

P.S.—I propose to send copies of the above letter to the chairman of the markets committee, the local and professional papers, and the Royal Institute of British Architects.

## SANITARY SAFETY.

SIR,—Many and varied are the efforts made to obtain this nowadays. Houses are surveyed, inspected, and tested over and over again, until the owners must really begin to look upon it as a weariness to the flesh. It would be amusing, were it not too serious a matter, to consider how much of this testing is more misleading than really useful, even when carefully done by trained and qualified men. The so-called testing performed by inexperienced and interested people is, of course, unworthy of consideration.

It is curious how difficult it seems for some people to grasp the fact that it is foul air we are

fighting. Nothing is more common than to see a beautifully-finished plan, with all the sewage drains coloured red and all the R.W. drains, in direct communication with them, coloured blue, the designer failing to realise that it is not so much what passes down as what comes up a drain (in the shape of foul air) that is the insidious foe! Often I have found the drains themselves quite sound, while no attempt had been made to render the access chambers—an integral part of the drainage—air or even water-tight. As the Indians say, "Water never sleeps!" There is something honest and searching about water, and the hydraulic test is positive and excellent, so far as it goes. But it does not test manhole covers when fixed in place, nor in an occupied house does it test any higher than the lowest connection to a vertical soil-pipe. Then, again, smoke, and all smell tests, simply give negative results, and the surveyor reporting after their use generally employs some such words as, "No leakage was detected," which may or may not be satisfactory. The only positive test which enables us to say at once, "The sanitary system of this occupied house is sound and airtight from disconnecting chamber to tops of the ventilating pipes, including every joint and connection," is the pneumatic test. It shows instantly air leakages which water only shows very slowly, if at all, air passing readily and at once through tiny interstices practically impervious to the passage of water.

I have quite come to the conclusion, after very many years' practical testing, that a sanitary survey without this test is unworthy of the name, and, in short, not worth paying much for.—I am, &c.,

CHAR. E. GRITTON,  
A.M.Inst.C.E., Mem. Soc. Architects.

## CHIPS.

An extensive fire occurred early on Tuesday morning upon the premises of Messrs Wake and Dean, school and church furniture manufacturers, St. George's Market, London-road, Southwark. It first appeared in a range of buildings used as workshops, stables, and stores, covering an area of 80ft. by 26ft., and this was destroyed. A large stock of timber, both in buildings and in the open yard, was severely damaged, but the front premises and offices are practically uninjured.

The Davis Memorial Institute at East Compton was opened on Tuesday. It is built of Cattybrook bricks with Bath stone dressings, and is fitted up in pitch-pine. The cost has been about £600. Mr. T. B. Bradford, of Brigstocke-road, St. Paul's, Bristol, was the builder.

The city council of Bristol decided on Tuesday to borrow £16,000 for work of wood-paving in various main streets in which the tramways company are about to reconstruct their lines.

At the annual meeting of the Staffordshire County Council, on Tuesday, £35,000 was voted for the completion and equipment of the lunatic asylum buildings at Chaddleton, in addition to the contract figure of £165,115.

The electric-lighting committee of the Edinburgh Town Council recommended, on Tuesday, estimates for acceptance in connection with the M'Donald-road power station, for slater, plasterer and concrete, glazier, smith, and plumber work, amounting in all to £5,000.

There was formally opened in Falkirk, on Tuesday, a model corporation lodging-house. The building, which is erected in East Bridge-street, is of three stories in height, and contains 170 beds, besides large dining-hall, reading and recreation rooms, keeper's house, &c. The cost was £4,500.

A public inquiry was held by the Light Railway Commissioners, at the Westminster Guildhall on Wednesday and Thursday, into the applications made by the Metropolitan Tramways Company for orders authorising the construction of the Highgate, Finchley, and Woodgreen Light Railway, and the Finchley, Hendon, and District Light Railway. A somewhat similar application was rejected in 1897. The present line will, if sanctioned, start from Brondesbury, close to the stations on the North London and Metropolitan Railways, and with a branch through Cricklewood, run through Hendon, Finchley, Hornsey, and Islington, to a terminus in the Archway-road, near the terminus of the London County Council's Tramways. The line will be a little over ten miles in length, and the cars will be driven by electric power on the overhead trolley system. The cost is estimated at £200,000.

At a town's meeting held in Liverpool, on Monday, it was decided to erect a memorial to Mr. Gladstone, and a committee was appointed to carry out the scheme. Subscriptions amounting to over £2,600 have already been announced.



## Intercommunication.

### QUESTIONS.

[12210].—**Scraping Stonework and Marble.**—I should be obliged if any practical readers will give me advice as to cleaning stone and marble work. The stone (Portland) is very discoloured with rain and soot, and streaks of black spoil the surface. Will scraping be a good plan, or will it destroy the surface? Is there any means of washing the stone? The surface of the white marble is rough, and the smooth face it once had is gone. It is also discoloured, and black in parts. How should this be treated?—**LIMESTONE.**

[12211].—**Warming by Hot Water.**—Is there any rule by which the length of pipe and size of pipe for heating a room can be estimated?—**NOVICE.**

[12212].—**Excavating Trenches for Drains.**—What is a fair price in London per cube yard digging trenches, part filling and ramming, for drain pipes? The ground is stiff clay, and the trenches about 4ft. deep.—**A. VAX.**

[12213].—**Greenhouses.**—What would a small greenhouse or conservatory 12ft. by 7ft. cost, of lean-to construction against a house wall? One end would open into the dining-room, the other end would have a door.—**BETC.**

[12214].—**Pressed Facing Bricks.**—Have pressed facing bricks any merit over ordinary well-burnt bricks, except that, of course, they are truer and smoother on the surface? I should like to learn from someone who has used pressed bricks, of their advantages, and price.—**A COUNTRY BUILDER.**

### REPLIES.

[12206].—**Light Areas.**—There are polished reflectors made, like those of Chappuis, which are hung at the bottom of the windows in the light area at a certain angle, to reflect the light into the rooms. If the rooms requiring light are on the lower story, reflectors would not be of much value. What is necessary is to bend the rays of light inwards, if possible, by some refracting medium. The Luxfer prism lights actually do this: the light from the sky is bent inwards through the window at any desired angle. For light wells or areas such as "Office" refers to, the Luxfer prism is more effective than any form of reflectors as the rays of the light from sky are actually refracted into the rooms without undergoing any appreciable loss. For a light area of five stories, the prisms required will be those known as "Canopy" prisms. Probably the "A" prism is necessary. The slope of the canopy over the window will have to be determined by the length of room and the position of desks, &c. These canopies of Luxfer prisms can be fixed at any angle. If sloped at 50°, the light thrown in horizontally is greater than it would be for a greater angle. Apply for particulars at the Luxfer Prism Syndicate, Hill-street, Finsbury.—**G. H. G.**

[12207].—**Deal Architrave Moulding.**—This kind and size of moulding must be priced at per foot cube fixed. The price would be about 5s. per foot cube fixed complete.—**A. B.**

[12209].—**Stiffening Floor.**—Remove flooring boards, and insert two or three rows of herringbone or solid strutting, and furr the joists where they have sagged. Before the strutting is inserted, the floor should be well supported from below. A jack-screw may be used for this purpose.—**SUAVITER IN MODO.**

[12208].—**Dilapidation.**—A covenant to repair generally means to keep and leave the house in substantial repair, according to the nature and state of the building. Of course, a lessee is not expected to renew or restore what has been decayed and worn out by age, or to put an old house into the same state of repair as a new one. The term "tenantable repair" means good tenantable repair, having regard to the age of the premises, which can be inquired into by a jury. The terms "habitable or tenantable repair" have been defined by the Court of Appeal to have the same value. The official referee said, "I am of opinion that, under a contract to keep the premises in tenantable repair and leave them in tenantable repair, the obligation of the tenant, if the premises are not in tenantable repair when the tenancy begins, is to put them into, keep them in, and deliver them up in tenantable repair." He defines the term as "such a state as to repair that the premises might be used and dwelt in, not only with safety, but with reasonable comfort by the class of persons by whom they were occupied."—**G.**

The Roman Catholic Bishop of Southwark laid the foundation-stone of the new church dedicated to St. Agatha, at Kingston-on-Thames, on Saturday.

The commission for the Byron statue to be erected in Aberdeen has been given to Mr. MacGillivray.

Sir John Taylor, consulting surveyor of the Office of Works, having been requested by the War Office to advise that Department in respect to the construction of barracks, he is now, with Colonel C. M. Watson, Deputy Inspector-General of Fortifications, examining some of the most recently-built home barracks.

The town council of Newport, Mon., at their meeting on the 14th, confirmed the recommendation of the Visiting Committee, appointing Mr. A. J. Wood, 22, Surrey-street, Victoria Embankment, W.C., architect for the asylum proposed to be erected for the borough. Mr. Wood, who has recently completed the Middlesbrough Borough Asylum, is now engaged on plans for extensive additions to the Suffolk County Asylum, and is also architect for the conversion of the late Colonel North's mansion at Avery Hill into a private asylum.

## LEGAL INTELLIGENCE.

**CLERK OF WORKS — CLAIM AGAINST AN ARCHITECT.**—His Honour Judge Woodfall, of Exeter County-court, on the 8th inst., had before him an action brought by A. J. Wilkins, late clerk of the works at the Devon and Exeter Hospital, against Mr. Charles Cole, of Exeter, the architect, for £68, commission at the rate of 1½ per cent. for preparing three bills of quantities and specifications in connection with the new out-patients' department. A sum of £50 was paid into Court. Mr. Dunn said the agreement to pay the 1½ per cent. was verbal, but was made in the presence of Mr. A. E. Boyce, late secretary to the Hospital. Mr. Cole was to receive 2½ per cent. on the estimates, and to pay Mr. Wilkins the 1½ for making out the bills of quantities. The total estimate was £4,550. Some friction arose, the tenders for the work were annulled, and the scheme abandoned. Mr. Cole, however, would receive his 2½ per cent. all the same. Mr. Boyce said owing to the dispute between the parties he invited them in the interest of the Hospital work to settle the matter, and he would act as umpire. It was agreed that plaintiff should receive 1½ per cent. on the bills of quantities, but nothing was said about the specifications. It was stated that Mr. Cole was contesting the action in the interest of the Hospital, who would have to repay him if a verdict was given against him. He had paid £50 into Court as a reasonable settlement of the claim. His Honour gave judgment for plaintiff for £7 in addition to the £50, this being at the rate of 1½ per cent.

## PARLIAMENTARY NOTES.

**METROPOLIS MANAGEMENT ACTS AMENDMENT BILL.**—The Standing Committee of the House of Lords met on Tuesday, the Earl of Kimberley in the chair, to consider the Bill, as amended in committee, to amend the provisions of the Metropolis Management Acts with respect to by-laws. The Bill proposes to authorise the Council to make by-laws requiring persons about to construct, reconstruct, or alter drains to deposit plans and particulars with the sanitary authority before the work is commenced, alterations in cases of emergency being excepted. Lord Monkswell, whose name appeared on the back of the Bill, explained, in answer to the Earl of Camperdown, that hitherto, as he understood, there had been no power to compel persons about to construct, reconstruct, or alter drains to give notice of what they were going to do, although if the sanitary authority found out afterwards that the work had been done in a faulty manner they might insist on the drains being pulled up again. The alterations in the law which this Bill made was therefore really for the convenience of the occupier. Several drafting amendments, proposed by Lord Harris on behalf of the Local Government Board, and by Lord Monkswell, having been agreed to, the Bill passed through committee.

## WATER SUPPLY AND SANITARY MATTERS.

**LONDON WATER COMMISSION.**—At Thursday's meeting of the Royal Commission, an important announcement was made by Mr. Balfour Browne, Q.C., counsel for the London County Council. In reply to an inquiry by the Chairman, Viscount Llandaff, as to whether the County Council desired the Commission to find that purchase of the undertakings of the Water Companies would be expedient on any terms of arbitration, or that purchase would be expedient upon certain special terms of arbitration, Mr. Balfour Browne said that in the opinion of the County Council it was expedient to buy out the Companies upon special terms of arbitration. The Council desired to point out that, as their definite proposal was now before Parliament, and in view of the fact that their witnesses might soon be called upon to substantiate it before a Committee of the House of Commons, it was impossible to say anything that might be construed to commit the Council to accept any terms of arbitration that might be imposed upon them. At the same time, it did not necessarily follow that the precise clause contained in the present Bill would afford the only means of obtaining fair terms of arbitration. The contention was that the fair value of the Companies' undertakings should be ascertained by a court of arbitration of the highest standing, with the fullest powers to inquire into all the circumstances of each individual case. Mr. Urban A. Smith, engineer to the Herts County Council and Mr. Baldwin Latham, the consulting engineer, were then examined with regard to the exhaustion of the springs in Hertfordshire. At Wednesday's sitting of the Commission the evidence was completed, and counsel addressed the Commission on behalf of the Hertfordshire County Council and of several of the water companies. The Commission adjourned until Monday next.

Mr. J. G. Chittenden has been appointed surveyor to the rural sanitary authority of Faversham at a salary of £200 a year.

## Our Office Table.

On the invitation of Mr. Forbes, Her Majesty's Commissioner, Mr. William Inkster, firemaster of Aberdeen, accompanied by Bailie Lyon, of the Aberdeen Town Council, visited Balmoral on Friday to inspect and report on the fire appliances at the castle and its offices. Messrs. Inkster and Lyon were met by Mr. Anderson, clerk of works, and were conducted over the establishment. At various points round the Castle proper it was found that there are about a dozen hydrants, the most of them having all the needful accessories, such as standpipes, hose, and nozzles. The water supply, which comes from Lochnagar, is stored in a reservoir on an adjoining hill about 150ft. above the Castle, and runs with a pressure of about 50lb. to the square inch. Inside the building, however, the arrangements were not so adequate. With the exception of several chemical extinguishers, none of the many corridors, either upstairs or downstairs, is provided with apparatus to grapple with a serious outbreak. Corridor engines, in the shape of hand pumps, and an increased supply of chemical extinguishers of modern type, will probably be recommended. The castle is at present partly lighted by electricity and by May the installation will have been carried to the upper rooms. This, of course, will still further reduce the risk of fire. The latest addition to the buildings at Balmoral—the Garden Cottage—where Her Majesty frequently breakfasts, was visited, and also Karim Cottage, the private residence of the Indian secretary, which has no appliances at hand for the suppression of fire. The byres, stables, laundry, and gardener's cottage were inspected in turn, and their requirements noted; and before leaving Mr. Inkster drilled the servants on the estate in the use of the fire apparatus. Mr. Inkster will prepare a detailed report for Mr. Forbes.

New marble quarries are being opened out at Lower Umzimkulu, Natal, and are being exploited in the South African Republic by a syndicate. A bed of rich white marble has been traced for a distance of a mile and a half, and there are facilities for transit by rail and sea, and, according to the Transvaal newspapers, is said to be as fine as the statuary marble of Carrara, and to be worth from 10s. to 40s. per cubic foot, and the colour is less yellow than that from the Italian quarries, while from the absence of cold and frost the material is free from fractures. Mr. Harry Hems, however, writes to us: "I had an opportunity for examining these quarries when in Natal last summer; they are undoubtedly good, but to say that they produce statuary marble equal to Italian is a colonial 'slinger.'"

The crusade against high buildings goes on vigorously in the United States. In Washington it is proposed to limit business buildings to a height of 110ft., or 130ft. where they front on a street not less than 160ft. wide; while no building on a residence street must exceed 90ft. in height. Apartment-houses and hotels more than 60ft. high must be fireproof, and business buildings more than 75ft. high must also be fireproof. In Boston, Mass., a law has been brought before the Legislature which limits buildings within a radius of 1,000ft. from the dome of the State house to the height of the main cornice of that building in those cases where the present general law would allow them to exceed that height-level.

"INDIAN ENGINEERING" observes the only earthquake-proof structures in Japan are the pagodas, which are erected before temples. Many of these structures are seven or eight hundred years old, and as solid as when first built. The pagoda is a framework of timber on a wide base substantial in itself. Inside the framework and suspended from the apex is a heavy beam of timber 2ft. thick or more. This hangs from one end and forms an enormous pendulum reaching within 6in. of the ground. When the shock of earthquake occurs, the timber pendulum swings in unison, and keeps the centre of gravity at the base of the framework, by which action the equilibrium of the structure is maintained. Owing to this ingenious device, the pagodas resist the severest shock, and many of the highest are of a great age.

STUDENTS who are engaged in architectural, surveying, and engineering work generally, may find some useful help in the catalogue issued by



Mr. A. G. Thornton, of St. Mary's-street, Deansgate, Manchester, as directions are given for using the appliances that are not well known, and the student has the opportunity of buying a "case" adapted to a "set" of instruments, and adding the latter as his funds will allow. It is always better to buy a "case" only half furnished, and add instruments as opportunity offers, than to purchase a so-called cheap "case" at once. It is also wise for a student in any of the professions to obtain the best instruments, for inferior ones often lead to much vexation of spirit.

#### MEETINGS FOR THE ENSUING WEEK.

**MONDAY.**—Surveyors' Institution. "The Second Report of the Royal Commission on Local Taxation," by Col. G. W. Raikes, F.S.I. 8 p.m.

Liverpool Architectural Society. "Notes on American Architecture," by H. Bloomfield Bare, F.R.I.B.A.; and "New York Office Buildings," by James H. Cook. Leeds and Yorkshire Architectural Society. Election of Officers and Annual Report.

**TUESDAY.**—Society of Arts. "The Commercial Development of Germany," by C. Rozenraad, F.R.S. 4.30 p.m.

The Institution of Civil Engineers. Discussion on "Water-Tube Boilers for Marine Engines," and "Recent Trials of the Machinery of Warships." 8 p.m.

**WEDNESDAY.**—Society of Arts. "Electric Traction," by Philip Dawson. 8 p.m.

St. Paul's Ecclesiastical Society. "The Commemoration of John Potter at Westminster in 1522," by Mr. Leland L. Duncan, F.S.A., and "Two Manuscript Missals in the Bristol Public Library," by Mr. Cuthbert Atchley. 7.30 p.m.

**THURSDAY.**—Society of Architects. Discussion on "The Experiences of Architects in their Dealings with Local Authorities." St. James's Hall, Piccadilly. 8 p.m.

#### THE ARCHITECTURAL ASSOCIATION.

MARCH 25th.—VISIT to the BRITISH FIRE PREVENTION COMMITTEE'S FIRE-TESTING STATION, North Bank, near St. John's Wood Station (Met. Ry.), 11.30 a.m.

Students proposing to join the Association with a view to attending the courses of instruction next Session should forward their nomination forms to the Hon. Secs. before APRIL 26th. The Subscription of a member elected after April 30th covers the ensuing session.

E. HOWLEY SIM Hon. Secs.  
G. B. CARVILL

#### The Society of Architects.

Founded 1884. Incorporated 1893.

THE FIFTH ORDINARY MEETING of the Society of Architects for the Session 1898-99 will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, March 23rd, 1899, at Eight p.m., when a DISCUSSION will take place on "THE EXPERIENCES OF ARCHITECTS IN THEIR DEALINGS WITH LOCAL AUTHORITIES." At this meeting smoking will be permitted.

ELLIS MARSLAND Hon. Sec.  
C. MCARTHUR BUTLER, Sec.

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##### EXAMINATION FOR MEMBERSHIP.

INTENDING CANDIDATES for the Examination to be held on APRIL 12th, 13th, and 14th next, are reminded that the LATEST DATE on which application can be made is MARCH 23rd. Full particulars and forms of application may be obtained upon application. Copies of the last Examination Papers, 1s.

ELLIS MARSLAND, Hon. Sec.  
C. MCARTHUR BUTLER, Sec.

St. James's Hall, Piccadilly, W.

#### Trade News.

##### WAGES MOVEMENTS.

ASSOCIATED CARPENTERS AND JOINERS.—The 37th annual report of the Associated Carpenters' and Joiners' Society has been issued from the chief office in Edinburgh. The income has been £15,293 6s. 9d., an increase of £1,116 3s. 1d. over that of last year. The total expenditure has been £11,798 4s. 6d. Of this sum £3,751 8s. has been paid as sick alimony, in which 2,981 members participated; superannuation, or old-age pension, £1,150 13s. 4d.; funeral allowance, £687; tools compensation, £884 8s. 1d.; unemployed benefit, £816 19s. 5d.; strike allowance, £178 19s. 3d.; salaries and commissions, £1,380 1s. 3d.; disabled members' bonuses, £800, &c. The financial gain on the year's transactions was £3,500 2s. 3d., being the largest balance in any one year since the formation of the society. The capital account at October 31 had increased to £16,067 1s. 11d. Of this sum £7,902 1s. 11d. belongs to the trade section, £5,669 16s. 0d. to the sick section, £2,675 16s. 8d. to the unemployed, and £629 8s. 0d. to the benevolent and contingent fund. There are 168 branches, with 9,339 members, an increase of 557 over the previous year. During the year trade

has been good, and a number of members have received advances in wages and improved working rules. On the question of the Compensation Act, the committee say:—The Act bristles all over with legal quibbles, and appears to have been framed for the benefit of the legal profession and insurance companies. So far as our experience has gone, it has not been the means of preventing accidents. Also the compensation offered is quite inadequate—20s. per week being the highest compensation allowed. Another difficulty has arisen in connection with the Act, and that is the employment of old men. Some firms will not take on men over 50 years of age, especially if it is for outside work, thus throwing a number of workmen out of employment who are quite able and willing to work, but will not be allowed, as a higher premium has to be paid for them. In outside work in the building trade the question arises, What is a scaffold, and how far has a workman to fall before he can claim compensation? Some authorities hold that it matters not what distance a workman may fall, providing any part of the building is over 30ft. high; others that the fall must be over 30ft. before compensation can be granted. Then, where is the height of the building to be measured from? Is it from the foundation, or the ground around the building? Then, what is a scaffold? Must it start from the ground? If we can read between the lines according to some judgments given, planks 40ft. high, resting on a window-sill, or fixed to a ladder, are not a scaffold within the meaning of the Act. Again, if a workman works a machine without his employer's or his foreman's orders, and an accident occurs, that is construed to be serious and wilful misconduct on the part of the workman, and debars him from claiming compensation. We have mentioned these points so as to put our members on their guard so that they may not touch machines without direct orders, and refuse to go on a hanging scaffold, or scaffolding supported by fixtures on the wall. Should they do so, they know the consequences.

THE PLASTERERS' DISPUTE.—There is little fresh to be said in connection with the lock-out. The National Union of Operative Plasterers have resolved upon a levy of 3s. per week per member in employment, which comes into operation this week. The first of a series of district meetings, arranged by the London Master Builders' Association, was held on Tuesday evening at Stanley's Restaurant, Lavender Hill, Battersea. Mr. Henry Holloway presided, and Mr. Costigan, the secretary of the Masters' Association, outlined the condition of affairs, the meeting adopting resolutions in support of the employers. At the offices in Bedford-street on Wednesday, there was a sitting of the standing committee of the National Association of Master Builders. Mr. Holdsworth was chairman, and there was a good attendance. The proceedings were private.

THE SKILLED LABOUR MARKET.—The Monthly Memorandum of the Labour Department reports that employment was exceptionally good in February. The proportion of unemployed in the trade unions making returns was 2.6 per cent., against 3 per cent. in January, and 4.4 per cent. in February, 1898. In the building trades (plumbers excepted) employment has continued good. The furnishing trades have improved, and employment is now good in nearly all branches.

BROUGHTY FERRY.—The joiners in Broughty Ferry are working for 1d. less per hour than the Dundee workmen, and have applied for an increase of wages. The employers offer to concede an advance of 4d. per hour, but the journeymen consider this inadequate.

DUMFRIES.—The operative masons intimated to their employers on Saturday that they would not resume work to-day unless their demand for an increase of their wage from 8d. or 9d. an hour was complied with. The masters have refused the advance.

NORWICH.—The operatives in nearly all departments of the building trade in Norwich have made demands upon the employers for increased rates of pay and for other improved conditions of labour. The employers have the matter under consideration.

A new Wesleyan chapel and school is now being erected at St. Ives, Cornwall, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

The important modern pictures of the late Sir John Kalk came up for sale at Christie's on Saturday. The collection was a small one, comprising only 66 lots, which, however, realised the good total of £17,123. The highest prices of the day were obtained for Turner's "Port Ruysdael," 35in. by 47in., which was exhibited at the Royal Academy in 1827, and now fetched 4,800gs., and Millais's "Minuet," hung at the Academy in 1867, and which brought 4,500gs.

In the case of George Brough, of Langley Mill, Derbyshire, builder, the order of discharge from bankruptcy has been suspended for three years ending Feb. 7, 1902.

#### LATEST PRICES.

IRON, &c.			
	Per ton.	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0	to £6 10 0	
Rolled-Steel Joists, English.....	6 10 0	" 7 0 0	
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0	
Bar Iron, good Staffs.....	7 5 0	" 8 5 0	
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0	
Do., Welsh.....	5 15 0	" 5 17 6	
Boiler Plates, Iron—			
South Staffs.....	7 17 6	" 8 5 0	
Best Suedahill.....	10 0 0	" 10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
6ft. to 8ft. long, inclusive	No. 18 to 20.	No. 22 to 24.	
gauge.....	£10 15 0	" £11 0 0	
Best ditto.....	11 5 0	" 11 10 0	
Cast-Iron Columns.....	£8 5 0	to £8 15 0	
Cast-Iron Stanchions.....	6 5 0	" 8 15 0	
Rolled-Iron Fencing Wire.....	7 5 0	" 8 5 0	
Rolled-Steel Fencing Wire.....	7 5 0	" 7 15 0	
Galvanised.....	10 10 0	" 11 10 0	
Cast-Iron Sash Weights.....	4 2 8	" 4 5 0	
Cut Clasp Nails, 3in. to 6in.....	9 0 0	" 10 0 0	
Cut Floor Brads.....	8 15 0	" 9 15 0	
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/6 10/- 10/8 11/3 12/- 13/- 14/- 15/9 17/9			per cwt.
Cast-Iron Socket Pipes—			
8in. diameter.....	£5 10 0	to £5 15 0	
4in. to 6in.....	5 5 0	" 5 10 0	
7in. to 24in. (all sizes).....	4 15 0	" 5 0 0	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....	106s.	to 110s.	
Hot Blast, ditto.....	57s. 6d.	to 62s. 6d.	
Wrought-Iron Tubes and Fittings—Discount off Standard			
Lists f.o.b. :—			
Gas-Tubes.....			75p.c.
Water-Tubes.....			70
Steam-Tubes.....			82½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 6cwt. casks.			
Per ton.	Per ton.	Per ton.	
Zinc, English.....	£30 10 0	to £31 10 0	
Do., Vieille Montagne.....	31 10 0	" 32 15 0	
Sheet Lead, 3lb. per sq. ft. super.....	16 10 0	" 17 10 0	
Pig Lead, in 1cwt. pigs.....	15 10 0	" 16 10 0	
Lead Shot, in 28lb. bags.....	20 0 0	" 21 0 0	
Copper Sheets, sheathing and rods.....	83 0 0	" 84 0 0	
Copper, British Cake and Ingots.....	74 15 0	" 75 5 0	
Tin, Straits.....	106 0 0	" 107 0 0	
Do., English Ingots.....	112 0 0	" 113 0 0	
Spelter, Silesian.....	27 0 0	" 27 1 3	
TIMBER.			
Teak, Burmah.....per load	£13 0 0	to £15 10 0	
" Bangkok.....	10 10 0	" 14 10 0	
Quebec Pine, yellow.....	4 7 6	" 6 5 0	
" Pitch.....	8 10 0	" 8 15 0	
" Oak.....	1 0 0	" 6 0 0	
" Birch.....	1 0 0	" 5 0 0	
" Elm.....	4 12 6	" 5 15 0	
" Ash.....	3 17 6	" 5 5 0	
Dantaic and Memel Oak.....	3 5 0	" 3 15 0	
Fir.....	1 0 0	" 4 0 0	
Waincoat, Riga p. log.....	3 15 0	" 5 15 0	
Lath, Dantaic, p.f.....	4 10 0	" 5 10 0	
St. Petersburg.....	1 10 0	" 6 10 0	
Greenheart.....	8 0 0	" 8 5 0	
Box.....	4 10 0	" 15 0 0	
Sesquia, U.S.A.....per cube foot	0 1 9	" 0 2 0	
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5½	" 0 0 7	
" Honduras.....	0 0 3½	" 0 0 4	
" Mexican.....	0 0 3½	" 0 0 4	
Cedar, Cuba.....	0 0 3½	" 0 0 4	
" Honduras.....	0 0 3½	" 0 0 4	
Satinwood.....	0 0 9	" 0 0 1	
Walnut, Italian.....	0 0 8	" 0 0 7	
Deals, per St. Petersburg Standard, 120—12ft. by 1½in.			
by 1½in. :—			
Quebec, Pine, 1st.....	£18 15 0	to £25 5 0	
" 2nd.....	13 15 0	" 17 0 0	
" 3rd.....	6 0 0	" 10 0 0	
Canada Spruce, 1st.....	8 15 0	" 10 15 0	
" 2nd and 3rd.....	7 0 0	" 7 15 0	
New Brunswick.....	8 5 0	" 10 5 0	
Riga.....	11 15 0	" 14 5 0	
St. Petersburg.....	9 15 0	" 16 15 0	
Swedish.....	9 15 0	" 10 5 0	
Finland.....	9 15 0	" 16 0 0	
White Sea.....	10 15 0	" 16 0 0	
Battens, all sorts.....	5 0 0	" 16 0 0	
Flooring Boards, per square of lin. :—			
1st prepared.....	£0 9 0	" £0 15 8	
1st ditto.....	0 7 0	" 0 12 3	
Other qualities.....	0 5 3	" 0 6 6	
Staves, per standard M. :—			
Quebec pipe.....	—	—	—
U.S. ditto.....	£35 0 0	" £42 10 0	
Memel, cr. pipe.....	210 0 0	" 220 0 0	
Memel, brack.....	180 0 0	" 190 0 0	
OILS.			
Linedseed.....per ton.	£17 10 0	to £18 0 0	
Rapeseed, English pale.....	22 10 0	" 22 15 0	
Do. brown.....	20 15 0	" 21 5 0	
Cottonseed, refined.....	16 0 0	" 19 10 0	
Olive, Spanish.....	30 0 0	" 32 0 0	
Seal, pale.....	21 0 0	" 21 5 0	
Cocunut, Cochin.....	29 5 0	" 29 10 0	
Do., Ceylon.....	25 10 0	" 25 15 0	
Palm, Lagos.....	24 0 0	" 24 10 0	
Oleins.....	18 15 0	" 19 15 0	
Lubricating U.S.....per gal.	0 6 8	" 0 7 6	
Petroleum, refined.....	0 6 8	" 0 6 6	
Tar, Stockholm.....per barrel	1 0 0	" 1 5 0	
Do., Archangel.....	0 15 0	" 0 18 0	
Turpentine, American... per ton	28 15 0	" 29 0 0	



## LIST OF COMPETITIONS OPEN.

Shoreditch—Additions to Town Hall (limit £12,000)	£50 and £25	H. Mansfield Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C. Mar. 22
Kilmallock—O'Sullivan's Monument		The O'Sullivan Memorial Committee, Kilmallock " 23
Doncaster—House for Grammar School Master (limit £3,500; Assessor)	£50 (merged), £25	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster... " 30
Forfar—Isolation Hospital (Assessor)	£31 10s., £21, and £15 15s.	Henry A. Patello, Solicitor, 1, Bank-street, Dundee " 31
Swindon—Additional Fever Pavilion (24 beds)	District Hospital Board	W. H. Kinner, Clerk, High-street, Swindon " 31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	£150, £100, £50	The City Surveyor's Office, Bradford April 14
Fleetwood—Board Schools, West-street (600 places)	10gs. (merged)	J. H. Kean, Clerk to Board, Fleetwood " 18
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	£50, £20, £10.	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate " 30
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50.	The City Engineer, Municipal Buildings, Leeds June 1
Okehampton—Workhouse and Infirmary (9 inmates)	£50, £25	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton " 1
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate " 2
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair)		F. Moggridge, 18, King's-place, Portman-square, W. " —
Wandsworth, S.W.—Guardians' Board-room, Offices, &c.	£100 (merged), £80, £40	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W. " —
Hexham—Vagrant Wards at Workhouse	£20	J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham " —
Staines—London-rd. Bd. School (250 places; £8 limit per head)		J. Anthony Engall, Clerk, Staines " —
Stockton-on-Tees—Market Hall	£25, £15, £10.	The Borough Engineer, Stockton-on-Tees " —

## LIST OF TENDERS OPEN.

## BUILDINGS.

Bridlington Quay—Additions to Beverley House, Quay-road	Neal and Son	Samuel Dyer, Architect, Bridlington Quay Mar. 18
Normanton—Two Chimneys (35 yards and 25 yards high)		The Westfield Brick Company, Normanton " 18
Bradford—Stabling, Whetley Hill		G. C. Gamble, Architect, Market-street, Bradford " 18
Colchester—Cookery-Room at North-street School	School Board	Goodey and Cressall, Architects, Victoria Chambers, Colchester " 18
Halifax—Pair of Houses at Hipperholme		Raymond Berry, Architect, Commercial-street, Halifax " 18
Gloucester—Alterations at Y.M.C.A. Buildings		W. B. Wood, A.R.I.B.A., 12, Queen-street, Gloucester " 18
Workington—Extensions to Stores	Beehive Co-operative Society	W. G. Scott and Co., Architects, Victoria Buildings, Workington " 18
Keighley—Rebuilding Tower Mills, Dalton-lane		Barber Hopkinson & Co., Archts., Craven Bank Chmbrs, Keighley " 18
Elland—T-n Through Houses		James Garnett, Briggate, Elland " 18
Stratford-on-Avon—Technical School, Henley-street		A. S. Flower, Architect, Gordon-place, W.C. " 18
Morecambe—Mineral Water Works, Thornton-road	Anderson and Sons	A. Lancelot Lang, Architect, 12A, Pedder-street, Morecambe " 20
St. Alban's—Additions, &c., to Hospital	Committee	F. Hibbert, Secretary, 45, St. Peter's-street, St. Alban's " 20
Potovens—Six Dwelling Houses		W. Wrigley, Architect, 6, Westgate, Wakefield " 20
Manchester—Twenty-two Cottages, Miles Platting	Improvement & Buildings Committee	The City Surveyor, Manchester " 20
Stoke-on-Trent—Cookery Room	School Board	R. Scrivener and Sons, Architects, Hanley " 20
Croydon—Workshop at Workhouse, Queen's-road	Guardians	E. West, Surveyor, 23, Coombe-road, Croydon " 20
Rosehearty—Teacher's House	Pitsligo School Board	C. Stevenson, Clerk, Rosehearty, N.B. " 20
St. Alban's—Additions to Hospital	Committee	F. Hibbert, Secretary, 45, St. Peter's-street, St. Albans " 20
Plymouth—Factory and Chimney Shaft, Mount Batten		James Ford, Architect, 1, George-street, Plymouth " 20
Rothbury—House	A. Lawson	J. Wake, Rothbury " 20
Bristol—Transit Shed (100ft. by 67ft.) Welsh Bank	Docks Committee	The Engineer's Office, Cumberland Basin, Bristol " 20
Clondalkin—Twenty-Six Cottages	South Dublin Board of Guardians	Thomas Phelan, Board Room, James-street, Dublin " 20
Sandwich—Public Offices	Corporation	C. J. Conquest, Borough Surveyor, Sandwich " 20
Caigaivard, Co. Down—Two Villas		John H. Delbridge, 16, Chichester-street, Belfast " 20
Bognor—Two Cottages and Stables	Urban District Council	A. H. Bridges, Town Surveyor, Bognor " 20
Thorpe-le-Soken—Additions to Police Station	Standing Joint Committee	H. W. Gibson, Deputy Clerk, Shire Hall, Chelmsford " 20
Weston-super-Mare—Additions, Casual Wards	Axbridge Board of Guardians	A. Powell, A.M.I.C.E., 3, Unity-street, Bristol " 20
Berry Docks—Conservative Club, Station-street	Club Institute Co.	George Thomas, M.S.A., Queen's Chambers, Cardiff " 20
Huddersfield—House at Springdale		J. Berry, Architect, 9, Queen-street, Huddersfield " 20
Bridlington Quay—Shop, King-street	W. J. Dale	Brodrick, Lowther, and Walker, Architects, Bridlington Quay " 20
Ranely—Auxiliary	Beragh Co-operative Dairy Society	J. Johnston, Secretary, Commercial Hotel, Beragh, Co. Tyrone " 20
Gateshead—Rose-street Schools	School Board	Thompson and Dunn, Architects, St. Nicholas Buildings, Newcastle " 20
Rathfarnham—Twenty-Four Cottages	South Dublin Board of Guardians	Thomas Phelan, Board Room, James-street, Dublin " 20
Camberwell, S.E.—Alterations to Vestry Hall	Camberwell Vestry	W. Oxboby, Engineer and Surveyor, Vestry Hall, Peckham-rd., S.E. " 20
Bellaugh, Strathdon—Cottage	Mrs. Don	McMillan and Son, Architect, 211, Union-street, Aberdeen " 20
Hanley—St. Jude's Parish Church, Victoria-road		R. Scrivener and Sons, Architects, Hanley " 21
South Shields—Electricity Works Extension	Corporation	F. Rendonson, Architect, King-street, South Shields " 21
Carlton—Co-operative Premises		R. Whitbread, M.S.A., Carlton, Nottingham " 21
Penny Compton—Cottage at Station	Great Western Railway Co.	G. K. Mills, Secretary, Paddington Station, London " 21
Brampton—Wesleyan Chapel and Schools		T. Pattison, Townley-place, Brampton, Cumberland " 21
Drumleale—Mission Hall		Donald McNaair, Campbelltown, N.B. " 21
Bristol—Fire Station, Northcote-road	Corporation	T. H. Yabbeom, City Engineer, 63, Queen-street, Bristol " 21
Luton—Schools, Waller-street Wesleyan Chapel		J. R. Brown and Son, Architects, 17, Market Hill, Luton " 21
Tullaghur—Rectory	Rev. Jno. McKnight	Thos. Elliott, Architect, 37, Darling-street, Enniskillen " 21
South Wroxall—Additions to Schools	Urban District Council	W. H. Stanley, Architect, Trowbridge " 21
Brentford—Market Building Works, Kew Bridge		Nowell Parr, C.E., Engineer, Cliden House, Bolton-rd., Brentford " 21
West Norwood, S.E.—Two Bathrooms at School Infirmary, Elder-road	Lambeth Guardians	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E. " 22
Weston-super-Mare—Alterations to Bristol Hotel	Holt Bros.	Wilde and Fry, Architects, Weston-super-Mare " 22
Braintree—Dwelling House	Mrs. Anne Downing	Clare and Ross, Architects, 66, Duke-street, Chelmsford " 22
Workington—Appletree Inn	Corporation	W. J. Eaglesfield, Borough Surveyor, Workington " 22
Aber. Mon.—Hotel		Iltidy Thomas, Architect and Surveyor, 17, Quay-street, Cardiff " 22
Beddington—Lodge, Chapels, Roads, &c., at New Cemetery	Rural District Council	R. M. Chart and Sons, Architects, Union Bank Chambers, Croydon " 22
Stainland—Reseating Wesleyan Chapel	Trustees	J. Berry, Architect, 9, Queen-street, Huddersfield " 22
Dublin—Additions Children's Home, Cabra	North Dublin Board of Guardians	J. Morris, Clerk of Works, 24, Cabra Parade, Dublin " 22
Godmanchester—Additions to the Court Hall	Corporation	H. M. Townsend & R. A. Fordham, Archts., Cross-st., Peterborough " 23
Dewsbury—Two Houses and Shop, Halifax-road		F. W. Ridgway, Architect, Dewsbury " 23
Denby Dale—Alterations Station and Construction of Subway	Lancashire and Yorkshire Ry. Co.	C. W. Bayley, Secretary, Hunt's Bank, Manchester " 23
Ellon—Additions to Steadings and New House		Hugh M. Donald, Land Steward, Ellon " 23
Aspatia—Wesleyan School Chapel		J. S. Moffat, Architect, Whitehaven " 23
Manchester—Bowl House at Openshaw Open Space	Parks Committee	The City Surveyor's Office, Manchester " 23
Long Bennington—Rebuilding Parish Church		Wm. Scorer, Architect, Bank-street Chambers, Lincoln " 23
Dewsbury—Detached House, Savile Town		C. H. Marriott and Sons, Architects, West Park-street, Dewsbury " 23
Port Talbot—Twenty-five Cottages at Docks		Frank B. Smith, Architect, Port Talbot " 24
Bradford—Drying Works, Brewery-street		T. C. Hope and Son, Architects, 23, Bank-street, Bradford " 24
Rhos—Two Shops and Houses, Hall-street		B. Owen, 11, Penybryn, Wrexham " 24
Dunmow—Post Office		B. J. Capell, Architect, 70, Whitechapel-road, E " 24
Glasgow—Baths at Whitevale-street	Corporation	Office of Public Works, City Chambers, 61, Cochrane-st., Glasgow " 24
South Kirby—Wesleyan Church		G. F. Pennington, M.S.A., Central Chambers, Castleford " 25
Blackhall Mill, Durham—House and Stables	G. Nixon	D. M. Spence, Architect, Ashmount, Shotley Bridge " 25
Pontypool—Pair of Semi-Detached Villas, Station Field	Miss Mary Wood	D. J. Lougher, Bank Chambers, Pontypool " 25
Broken Cross—Additions, National Schools	Managers	Whittaker & Bradburn, Archts., 19, King Edward-rd., Macclesfield " 25
South Kirby—Wesleyan Church		G. F. Pennington, M.S.A., Central Chambers, Castleford " 25
Croom—Sacrists		J. Moriarty, Main-street, Croom " 25
Dewsbury—Extension Electric Lighting Station	Rev. James O'Shea, P.P.	Hy. Dearden, A.R.I.B.A., Boro' Surveyor, Town Hall, Dewsbury " 25
Chopwell—Twelve Houses	Corporation	D. M. Spence, Architect, Ashmount, Shotley Bridge " 25
Bridlington Quay—Three Houses, Cambridge-street	J. Cheeseman	Brodrick, Lowther, and Walker, Architects, Bridlington Quay " 27
Treorkey—Amon Baptist Chapel	Hardwick and Sons	Rev. S. Morgan, 3, Bute-street, Treorkey " 27
Belfast to Rich Hill—Fourteen Cottages at Level Crossings		T. Morrison, Secretary, Amiens-street, Dublin " 27
Huddersfield—Station-street Buildings	Gt. Northern (Ireland) Railway Co.	Abbey and Hanson, Architects, 20, Ramsden-street, Huddersfield " 27
London, E.—Extension of Infirmary, Bow-road, E.	Armitage and Norton	J. Pridmore, Architect, 2, Broad-street Buildings, E.C. " 27
Cardiff—Wesleyan (Alvinistic) Chapel, Crwys-road	City of London Union Guardians	John H. Phillips Architect, St. John's Chambers, Cardiff " 27
Rugby—Iron Buildings in Cattle Market	Urban District Council	D. G. Macdonald, Surveyor, Rugby " 27
Lithwalthe—Wesleyan Assembly Hall		John Kirk and Sons, Architects, Huddersfield " 28
Poplar, E.—Coroner's Court, Mortuary, &c., High-street	Board of Works	Lansdell and Harrison, Architects, 38, Bow-lane, Cheapside, E.C. " 28
Glencolumbkille—Extending Parish Church	Select Vestry	S. P. Close, Architect, Donegal-square Buildings, Belfast " 28
Kingston-on-Thames—Female Infirmary, &c., at Workhouse	Board of Guardians	W. A. Hope, C.E., Architect, Portsmouth-rd. Kingston-on-Thames " 28



## BUILDINGS—continued.

Tooting—Stabling and Cottage at Dust Destructor, Alston-rd.	Wandsworth Dist. Board of Works	H. G. Hills, Clerk, East Hill, Wandsworth, S.W.	Mar. 24
Liverpool—Alterations, Public Washhouses, Burrough's-garden		W. R. Court, Engineer, Cornwallis-street, Liverpool	" 23
Leeds—Addition of an Apse, Nave Roof, Seating, &c., St. George's Church			
Winchmore Hill—Boiler and Engine House	Metropolitan Asylums Board	H. Walker, Architect, 8, Upper Fountain-street, Leeds	" 20
Ipswich—Alterations and Additions to Borough Asylum	Asylum Committee	Pennington and Son, Architects, Hastings House, Norfolk-st., Strand	" 29
St. Peter's Port, Guernsey—School Buildings at Amherst	Committee	E. Buckham, Borough Surveyor, Town Hall, Ipswich	April 1
Englefield Green—Enlarging School, &c.	Managers	Colson, Farrow, and Nisbett, Architects, 45, Jewry-street, Winchester	" 1
Ardrossan—Additions to Academy	School Board	W. Menzies, Architect, Englefield Green, Surrey	" 1
Leyton—Public Baths	Urban District Council	John Armour, jun., Architect, Irvine	" 3
Rauceby, near Sleaford—Superstructure of Lunatic Asylum	Committee of Visitors	Harrap and Duffield, Architects, 34, Queen-street, E.C.	" 4
Tipton—Ocker Hill Schools	School Board	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W.	" 4
Stroud Green, N.—Branch Public Library	Hornsey Urban District Council	A. Long, Architect, 21, High-street, West Bromwich	" 6
Durham—Technical School	Governors	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate	" 10
Chelsea, S.W.—Two Bath Turrets at Infirmary, Cale-street	Guardians	Oliver and Leeson, Architects, Bank Chambers, Newcastle	" 11
Old Colwyn—Church		Landsell and Harrison, Architects, 38, Bow-lane, Cheapside, E.C.	" 12
Hurst Brook—Methodist New Connexion Sunday School	Urban District Council	Douglas and Minshall, Architects, Chester	" 12
Swadlincote—Foundations at Gasworks		S. Shirt, Mount Pleasant, Ashton-under-Lyne	" 12
New Deer—Bank House		Robert Cartwright, Commercial Manager, Gasworks, Swadlincote	" 12
Otley—Villa Residence		R. G. Wilson, Architect, 181A, Union-street, Aberdeen	" 12
Lurgan—Licensed Premises, Market-street	Patrick Doyle	Fairbank and Wall, Architects, 3, Manor-square, Otley, Yorks	" 12
Morecambe—Three Houses and Shops, Battery Estate	Alexandra Lyons, J.P.	W. J. Moore, Architect, Ann-street, Belfast	" 12
Sligo—Pair of Semi-Detached Villas	John May and Co., Ltd.	Jas. Hartley, Architect, Bradford Chambers, Morecambe	" 12
Glendon—School	Alcock and Co., Ltd.	W. F. Gilchrist, M.I.C.E.I., Wine-street, Sligo	" 12
Overton—Additions to Red Lion Inn	Wood Bros.	Andrew M'Neil P.P., Tormon, Letterkenny	" 12
Eccleshill—Stabling and Out-building at New Inn	W. Whitaker and Co., Bradford	R. S. Wallis, Architect, Basingstoke	" 12
Wrexham—Factory	A. G. Rayner	John Jackson, M.S.A., Architect, Barry-street, Bradford	" 12
Cardiff—Church	C. and W. C. Keighley	Walter Slater, Architect, 9, High-street, Wrexham	" 12
Morecambe—Villa, Stabling, &c.	James M'Mullan	F. R. Kempton, F.R.I.B.A., Hereford	" 12
Belfast—Dwelling-houses, Brown's-square and Gardiner-street	Rogers and Co	Marshall Bros., Architects, Back Crescent, Morecambe	" 12
Otley—Rebuilding Black Horse Hotel	J. Stutton	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast	" 12
St. Mellon's—Three Cottages	C. E. Maulden	H. Chippendale, Architect, Springfield, Gulseley	" 12
Colchester—House, Rawstorn-road	Goole Steam Laundry Co.	David Oaklands, St. Mellon's, Mon.	" 12
Ashton-under-Lyne—Fourteen Cottages	Briggs and Co., Leicester	C. E. Butcher, Architect, 3, Queen-street, Colchester	" 12
Morecambe—Two Semi-Detached Houses, Rossendale-avenue	R. Hastewell	T. George and Sons, Architects, Old-square, Ashton-under-Lyne	" 12
South Acton, W.—Laundry Premises	G. R. Burnett	Marshall Bros., Architects, Back Crescent, Morecambe	" 12
Lurgan—Grocery Premises, Market-street	Aldrich and Co., Limited	G. P. Pratt, A.R.I.B.A., 10, The Parade, Churchfield-road, Acton	" 12
Frinton-on-Sea—Small House	A. Wenlock	W. J. Moore, Architect, Ann-street, Belfast	" 12
Cardiff—Additions to 1, Adam-street	School Board	Beresford Pite, F.R.I.B.A., 43, Harley-street, W.	" 12
Kidderminster—Two Shops and Houses, New-road	J. Abraham	J. P. Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff	" 12
Morecambe—House and Shop, Sefton-road	Ed. Woodward	J. M. Gething, Architect, Oxford Chambers, Kidderminster	" 12
Cardiff—Church	Halstead Co-operative Society	Marshall Bros., Architects, Back Crescent, Morecambe	" 12
Bulmer, Sudbury—Rebuilding Fox Inn	Jas. Campbell	Frederick R. Kempson, F.R.I.B.A., Hereford	" 12
Stapleford—Primitive Methodist Chapel and School	Managers	John Shewell Corder, Architect, Wimbourne House, Ipswich	" 12
Goole—Alterations to Building in Victoria-street	Waterloo Co-operative Society	Hy. Harper, Architect, 3, Beestmarket Hill, Nottingham	" 12
Morecambe—Alterations to 22, The Crescent	Pragnell and Co.	J. Roberts, Clarkson's Hotel, Goole	" 12
Bangor—Alterations to 249, High-street	Port Talbot Development Co.	P. B. Rigg, Architect, Market-street, Morecambe	" 12
Silloth—Stable, Byres, &c., at Wolsty Hall	School Board	Richard Hall, Architect, Bangor, North Wales	" 12
Haltwhistle—Dwelling-House	Geo. Ford	P. and J. W. Hayton, Surveyors, Bank-street, Carlisle	" 12
Ackworth—Two Stone Houses	Industrial Co-operative Society	H. Higginson, M.S.A., Carlisle	" 12
Seascale—Preparatory School		Walter E. Richardson, Architect, 28, Bond-street, Leeds	" 12
Bermundsey, S.E.—Factory		W. Mason and Son, Architects, Ambleside	" 12
Disa—Warehouse and Offices		Wm. Freeman, Surveyor, 162, Kennington-road, S.E.	" 12
Bradford—Porch, Seating, &c., at Park Chapel, New Cross-st.		J. Shewell Corder, Architect, Wimbourne House, Ipswich	" 12
Brightlingsea—House and Shop, High-street		Saml. W. Pitchers, 14, Grantham-place, Bradford	" 12
Aberfan—Pair of Semi-Detached Cottages		Chas. E. Butcher, Architect, 3, Queen-street, Colchester	" 12
Long Eaton—Schools and Swimming-Bath		William Dowdeswell, Architect, Treharris	" 12
Nacton—Additions to Rectory		E. R. Ridgway, Architect, Long Eaton	" 12
Clevedon—House and Shop, Kenn-road		J. Shewell Corder, Architect, Wimbourne House, Ipswich	" 12
Pudsey—Five Small Through Houses, Somerset-road		C. R. Middle, Clevedon	" 12
Hanley—Shop Premises and House, Keeling's-lane, Northwood		George D. Goforth, Richardshaw-lane, Pudsey	" 12
Ballynahinch—Business Premises		A. P. Miller, Architect, Frederick-street, Hanley	" 12
Halstead, Essex—Four Pairs of Cottages		H. M. Reid, C.E., Ballynahinch, Ireland	" 12
Stanhams Pawa—House		Goodey and Cressall, Architects, 2, Victoria Chambers, Colchester	" 12
Belfast—Two Shops and Three Houses, Old Park-road		Walter Durrant, Hermon Lodge, Felixstowe	" 12
Ipswich—Shop Front and Alterations to Premises, Westgate-st.		W. J. Moore, Architect, Ann-street, Belfast	" 12
Wolverhampton—Schools, Gatis-street		Thos. Wm. Cotman, Architect, Northgate-street, Ipswich	" 12
Lidley—Temperance Institute		F. Hunter Lynes, A.R.I.B.A., Gresham Chambers, Wolverhampton	" 12
Littlemoss, Ashton—Branch Store		Wood and Kendrick, Architects, West Bromwich	" 12
Thornham—Repairing Nave Roof of Church		A. J. Howcroft, Architect, 12, Clegg-street, Oldham	" 12
Bristol—Additions to Premises, Broadmead		The Vicar, Thornham, Norfolk	" 12
Shipley—Combining Shed		James Hart, Corn-street, Bristol	" 12
Port Talbot—Fifty Cottages		John Jackson, M.S.A., Barry-street, Bradford	" 12
Wrexham—Central Stores, Bridge-street		David C. Salmond, Architect, 7, Windsor-place, Cardiff	" 12
South Uist—Additions to Eriskay School		Morrison and Son, Architects, King-street, Wrexham	" 12
Baslow—Enlarging Cottage		J. Wedderspoon, C.E., Inverness	" 12
Southend-on-Sea—Tower Boarding House, Beach-road		W. Cecil Jackson, M.S.A., 29, Knifesmithing, Chesterfield	" 12
Darby—Seven Cottages, Nottingham-road		W. Y. Hobbiss, Architect, 57, High-street, Southend-on-Sea	" 12
Rugeley—Bakery and Slaughter-House		E. R. Ridgway, Architect, Long Eaton	" 12
Bradford—Warehouse		The Architect, Co-operative Wholesale Society, Manchester	" 12
		Jas. Young and Co., Architects, 62, Market-street, Bradford	" 12

## ENGINEERING.

Sheffield—Roofs, &c., Grimesthorpe Gas Station	United Gaslight Company	Fletcher W. Stevenson, Engineer, Commercial-street, Sheffield	Mar. 18
Bexhill—Storm Water Overflow	Urban District Council	Geo. Ball, Surveyor, Town Hall, Bexhill	" 18
Pernambuco to Olinda—Electric Tramway (3 miles)	Guardians	Secretaria da Industria, Pernambuco	" 18
Cannock—Boiler, &c.	Electric Lighting Committee	J. W. Roach, Clerk, Union Offices, Cannock	" 18
Bury, Lancs.—Boiler	Corporation	John Haslam, Town Clerk, Bury	" 20
Halifax—Raising Embankment of Ogden Reservoir	Guardians	J. A. Paskin, Waterworks Engineer, Town Hall, Halifax	" 20
Rochford—Well, &c., at Workhouse	Harbour Commissioners	James Mansergh, Engineer, 5, Victoria-street, Westminster	" 20
Whitehaven—Portable Steam Crane (10-ton)	Rural District Council	J. S. Brodie, A.M.I.C.E., Harbour Engineer, Town Hall, Whitehaven	" 20
Burnley—Storage Reservoir	Urban District Council	S. Edmondson, Surveyor, Nicholas-street, Burnley	" 20
Uxbridge—Repair of Gas-Engines	Town Council	William L. Eves, Surveyor, 54, High-street, Uxbridge	" 21
Dover—Water Mains (din., 1,470 yards)	Dist. Railway Company	H. E. Stilgoe, Surveyor, Town Hall, Dover	" 21
Paisley—District Railway	Corporation	Formans and M'Call, Civil Engineers, 160, Hope-street, Glasgow	" 22
Huddersfield—Cast-Iron Water Mains (7 miles)	Rural District Council	G. and G. H. Crowther, C.E.'s, New-street, Huddersfield	" 22
Caio—Highway Bridge over River Twrch	Plumstead Vestry	W. Cousins, C.E., 43, Gorse-lane, Swansea	" 22
Plumstead—River Bank Works	Urban District Council	W. C. Gow, Surveyor, Vestry Hall, Maxey-road, Plumstead	" 22
Gillingham—Wiring and Fitting Technical Institute for Electric Light	Waterworks Company		" 22
Bristol—Pumping Engines, &c.		F. Smith, Architect, Bank Chambers, High-street, New Brompton	" 23
Launceston—Cast-Iron Pipes (3 miles)		T. and C. Hawksley, Engineers, 30, Great George-street, S.W.	" 23
Manchester—Two Sets of Steam Pumping Engines	Waterworks Committee	Jenkins and Marr, Architects, 16, Bridge-street, Aberdeen	" 23
Sheepwash—Bridge over River Wansbeck		The Secretary, Waterworks Office, Town Hall, Manchester	" 23
Ringstead—Lattice Girder Bridges	Thrapston Rural District Council	Northumberland County Engr.'s Office, Moot Hall, Newcastle-on-T.	" 23
Norwich—Heating and Ventilation of Isolation Hospital, Bowthorpe-road		G. Hunningham, Clerk, Thrapston	" 23
London, E.C.—Set of Three-throw Pumps, City-road Workhouse	Guardians of Holborn Union	Arthur E. Collins, City Engineer, Guildhall, Norwich	" 27
Dartford—Gas Mains	Joint Hospital Committee	John Buley, C.E., Suffolk House, Laurence Pountney Hill, E.C.	" 27
Pengam—Girder Highway Bridge over Rhymney River	Bedwelly Urban District Council	G. Hunter Tait, C.E., Dartford	" 27
Beckenham—Dust Destructor, Arthur-road	Urban District Council	J. H. Lewis, A.M.I.C.E., Blackwood, Mon.	" 27
Shoeburyness—Gasworks	Shoeburyness-on-Sea Gas Company	John Angell, Engineer, Beckenham	" 27
Higlyate, N.—Additions to Steam Laundry at Infirmary	Holborn Union Guardians	Henry J. Robus, Consulting Engineer, 23, Bucklersbury, E.C.	" 27
Barking—Electrical Plant	Urban District Council	J. Buley, Engineer, Suffolk House, Laurence Pountney Hill, E.C.	" 27
Edinburgh, Leith, and Newhaven—Extension Lines	Caledonian Railway Company	W. C. G. Hawtayne, Consulting Engineer, 9, Queen-st. Place, E.C.	" 27
St. Stephen's-by-Saltah—Waterworks	St. Germans Rural District Council	G. Graham, C.E., Buchanan-street Station, Glasgow	" 27
Doncaster—Electrical Plant, &c.	Corporation	Fred. W. Cleverton, Clerk, 4, Buckland-terrace, Plymouth	" 28
Aberdeen—Electrical Plant for Equipping the George-street and Woodside Route		James N. Schoolbred, C.E., 47, Victoria-street, S.W.	" 28
Sunderland—Cables, &c.	Corporation		" 28
Ledbury—Covered Reservoir	Corporation	J. Alex. Bell, City Electrical Engineer, Town House, Aberdeen	" 28
Bury, Lancs.—Alterations to Gasworks	Urban District Council	J. F. C. Neill, A.M.I.C.E., Dunning-street, Sunderland	" 30
Lanchester—Bridge over New House Burn	Corporation	R. E. W. Berrington, Bank Buildings, Wolverhampton	April 4
Shanghai—Electric Trolley Tramways (23 miles)	Municipal Council	John Haslam, Town Clerk, Bury	" 5
Southampton—Shafting, &c.		The Surveyor's Office, Lanchester, Durham	" 5
Civita Vecchia—Harbour Extensions, &c.		Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	June 30
		H. Cleaver, Consulting Engineer, 52, Bridge-road, Southampton	"
		The Italian Department of Public Works, Rome	"



## FENCING AND WALLS.

Stroud—Setting Back Wall, Horns-road .....	Urban District Council .....	P. Witchell, Clerk, Russell-street, Stroud .....	Mar. 21
Belfast—Retaining-Wall, McClure-street .....	Corporation .....	Sir Samuel Black, Town Clerk, Belfast .....	" 21
Nelson, Lancs.—Walls, &c., Victoria Park .....	Parks Committee .....	B. Ball, A.M.I.C.E., Borough Engineer, Nelson .....	" 23
London, E.C.—Fencing Materials, and Galvanised Eye-Bolts .....	Burma Railways Co., Ltd. ....	The Company's Offices, 76, Gresham House, Old Broad-street, E.C. ....	" 27
and Wire for Fencing .....		W. Haslam, Cowdray Estate Office, Midhurst, Sussex .....	" —
Midhurst—Oak Swing Gates (100) and Fittings .....			

## FURNITURE AND FITTINGS.

Gillingham—Furniture for Additions to Technical Institute ...	Urban District Council .....	F. Smith, Architect, Bank Chambers, High-street, New Brompton .....	Mar. 2
East Ham—Furniture, &c., New Central Park-road Schools .....	School Board .....	Robert L. Curtis, Architect, 20, London Wall, Moorgate-street, E.C. ....	" 2

## PAINTING.

Workington—Infirmary .....	Health Committee .....	F. W. Jackson, Secretary, Infirmary, Workington .....	Mar. 18
Bridlington—Workhouse Infirmary .....	School Board .....	Chas Gray, Clerk, Workhouse, Bridlington .....	" 18
Halifax—Sanitary Depot, Lister-lane .....	.....	David Travis, Sanitary Inspector, Town Hall, Halifax .....	" 21
Bacup—Sharnford School .....	.....	Frederick W. Goldsmith, Clerk, Bacup .....	" 21
Redcar—Primitive Methodist Chapel .....	Corporation .....	W. Buckley, 19, Westbourne-grove, Redcar .....	" 22
Walsall—Chapels, Lodge, &c., Ryecroft Cemetery .....	Manchester Parks Committee .....	The Borough Surveyor, Bridge-street, Walsall .....	" 22
Witlington—Southern Cemetery .....	St. Marylebone Guardians .....	The City Surveyor's Office, Manchester .....	" 23
Notting Hill, W.—Infirmary, Racket-street .....	.....	The Steward, Infirmary, Racket-street, Notting Hill, W. ....	" 27
Bromley, E.—External Painting and Pointing Brickwork at .....	Managers .....	J. and S. F. Clarkson, Archts., 136, High-street, Poplar, E. ....	" 28
Asylum, Devons-road .....	St. Saviour's Union Guardians .....	G. D. Stevenson, Architect, 13, King-street, E.C. ....	" 30
London, S.E.—Casual Wards, Great Guildford-street, S.E. ....	.....	J. Morris, Stafford House, Llandissilio, Clynderwen .....	" 31
Blancconin—Chapel .....	.....	G. Hewlett, 1, Derby-street, Thornaby .....	—
Thornaby—Chapel .....	.....	F. and A. Church, 266, Portobello-road, North Kensington, W. ....	—
Shepherd's Bush, W.—Forty Houses .....	.....		

## PLUMBING AND GLAZING.

Manchester—Plumbing Work (One Year) .....	Corporation .....	The City Surveyor's Office, Town Hall, Manchester .....	Mar. 21
Rochdale—Plumbing Work at Workhouse, Dearnley (One Year) .....	Guardians .....	R. A. Leach, Clerk, Union Offices, Townhead, Rochdale .....	" 22

## ROADS AND STREETS.

Cardiff—Streets, &c., at the Crwys .....	Marquis of Bute .....	E. W. M. Corbett, Bute Estate Office, Castle-street, Cardiff .....	Mar. 18
Moss Side Street Works .....	Urban District Council .....	W. R. Acton, C.E., Surveyor, Moss-lane East, Moss Side, Lancs. ....	" 18
Heaton Norris—Road-making .....	Urban District Council .....	J. Green Banks, Clerk, 79, Heaton Moor-road, Heaton Norris .....	" 20
Plymouth—Making-up Roads .....	Corporation .....	James Paton, Borough Engineer, Plymouth .....	" 20
Spennymoor—Road Works .....	Urban District Council .....	G. W. Rogers, Silver-street, Spennymoor .....	" 20
Beckenham—Making-up Clock House-road .....	Urban District Council .....	John Angell, Surveyor, Beckenham .....	" 20
Ipswich—Making Roads Round New Workhouse .....	Guardians .....	A. F. Vuilliamy, Clerk, Tower-street, Ipswich .....	" 21
Tong—Making-good Shay-street, Cutler Heights .....	Urban District Council .....	James Smith, Surveyor, 14, Oddy-street, Dudley Hill .....	" 21
Brentford—Market Paving and Drainage Works, Kew Bridge .....	Urban District Council .....	Newell Parr, C.E., Engineer, Clifden House, Bolton-rd., Brentford .....	" 21
Abram—Paving Warrington-road and Lily-lane .....	Urban District Council .....	Heaton, Ralph, and Heaton, Architects, King-street, Wigan .....	" 22
London, E.C.—Granite Paving Works, White Lion-street and .....			
Chadwell-street .....			
Stockport—Street Works .....	Clerkenwell Vestry .....	The Surveyor's Office, Town Hall, Rosebery-avenue .....	" 23
London, E.C.—Wood-Paving in St. John-street-road .....	Highways and Sewers Committee .....	J. Atkinson, A.M.I.C.E., Boro' Surveyor, St. Petersgate, Stockport .....	" 23
Worcester—Construction of Roads and Extension of Western .....	Clerkenwell Vestry .....	G. Ray Brown, Clerk (pro tem.), Town Hall, Rosebery-avenue, W.C. ....	" 23
Cemetery .....			
Kempston—Making-up Margetts-road .....	Corporation .....	T. Caink, A.M.I.C.E., City Engineer, Guildhall, Worcester .....	" 24
Muswell Hill—New Road .....	Urban District Council .....	Leonard Foster, Surveyor, Bedford-road, Kempston .....	" 25
Harrogate—Extension of Harlow Moor Drive .....		Vigars and Co., 4, Frederick-place, Old Jewry, E.C. ....	" 27
Bromley, E.—Asphalting Portion of Roadway at the Asylum, .....	Corporation .....	S. Stead, Borough Surveyor, Municipal Offices, Harrogate .....	" 27
Devons-road .....			
Birkenhead—Street Works in Tranmere .....	Managers .....	J. and S. F. Clarkson, Archts., 136, High-street, Poplar, E. ....	" 28
Oban—Road Repairs, &c. (Three Years) .....	Corporation .....	C. Brownridge, A.M.I.C.E., Boro' Eng., Town Hall, Birkenhead .....	" 29
West Bridgford—Paving Footpaths, &c. ....	Argyll County Council .....	Kenneth Macrae, Road Surveyor, 5, Argyll-street, Oban .....	April 4
Heckington—Completing Road on Six Hundreds Farm .....	Urban District Council .....	W. Pare, C.E., Surveyor, George-road, West Bridgford .....	" 4
		Huskinson and Son, Epperstone, Notts .....	" —

## SANITARY.

Swindon—Sewering and Paving Streets and Roads .....	Urban District Council .....	H. J. Hamp, Surveyor, Regent-circus, New Swindon .....	Mar. 18
Bournemouth—Sewer through Upper Gardens .....		F. W. Lacey, Borough Engineer, Bournemouth .....	" 20
Hanwell—Sewering and Paving Streets .....	Urban District Council .....	S. W. Barnes, Surveyor, Church-road, West Hanwell .....	" 20
Berwick-upon-Tweed—Alterations to Sewers, &c. ....	Sanitary Authority .....	R. Dickinson, Borough Surveyor, Quay-walls, Berwick-upon-Tweed .....	" 20
Halesowen—Collecting Sewers, Hill and Cakemore .....	Rural District Council .....	William Fiddian, F.S.I., Town Hall, Stourbridge .....	" 21
Croston—Earthenware Pipe Sewers .....	Urban District Council .....	F. E. Dixon, C.E., 49, Lune-street, Preston .....	" 21
Hambledon—Sanitary Appliances at Infirmary .....	Guardians .....	Edward L. Lunn, Surveyor, 35, High-street, Guildford .....	" 23
Glasgow—Pipe Sewer (18in.), Crawford-street .....	Corporation .....	The Office of Public Works, City Chambers, Cochrane-st., Glasgow. ....	" 23
Erdington—Sewering Part of Minstead-road .....	Highways and Buildings Committee .....	H. H. Humphries, District Eng. & Surveyor, Public Hall, Erdington .....	" 29
King's Lynn—Sewers, Purfleet Drainage District .....	Corporation .....	E. J. Silcock, C.E., King-street, King's Lynn .....	April 4
Bexhill—Sewerage Works .....	Urban District Council .....	G. Ball, A.M.I.C.E., Surveyor, Town Hall, Bexhill .....	" 20
Johannesburg—Sewerage Scheme .....		The Town Engineer's Office, Johannesburg .....	May 12
Stapleford—Sewering and Channelling New Street .....	Co-operative Society .....	E. R. Ridgway, Surveyor, Long Eaton .....	" —
Dukinfield—Sewerage of the Lower District .....	Urban District Council .....	S. Hague, Surveyor, Dukinfield .....	" —

## STEEL AND IRON.

Barry—Cast-Iron Pipes and Castings (One Year) .....	Gas and Water Committee .....	E. W. Waite, A.M.I.C.E., Waterworks Engineer, Gasworks, Barry .....	Mar. 13
Lancaster—C.I. Pipes (3,600 yards of 6in., and 3,200yds. of 4in.) .....	Water Committee .....	John Cook, Water Engineer, Town Hall, Lancaster .....	" 20
Pwllheli—Iron Pipes (150 tons) .....	Town Council .....	Arthur J. Dickinson, Borough Engineer, Pwllheli .....	" 20
London, E.C.—Rails, Fishplates, and Wrought-Iron Spikes .....	Burma Railways Co. ....	The Company's Offices, 76, Gresham House, Old Broad-street, E.C. ....	" 21
Slough—Cast-Iron Mains, &c. ....	Gas and Coke Company .....	T. Webb, Manager, Gasworks, Slough .....	" 21
London, W.—Steel Bridge Girders (310 tons) .....	Great Western Railway Company .....	G. K. Mills, Secretary, Paddington Station, London .....	" 21
Belfast—Steel Girders, Joists, &c. ....	Corporation .....	A. Brunwell Thomas, Architect, 7, Queen Anne's Gate, S.W. ....	" 21
Halifax—Pipes and Castings (One Year) .....	Gasworks Committee .....	Thomas Holgate, Gas Engineer, Gasworks, Halifax .....	" 21
Southampton—Rails and Fishplates for Tramways .....	Corporation .....	Kincaid, Waller, and Manville, 29, Great George-st., Westminster .....	" 23
Dundee—Steel Bridge Rails (50 tons) .....	Harbour Trustees .....	Geo. O. Buchanan, Harbour Engineer, Harbour Chambers, Dundee .....	" 24
Newcastle-upon-Tyne—Iron Socket Pipes .....	Guardians .....	John W. Gibson, Clerk, Pilgrim-street, Newcastle-upon-Tyne .....	" 24
Poole—Gas-Pipes .....	Poole Gas and Coke Company .....	William Davis, Secretary, Gas Quay, Poole .....	" 27
Valetta, Malta—Cast-Iron Pipes, &c. ....		The Receiver-General and Director of Contracts, Valetta .....	April 6

## STORES.

Morley—Road Materials (One Year) .....	Corporation .....	W. E. Putnam, A.M.I.C.E., Borough Surveyor, Town Hall, Morley .....	Mar. 18
Burnley—Limestone (2,000 tons), Granite Macadam (400 tons) .....	Rural District Council .....	S. Edmondson, Surveyor, 18, Nicholas-street, Burnley .....	" 18
Paddington, W.—Creosoted Yellow Deal Blocks (1,280,000) and .....			
Jarrah Blocks (43,000) .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
Ashton-in-Makerfield—Road Materials .....	Urban District Council .....	J. W. White, Clerk, Ashton-in-Makerfield .....	" 20
Lower Bebington—Road Materials (One Year) .....	Urban District Council .....	T. Sproat, Law Clerk, 5, Castle-street, Liverpool .....	" 20
Liford—Road Materials (One Year) .....	Urban District Council .....	H. Shaw, A.M.I.C.E., Surveyor, 7, Cranbrook-road, Liford .....	" 20
Sibsey—Granite (1,000 to 1,200 tons) .....	Rural District Council .....	J. M. Simpson, Clerk, Boston .....	" 20
Paddington, W.—Portland Cement and Thames Sand, Shingle, .....			
and Ballast .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
Stokeley—Whinstone, &c. (One Year) .....	Rural District Council .....	W. H. Dixon, District Surveyor, Kirby, Carlton, Northallerton .....	" 20
Paddington, W.—Pitch (12 tons), and Tar (18,000 gallons) .....	Vestry .....	The Surveyor's Office, Vestry Hall, Harrow-road, W. ....	" 20
Warwick—Road Stone (3,170 tons) .....	Rural District Council .....	C. H. Passmann, Clerk, 48, Bedford-street, Leamington .....	" 21
Reading—Road Materials .....	Corporation .....	J. Bowen, A.M.I.C.E., Borough Engineer, Town Hall, Reading .....	" 22
Vandsworth—Guernsey Granite Spalls (600 tons) .....	Guardians .....	A. N. Henderson, Clerk, Un. Offices, St. John's Hill, Wandsworth .....	" 22
Inton—Road Materials, &c. (One Year) .....	Urban District Council .....	C. C. Smith, Engineer and Surveyor, Public Hall, Sutton, Surrey .....	" 23
Jovenry—Road Materials, &c. (One Year) .....	Corporation .....	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry .....	" 23
Griffith—Whinstone (5,500 tons), Slag (1,000 tons), Sea Cobbles .....			
(1,500 tons), and Sea Gravel (500 tons) .....	Rural District Council .....	F. Casson Beaumont, Surveyor, Driffield .....	" 25
Turnley—Setts, Flags, Red Bricks (One Year) .....	Highways and Sewage Committee .....	G. H. Pickles, A.M.I.C.E., Borough Surveyor, Town Hall, Burnley .....	" 25
Pontefract—Road Materials (One Year) .....	Rural District Council .....	W. A. Glover, Clerk, Union Offices, Pontefract .....	" 25
Bacup—Road Materials, &c. (One Year) .....	Corporation .....	F. Wood, A.M.I.C.E., Borough Engineer, Bacup .....	" 27
Uppingham—Broken Granite (900 tons) .....	Gretton Rural District Council .....	John E. Willford, Clerk, Uppingham .....	" 28
Whitley Upper—Kerbstones (1,000 yards) .....	Urban District Council .....	J. Sharp, Clerk, Queen-street, Huddersfield .....	" 28
Uppingham—Granite (3,500 tons) .....	Rural District Council .....	John E. Willford, Clerk, Uppingham .....	" 28
Rayton-le-Moors—Road Materials (One Year) .....	Urban District Council .....	Arthur Dodgeon, Surveyor, Clayton-le-Moors .....	" 30
Aylesbury—Granite (16,000 tons) .....	Bucks County Council .....	R. J. Thomas, County Surveyor, County Hall, Aylesbury .....	" 31
Wington—Road Granite and Drain-Pipes (One Year) .....		R. Burslam, Borough Surveyor, Market-square, Congleton .....	" 31
Radcliffe—Broken and Unbroken Stones .....	Harton Regis Rural District Council .....	J. A. Henderson, Highway Surveyor, Winterbourne .....	" 31
Aylesbury—Granite (16,000 tons) .....	Bucks County Council .....	R. J. Thomas, County Surveyor, County Hall, Aylesbury .....	" 31
London, S.W.—Broken Granite (6,000 tons of 2in.), Granite .....			
Chippings (750 tons), and Granite Dust (400 tons) .....	Middlesex County Council .....	H. T. Wakelam, County Engineer, Guildhall, Westminster, S.W. ....	April 4



## CHIPS.

The Bishop of Rochester will, on Tuesday next, unveil and dedicate a reredos which has been erected in St. Thomas's Hospital Chapel in memory of the late Sir Henry Doulton by his son. The work is in terracotta, and has been executed by Mr. Tinworth.

Mr. C. Burnby Bell, the son of Mr. Charles Bell, F.R.I.B.A., 3, Salters' Hall-court, Cannon-street, has been appointed an assistant engineer on the Ceylon State Railways. Mr. Bell has been engaged in a similar capacity with Messrs. Price and Wills, contractors, in Wales.

In the House of Commons on Tuesday night Mr. Chamberlain introduced the Small Houses (Acquisition of Ownership) Bill, which he explained was intended to extend to occupiers of small houses the same facilities for becoming owners of their houses which have been extended by legislation to the owners of small farms in Ireland, and to small owners of tenancies in this country. It was proposed that a sum of £240 may be advanced upon a house of the value of £300. The Bill was read a first time.

Last week's business at the Estate Market, Tokenhouse-yard Mart, was of an unimportant character, and the total amount realised, £115,621, was £49,733 less than for the corresponding week of last year. This was due to the limited supply of properties. Private treaty sales of the week included the well-known sporting estate of Inverlaid, Ross-shire, of 20,000 acres, to Mr. W. Ewing Gilmour, of Woodbank, Dumbartonshire; the Mount Estate, near Crawley, 165 acres; and Lyne-grove, Virginia Water, 75 acres.

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## TENDERS.

\* \* Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ANTWERP.—For the manufacture and erection at Antwerp of two Livesey gas-washers, each having a capacity of one million cube feet per day, for the Imperial Continental Gas Association:—  
Willey and Co., Exeter (accepted).

BATH.—For the supply of iron pipes, for the water-works committee of the city council:—  
Jordan, C., and Co., Newport, Mon. (accepted).

BEAUMARIS.—For the erection of a school for girls, for the governing body:—  
Parry, E., Menai Bridge (accepted) £800 0 0

BOXLEY, KENT.—For the repair of two bridges, for the Hollingbourne Rural District Council:—  
Gibbons, Leeds, Kent (accepted).

BURTON-ON-TRENT.—For the construction of about seven miles' run of sewer to be laid in various streets, for the town council:—  
Tomlinson, of Derby (accepted) ... £9,412 0 0

CAMBERWELL.—For erecting an underground conveniences, The Triangle, Rye-lane, Peckham, S.E., for the Camberwell Vestry. Mr. Wm. Oxtoby, engineer. Quantities by Mr. Jno. R. Hunt, Bridge House, 181, Queen Victoria-street, E.C.:—

Dohman and Co. ....	£2,882 0 0
Water Carriage Engineering Co. ....	2,789 0 0
Doulton and Co. ....	2,729 0 0
The General Builders, Ltd. ....	2,625 0 0
Sharpington, T. G. ....	2,620 0 0
Jennings, G. ....	2,350 0 0
Cooke and Co. (accepted) ....	2,200 0 0
Davis, G. B. ....	2,083 0 0
Finch and Co. ....	2,034 0 0

DARENTH.—For the supply of two Berryman heaters for (a) the asylum and (b) schools for the Metropolitan Asylums Board:—  
Wright and Co., Victoria-street, S.W. (accepted),  
(a) £220 14s., (b) £208 5s.

DARTMOUTH.—For making footpaths for the town council:—  
Watts, R. (accepted) ... £191 5 0

GORE FARM.—For heating apparatus at the Gore Farm Lower Hospital, for the Metropolitan Asylums Board:—  
Armstrong, J., and Co., Ltd. ... £213 10 0  
(Accepted.)

HOLYWELL.—For painting and decorating the new town-hall, for the urban district council:—  
Lloyd, T., and Son (accepted) ... £53 15 0

LEEDS.—For the alteration of the Cookridge-street Baths, recently acquired by the Corporation from a private company. Accepted tenders:—

Engineering:—	
Braithwaite, H., and Co. ....	£1,856 0 0
Glazed tiling:—	
Yeates, T. H. ....	1,290 0 0
Masonry:—	
Dews, W. H., and Co. ....	1,101 0 0
Joiners' work:—	
Mason, W., and Son ...	975 0 0
Plumbing:—	
Thompson, G. ....	410 0 0
Concreting:—	
MacFarlane, S. ....	290 0 0
Painting:—	
Heptonstall, J. ....	222 0 0
Total ...	£5,654 0 0

LOSTWITHIEL.—For drainage works in Queen's-street, for the town council:—  
Thomas, H. (accepted).

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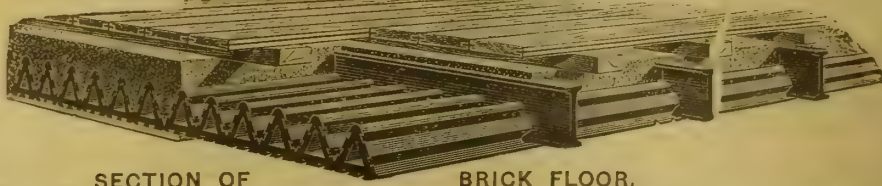
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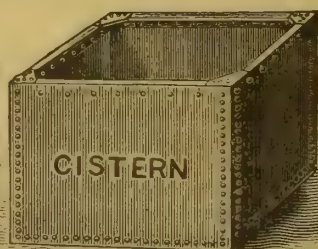
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# THE BUILDING NEWS AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2307.

FRIDAY, MARCH 24, 1899.

## THE NEW WAR OFFICE AND GOVERNMENT BUILDINGS.

THIS week we have had the opportunity of again inspecting the drawings of the designs for these buildings, which have been on view since Tuesday to Members of Parliament in the tea-room of the House of Commons. The process of competition adopted by previous Governments when the Home and Colonial Offices and other public buildings were determined on, has in the present instance been departed from, as our readers know, and Messrs. J. M. Brydon and William Young were chosen by the Ministry to design the contemplated buildings without further contest, save the necessary ordeal of public criticism and Parliamentary opinion.

The result of the method adopted by the Government is, on the whole, satisfactory. Both the Great George-street buildings, for which Mr. Brydon is responsible, and the War Office, of which Mr. William Young is the architect, are eminently well adapted for the purposes intended, and unquestionably they will enhance the architectural dignity of London. The intention of the authorities has been rigidly adhered to, limiting the style to a Later phase of the English Renaissance, and the further restriction, which we understood would be imposed, as to an adherence more or less closely to historic examples in this country, may, we suppose, be offered as a reason for the absence of any marked originality in either of the designs now determined on. Well recognised forms and familiar details bring both compositions well within the lines of respectable achievement, while the plans which have in both instances been prepared in consultation with Sir John Taylor, the consulting surveyor of the Office of Works, no doubt admirably fulfil the requirements of the several departments to be housed. No room of any kind, save an occasional porter's office, is lighted from what are called the smaller internal areas, and even these little rooms obtain their light from the long-ways of such areas. Ample light is the characteristic of both schemes, and it is but fair to both architects to remark that, although their plans have been largely influenced by the Office of Works, the distribution and architectural contrivance of the planning is the work of the architects themselves.

In both buildings a governing condition which necessarily imparted a rule for the determining of the proportions of these designs must not be overlooked in reviewing them, and this was the stipulation that no rooms on the main story should be more than 16ft. high, the ground floor not more than 13ft., and generally the pitch of the rooms in other parts of the buildings 12ft. high. Thus the mistake made in the Home and Colonial Offices in having rooms 23ft., and even 25ft., high, is wisely obviated.

Mr. Brydon's building will extend up Parliament-street to Charles-street, having a frontage to Great George-street as far as the park, some 700ft. long, the Whitehall façade being about 320ft. The height of the elevations generally to the top of the parapet will be 80ft., and the cupola towers which flank the central pedimented pavilions towards Great George-street and Charles-street measure 145ft. high. Each of the four façades is terminated by square angle-towers, having an elevation of 110ft. On the Whitehall side these towers are located

at the extreme ends of the composition; but towards St. James' Park they set inwards with a curved treatment brought round between the main and end elevations of the block. This gives a pleasing diversity, and better befits the surroundings of this façade.

Towards Whitehall another feature in this respect must be mentioned, because it is of exceptional importance in more ways than one. We refer to the archways designed to connect the new buildings with the Home and Colonial Office in the front of Charles-street, and also the latter with the Treasury Building, higher up in the same thoroughfare, spanning Downing-street. Architecturally, this will be a manifest improvement. The ugly splay on plan taken by the south-east tower of Sir Gilbert Scott's building\* will be masked, and although the scale of Mr. Brydon's archway will scarcely accord with that of the Home Office, we would not suggest any alteration in this respect. The figure frieze above ranging along the covered passage is a pleasing feature, and may modify this effect of largeness of scale imposed by the big columns below. The practical utility of these archway screens is that they will enable the several departmental officials to visit either of the three buildings without leaving the premises; and, moreover, as the Home Office work will have, by reason of its increased extent, to overflow into the new building, this connecting passage-way is of prime importance. At the same time, all three buildings will remain distinct really, in case of fire.

Turning now to Mr. Brydon's plan, we may describe it as being grouped round three large courts. The two side courts are 105ft. long, running north and south, by 90ft. wide. In the centre is a circular court 160ft. in diameter, with carriageways from the main fronts, north and south, and these entrances form the distinguishing central features in the main fronts of the entire building before mentioned as being flanked by the cupola-capped towers. To some extent, no doubt, Inigo Jones's famous Persian Court in his design for the Palace at Westminster†, the geometrical studies for which are now in Worcester College, Oxford, has furnished Mr. Brydon with an idea for this circular court just mentioned. The diameter of the Persian court was 280ft., and it formed a sort of circular piazza, with Persian warriors supporting the first floor and female figures the main entablature above. Beyond their form on plan, the present court and Inigo Jones's design have nothing in common. The quiet dignity and reposeful treatment adopted by Mr. Brydon in designing this essential feature in his plan deserve much praise. The arched pediments rising above the main cornice, and so crowning the before-named carriage archways below, are very pleasing, and display a power of reserve in design, besides intimate acquaintance with the Classic work of Oxford and Cambridge.

The buildings along their leading frontages are four floors high above the basement, and including the mezzanine. The two lower stages forming the base are rusticated, and above this, through the main story and the floor above it runs an intercolumniation in the Corinthian order, with the principal floor windows flanked by Ionic columns, and crowned by alternating curved and straight gabled pediments. In the middle of each main wing the fenestration is grouped to give emphasis with swags in orthodox fashion to the windows above, a contrivance which is here nicely treated. The cupola-like turrets are set out in four stages above the parapet,

the main body having rusticated columns setting forward anglewise after the manner of Wren, and making the most piquant and telling features in the composition. Above the pediment in the centre of the façades between these towers rise plain Attics, and at the extreme ends of the elevations, as already referred to, are square towers with somewhat unduly attenuated pilasters, which somehow or other do not seem to harmonise with the rest of the design. On each face a three-light opening is comprised within a governing wall arch with blocked voussiors, hardly making a satisfactory feature in this position at any rate. Sculptured figures break the line of the parapet in a judicious fashion between the Attic and these towers. The square end windows in the former, where they occur, are ungainly, and would be best omitted. The bas-relief figures between the coupled columns supporting the pediment in the Parliament-street front make an attractive break from the welcome severity of the wings. The rusticated piers to the main doorway on this front are unhappy in proportion, so that we are glad to note the alterations in this feature shown by the perspective, where disengaged and rusticated columns appear. The foliations and cartouche to the tympanum over, shown by the geometrical drawing, are, however, much to be preferred to the Lion and the Unicorn shown in the view, for this brings the portal down too nearly to the idea generally personified by the overdoor of an ordinary County Court.

These, however, are mere details. Many will no doubt prefer Mr. Brydon's English Renaissance façade to the Italian style embodied in Sir Gilbert Scott's building next it. Though less lofty by some ten feet, the intended front will look larger, and the proportions of the new building will be found much more satisfactory. Mr. John O. Scott has, we hear, been consulted as to the finishing of the end towers of his father's elevation, and square terminations, with groups of sculpture at the corners, will now be erected in lieu of the tall cupolas originally intended. The skyline also of the Treasury building will be improved, though it is doubtful if the structure will support the central Attic shown by the elevations now on view at Westminster. For the present only half of Mr. Brydon's block is intended to be put up, as the main frontage along Great George-street, including the Institute of Civil Engineers, has yet to be acquired.

At the War Office due account must be taken of the very great disadvantage presented by the irregular shape of the site, facing, as it does, on the longest side Whitehall-place, a return along Whitehall-avenue, and so round to the Horse Guards Parade, leaving a much shorter façade for the principal elevation towards Whitehall. This difficulty has been masked ingeniously by the introduction of circular towers at the four main corners of the block. They rise to a total height of 128ft., the general façades measuring 80ft. to the top of the parapet. The Whitehall-place front is 480ft. long. It is boldly treated in the centre with a colonnade pavilion inclosed within two wall turrets slightly breaking forward sufficiently for the purpose, and over these are dwarf cupolas, which in the view have been brought more forward, so as to properly exhibit themselves in front of the Attic, which is set some 10ft. back. The same arrangement of Ionic columns to the main stages of the façades, which occupy the central positions on each front, are also brought round the curved face of the towers at the angles between two subsidiary pavilions which run up, and end in segmental pediments, and having a sculptured trophy as a finish to the skyline of the Attic above. Four statues occur over the middle of the Whitehall front, which is over 240ft. long. The crowning feature of this front is made by a large equestrian group above the perfectly

\* Elevations and details of the Home and Colonial Office were published in the BUILDING NEWS for April 10, 1874.

† Facsimiles of Inigo Jones's drawings, reproduced by Mr. Maurice B. Adams from the originals now in the Royal collection at Windsor Castle, will be found published in the BUILDING NEWS for Dec. 19, 1884, with a plan of the whole scheme.



plain and receding Attic story. The entrance porch projects with rusticated columns as the centrepiece, and over its middle portal is a broken pediment of free design, the top of the projection being finished with inverted truss-like buttress scrolls which hardly come nicely in perspective. A striking proposal in connection with this design is to repeat Inigo Jones's Banqueting Hall on the north side of Whitehall-place, on the site of the office of the Woods and Forests, and to use that replica of the Stuart chapel as a Parliamentary library. The idea is architecturally fitting, though little likely to be realised.

For Mr. Young's plan we have nothing but praise, and its detail shows considerable skill. The carriage-entrance to his main quadrangle is from the Horse Guards Parade. This great court is 141ft. by 80ft., and on the north side it has a good feature in an open arcaded well to light the corridor to the rear of Whitehall-place front. To the back of the block there is a triangular court, following the lines determined by the frontages, and there are five other minor courts for light. The elevations are broadly handled, and in scale with Inigo Jones's work adjoining. The Ionic order implies a bigness and severity of handling. The Corinthian order employed for the fenestration gives delicacy and refinement. The ground floor and mezzanine story, if we may in this instance so describe the first floor, has rusticated masonry, and the jointings above in the view are also marked somewhat emphatically. The far-away angle towers are seen in the view in a manner hardly ever likely to occur; whereas in Mr. Brydon's perspective the Great George-street cupola towers do not appear, though from the point of view adopted, they certainly ought to have been shown. The Abbey is brought unjustifiably near, and rather destroys the effect of spaciousness, which in reality will exist. The views, however, are brightly done in Indian-ink wash, and the geometrical drawings are painstaking and carefully delineated without over-elaboration, for they are done in a workmanlike and suitable way.

If neither of the buildings can be described as brilliant or dashing original, they will make excellent public offices, distinctly removed from the mediocrity of the commonplace.

#### ROYAL INSTITUTE OF PAINTERS IN WATER-COLOURS.

**R**EJECTION is neither an easy nor a grateful task, and committees of selection find it more difficult every year to exclude works of a commonplace or indifferent class. Hence it is, we suppose, that we have to take a large number of pictures of little merit with others of admitted quality in these galleries. The task would be rendered lighter for the critic if the former were absent; as it is, the process of "weeding out" is sometimes formidable. In the West Gallery of this well-known Institute we see a few works of interest. One of the best examples is J. Shaw Crompton's picture, an incident of the period of the Peninsular War, "For Country and King" (No. 2). The interior of an old-fashioned inn parlour; on a wooden table, the jovial host, his hand uplifted, welcomes a country labourer in smock, apparently a raw recruit. The recruiting officer sits on a chair, leaning on its back, while other guests are smoking and looking on. Carefully painted in its details of furniture and its homely country accessories, the painter has given us a genuine scene of Old English country life in the time of the Regency. Frank Walton's studies of the Channel Islands, including "Les Etats, Alderney" (6) and "Clonque Fort, Alderney" (14), are admirable renderings of those rocky fastnesses. Atmosphere and genial sunlight are well depicted. Then we have R. B. Nisbet's delightful and poetic symphony of

landscape under a bright twilight (7), pearly in the hues; and another melody in light and shadow, "Bringing Home the Stragglers," an undulating common under a wet, drizzly sky, full of breadth and atmosphere. Geo. Lucas's "Surrey Common" (8), F. Spenlove-Spenlove's "Evensong," Joseph Knight's "The Cotter's Field" and "Pasture Land" (15) are pleasant studies of landscape. A large and cleverly-drawn view of "Lynmouth" (16), by Harry Hine, must be noticed in passing. Very ambitious is Henry M. Rheam's picture, "The Sleeping Beauty." The young prince bends over her; but the drawing of the left arm of the maiden is faulty: it is too short from elbow. The composition, colour, and technique are promising of better results. Frank Dadd is always entertaining in his dry humour. "Small Fish are Better than no Fish" (18) tells its own tale. The scene, a country taproom, where a dandy attired in Georgian frogged coat is sitting smoking, stirring his grog, with two young post-boys; one in scarlet in the window recess is looking over his friend's hand. There is a self-satisfied look on the face of the expert player watching his younger friends, who are at their wits' ends. Mr. Dadd is here intensely natural and simple, as is his wont. There is no effort: the drawing and accessories of table and room are perfectly true. J. C. Dollman, another master of amusing incident, is exceedingly happy in his picture of "Moses at the Fair" (41). The light, open-air effect of the canvas-inclosed paddock, and the figure of Moses Primrose holding the halter of the old nag are admirable. Clad in his coat of "thunder and lightning" cloth and green vest Moses looks self-possessed before the two Jewish confederates, who stand looking on. Through the opening of a tent are seen metal-rimmed spectacles, a gross of which were given for the horse. For drawing of horse, grasp of character, and quiet humour this work is in Mr. Dollman's best manner. At the end of room, "An Idyll" (50), by Charles P. Sainton, is fanciful and delicate in its hues of misty sunlight. Seated on a bank near a lake, an undraped nymph, by the melody of her flute, has lured to her a flock of swans, whose graceful white forms are seen through the opalescent mist. "Waiting for the Tide" (85), by Walter Langley—an old sailor and his daughter—is replete with those qualities of realism and pathos which we look for in his work. Edward Davies's bold and vigorous mountain scene, "The River Mawddach" (90), with its naked rocks and scant clothing of verdure; Anderson Hayne's "A Full Stream" (133), Edmund Caldwell's clever study of a dog biting his muzzle, "A Conscientious Objector" (99), J. C. Halfpenny's "Blossom and Decay," an old boat in a reedy recess by the sea, very feelingly drawn, are worth notice. One of the ablest works in the gallery is F. W. Davis's "A Forgotten Craft," an old grey-bearded craftsman busy in making a leather jug, or a "black-jack," so common in Mediæval times. Near the small casement of the workshop is another man, in red coat, decorating a "jack." The drawing and composition are powerful, the colour subdued and forcible, and the massed light and shadow masterly.

"The Lute Player" is the smallest contribution of Mr. E. J. Gregory, R.A., the president—a daintily-drawn figure of very charming colour of a girl seated, playing the instrument. Her dress is of a pinkish-red, richly worked. Behind is a hanging chocolate red. The technique and execution are unsurpassed. The larger circular study, "Pensive," a fair-haired girl, leaning on her elbow resting on her knee, wearing a large-brimmed hat in a garden, is a pleasing piece of realistic portraiture. The face, though not pretty or refined in its features, is nevertheless real and honest-looking. There is no affectation or coldness, and the striped canary blouse and figured dress suggest a

summer reverie. Sir J. D. Linton's contribution "St. Valentine's Morning" is a scholarly study of costume of 16th-century character—a youthful gallant, dressed in rich brocaded garments, his sword by his side, carrying a Cavalier hat, is knocking at the door of his sweetheart's chamber, while a neatly-dressed maid holds a tray of choice gifts, including a cupid. The execution and details are, it is needless to say, faultless. Of other pictures we note, E. M. Wimperis's vigorous landscape, "Ben Nevis," with its dark masses of colour and heavy clouds; some clever sketches by John Fulleylove (178), "The Erechtheum" and other views of Athens and the Acropolis; works by Harry Hine, J. Finnemore (176), Jas. Orrock, John R. Reid (193); G. Sheridan Knowles's graceful picture, "Dancing Lesson" (189); St. George Hare's piece of drollery and colour (200), a clever figure-study by Miss Gertrude D. Hammond (222), an expressive study of a girl's face by Lucien Davis (245); H. R. Steer's "Bartlemy Fair" is clever and animated, and Archibald's Kay's "The Quarry, Culross, Fifeshire" (402) is charming in its sense of light and shade and delicate tone. Lennard Lewis's "Church of Notre Dame, Honfleur," is a careful drawing; and we must also notice Carlton A. Smith's well-drawn work, "Daybreak" (328), with its pathetic touch. The figure of the young woman carrying a lamp, and the old volume and spectacles left on the table, in the early gleam of daylight, are convincing. The conflicting lights of lamp and dawn are very true. Yeend King has one or two bright and crisply-handled sketches: "Sandle Manor, Hants" (183), "Robertsbridge, Sussex"—an old village street in sunlight, "The Church Pool"—a quiet evening effect and reflection; and Miss B. Meyer's work, "The Stage Coach" (378), is interesting as a reminiscence of the old houses.

The East Gallery contains one powerful, sombre work—a solitary figure subject by W. Lee Hankey (481), "By a Path That I Do Not Know"—the figure of a young girl carrying her infant along a pathless waste at the side of a river at nightfall. The landscape is wrapped in gloom, a large red moon is rising above the horizon, the path lies through a tangled undergrowth of flowering thistles and rank weeds. There is considerable power and pathos in the treatment of the young mother, her way through the track of waste land, and the subdued darkness of the hour. The painter avoids all unnatural sentiment. The late John P. Gulich's picture of "An Art School" (427) is vigorously handled. A pretty nude model sits before a large assembly of students under a strong artificial light. The model is graceful in pose, the light and shadows dexterously painted, and the colour good.

In the centre of the long wall hangs Professor Hans von Bartel's picture, "A Fisherman's Wife" (543), an example of the Munich school, handled with much force, though somewhat harsh. The figure of the wife, seated amidst tufts of long grass, are realistically painted, and the colour is pleasing and natural. Several good landscapes and seascapes are hung. We must mention A. W. Weedon's "Waste Ground" (423); David Green's view, "The Port of Rye," clear, and full of light; Geo. Rushton's "Dreamers," children in a cornfield asleep; a large, soft landscape by B. J. Ottewell (468); studies by Thos. Pyne (458) and John White (467); Bernard Evan's two large and powerfully-painted landscapes, "The Wave-like Plain of France from Grasse to the Mediterranean," showing the vast, undulating valley of hills, and his fine rocks near Grasse (478, 487); the broad landscapes of E. M. Wimperis (540 and 549); and the clear, pearly hues in W. Lee Hankey's picture, "When Vernal Morning Breaks" (378), a stretch of lowland near a river. The solitary figure of a girl and the distant village are cleverly introduced, and the



treatment broad and pleasing. Other pictures are by Jas. Orrock, Robert Meyerheim; Miss Ethel Kirkpatrick's clever colour study of a girl picking poppies, and the large composition by W. W. Collins, "Boadicea Reviewing the Iceni" (533); Albert Kinsley, and Chas. J. Adams. Edward C. Clifford's "The Wizard's Daughter" (552) is a clever Mediæval incident, and the figures of the graceful maiden turning to look at the old monk and his companion—a jester—are cleverly drawn. In this gallery the Society of Miniaturists have a large display of their works.

#### CERTAIN REFLECTIONS ON THE ENGLISH RENAISSANCE.\*

AS the subject of the English Renaissance, if historically treated, would be quite beyond the scope of a single lecture, I propose to call your attention to certain aspects of this chapter in history, and to endeavour by this means to disentangle some clue to guide us through the perplexities of modern architecture. Any conclusions I offer with great diffidence. The present condition of architecture is so unsatisfactory, and so beset with difficulties, both in theory and in practice, that the most one can hope to attain to is some firm foothold on the facts of history—a foothold from which we can start again with at least a glimmering of an idea of the goal at which we aim. For in architecture, the oldest of the arts, we can only consider ourselves on safe ground so long as we keep in touch with what has been. A comparison has been made between the Renaissance of the 16th and 17th centuries in England and that of the 19th (assuming, of course, that the latter exists). In order to test the worth of any such comparisons, it is necessary to consider for an instant what that great Renaissance was of which our own 16th and early 17th-century architecture was but a distant echo. There are

#### TWO POINTS ABOUT THIS MOVEMENT

which differentiate it from any others in the history of art. The architecture of the ancient world was one long, continuous progression from its dim beginnings in the East till its disappearance with the downfall of the Roman Empire. Architecture might flourish in one place more than another, but throughout its long history there was no break in its continuity. Its historical development went straight ahead, with no throw-back to earlier art, till its vitality dwindled, and it died out with the decaying forces of Roman civilisation. There was a curious objectivity about the ancient world which prevented any intense reflection of its life and thought on its visible art. That art was settled for it. It was accepted as part of the established order of the State, and so it ran its course without regret and without ambition. Now, the Renaissance was a conscious return to the art of the past, to the art, that is, of the Roman Empire. It was not a mere revival. It was a deliberate and successful attempt to enter into the spirit of the great Roman architects. What makes it the more remarkable, and indeed without parallel in history, is that there already existed another method of architecture in full and complete maturity, for Gothic architecture had reached the very limit of technical skill. Yet men were prepared to turn their back on this traditional art, they were learning to welcome the new method, to repudiate their familiar language, as no longer adequate to their needs. For the first time we strike the characteristic note of modern art, its intense subjectivity, its deliberate consciousness. This momentous change in architecture did not result from the craftsman's instinctive habit of refining on the past, but from a change in the direction of intelligence, from a certain revulsion in ideas, not from the action and reaction of craftsmanship. For

#### CHANGES IN ARCHITECTURE

come about in one or two ways. When a method (or style, to use a doubtful term) is fairly established as traditional, the actual manipulation of materials by workmen and the introduction of new materials lead to the extension and modification of the style itself, as, for instance, the growth of Perpendicular Gothic out of

Decorated. The development comes from within and proceeds more or less unconsciously. But there is another source of change in architecture. In the course of ages the seeds of change are slowly at work, till there results some great upheaval of ideas which dislodges mankind from its mental anchorage. The old idioms seem meaningless, the familiar formulae barren; and then comes that tentative effort after a new expression which will gradually expand and consolidate into a permanent art. A new factor will have taken its place in human intelligence, which has to be recognised, however much our sympathies may lie with the art it has replaced. Such a change occurred at the Renaissance. Since the fighting days of the dark ages civilisation has steadily advanced. Men were rich, intelligent, learned, and the keener and more active minds had long since shown impatience of mediæval standards and idioms. There was but one direction in which this enterprise could find its natural outlet, and this was scholarship. Latin was the familiar language; scholars naturally turned to the country of its birth, and so from the study of the literature of Rome they came to the study of its art, and that art was adopted with enthusiasm as the only fit expression of Humanism, that new motive in thought and morals which the Renaissance won back for mankind. In this regard Alberti is typical of the Earlier Renaissance; he can have found little to attract him in the professional side of architecture. His reward lay in his keen enjoyment of the art, in the occasion that it gave him for the exercise of his own fastidious scholarship. Thus the peculiarity of the art of the Renaissance is that it was much more than a mere change of technique. It was the result and the expression of a new order of ideas which had been slowly growing for generations until it became articulate in art; something altogether greater than the small ephemeral fashions which are all that the 19th century has to show by way of a Renaissance.

#### ENGLISH BUILDERS AND THE RENAISSANCE.

Now, how did the English builders regard this far-reaching movement? It is quite plain that in the first instance, and, indeed, for several generations, they did not in the least understand it. In the first place, they themselves were ingrained in the Gothic tradition, trained exclusively in its method of construction, and unfamiliar with any architecture but that of their own country—one might almost say of their own county. And, in the second place, they were introduced to this new art by travelled and scholarly amateurs. All the inspiration came from the court and the wealthier upper classes; and the English builder, probably somewhat against his will, had to set to work to master the strange new fashion. The only acquaintance with it, as amongst Englishmen, was possessed by amateurs, and the workmen at first had to follow their instructions with such help as they could get from the work actually executed by Italian craftsmen in this country, and it is to be borne in mind that, in actual fact, not many Italians were over here, and that the majority of them, with the exception of such men as Torregiano, Rovezzano, and the Majani, were quite inferior men. The results were the most ridiculous blunders in grammar, for the Englishmen endeavoured to make some rudimentary acquaintance with the orders by way of ornament, but planned and constructed their houses according to their own tradition. As the 16th century went on, and the first Italian influence disappeared, their workmanship fell off, but their knowledge of the orders grew. Students, such as John Shute, with some architectural training, were sent out by noble patrons to make systematic study of Italian architecture; and the German and Flemish workmen who succeeded the Italians brought with them an abundance of pattern-books, so that the business of decorating houses with fatuous ornament proceeded apace. Yet even in far-away England, the air, if one may say so, was instinct with its influence. The horizontality of Elizabethan architecture was itself a dim reflection of the great recovery of the Italian Renaissance; and the day was fast approaching when an Englishman of genius would see his way through all these troubled efforts, and grasp the principle, the basis of idea, that underlay this fundamental change in architecture.

#### THE BASIS OF THE RENAISSANCE.

Let us consider for a moment what that principle was. In spite of the researches of such men as

De Geymuller, our young students are apt to consider the architecture of the Italian Renaissance as an affair of detail. Their attention is arrested by its exquisite carving, its arabesques and other details, which form such a tempting subject for illustration. Yet all this detail might go, and the value of the work of the great Italian architects remain untouched. For the basis of their work, and it is this which gives it permanent value, lay in construction; their real accomplishment lay, not in ornament, but in their avoidance of it, and in their past-mastership of proportion and of the intellectual problems of architecture. They studied to some purpose the remains of the stupendous architecture of Rome. Not only did they extend, to a point as yet undreamt of since the days of the Empire, the use of domes and simple vaulting, but they recovered the use of the lintel in combination with the arch. They threw off the unreasonable intricacy of detail with which later Mediævalism had encumbered architecture, and brought back the art to its abstract basis in construction—that is to say, to the simplest and most direct methods of building, the lintel for crossing narrow spaces and the arch for wide ones (I speak, of course, without regard to steel and iron construction, at that time practically undreamt of), flat ceilings, domes, or the simplest forms of vaulting, for covering in their areas. The great recovery that the Italians made from the remains of Roman architecture was this use of the lintel, and the arch in construction, and the use of domes and simple vaulting. A dull man might have recovered its detail, but only the genius of Brunelleschi or Peruzzi could have disentangled these constructional ideas, simple as they seem to us now, and showed how they could be applied easily and naturally to every case, as an elastic method of construction, not merely as an exercise in scholastic canons of design. Given, then, a certain method of construction, in good architecture, the design in all its multifarious parts must follow it. To the arch the Renaissance added the lintel; and it is in the play upon these abstract motives that the real significance of Renaissance architecture lies.

#### THE WORK AND WORKS OF INIGO JONES.

Now, the first Englishman who really grasped this fact was Inigo Jones, and it is for this reason that his work is so profoundly interesting to us, and so completely differentiated from the work of his predecessors. At length there had appeared a man who understood architecture as the Italians understood it; who brushed on one side all the detail and ornament which had seemed to the Elizabethan and Jacobean designers the whole essence of the art, and had gone straight for the heart of the matter; realising that, after all, architecture is simple construction, ennobled and idealised by the working upon it of a powerful brain and highly-trained imagination, and that its strength lies in its own abstract qualities, fine proportion, bold distribution of masses, extreme reticence and simplicity of ornament. He saw (and few had seen it in England since the days of Early Gothic) that architecture is not ornament—that ornament, indeed, is only one—perhaps a subordinate one—of the many weapons which architecture has in her armoury. For the first time after a hundred years of blind experiment this country possessed an organic style. I need not dwell on the brilliant ability with which Inigo Jones used this style. His exact and fastidious refinement is familiar to all students. Perhaps we are not all so familiar with the masterful freedom of his designs. It has been customary to insist on the greater versatility of Wren as compared with Inigo Jones, and a writer in the *Times* once attempted to make some absurd distinction between Jones and Wren, treating Jones as an Italian, and Wren as the first English architect proper. The writer in the *Times* had the usual knowledge of amateur critics; but those who have studied the work of Inigo Jones and Wren know, in the first place, that Wren could never have started where he did if Inigo Jones had not preceded him; and, in the second place, that it is a mistake to identify the work of Inigo Jones with that pedantic version of Palladianism which the 18th-century architects set up as his particular manner. That Jones did adopt Palladio's architecture as the last word of the Italian Renaissance is, of course, undeniable. The point to be realised is that, whatever his imitators may have done, Inigo Jones himself worked with all the freedom of

\* A paper read before the Architectural Association on March 17, 1899, by REGINALD T. BLOWFIELD, M.A., F.R.I.B.A.



genius, a freedom founded on the most intimate mastery of the actual technique of his art. In this regard the distinction between Jones and Wren has been very much exaggerated, and Wren followed the lines laid down by Jones far more closely than has been generally supposed. The decadence began with the 18th century, with the men who succeeded Wren. Where Wren designed, these men copied, and they copied the least attractive features of Inigo Jones and Palladio. The pedantic conception of this man of genius which exists in the amateur mind is really derived from Kent's publications and eighteenth-century copies of his work. I do not propose to follow further

#### THE COURSE OF ENGLISH RENAISSANCE ARCHITECTURE.

The eighteenth-century architects allowed their art to be collared—if I may be permitted the phrase—first by amateurs and afterwards by men of letters. The strength of the old tradition kept them within some reasonable limit—at least, as late as the early part of this century. But that romantic element of literature, which had made its first incursion in the days of Horace Walpole, has encroached on architecture with disastrous rapidity and power in this century; so much so that, a generation back, it almost seemed as if the last trace of our fine traditional Classic would disappear under the preachments of men with no exact knowledge of architecture, who approached the subject from a standpoint entirely out of relation to the art itself. It would have been a curious result if that great development of architecture which owed its first origin to scholarship should have suffered its final extinction at the hands of the literary amateur. To put together the results of this very general survey, I would suggest the following

#### CONCLUSIONS AS THE TEACHING OF HISTORY;

(1) that the Italian Renaissance itself was the necessary result of far-reaching causes; (2) that our English Renaissance in its kind and degree was part of this movement, and is not therefore to be dismissed as a mere change of expression in architecture, but must be accepted as part of an inevitable development, precluding a return to the motives and ideas that lay at the back of Mediæval art; (3) that in the architecture the real work of the great Italian masters was to rediscover, almost to recreate, new methods of construction and proportion; (4) that the fact was not realised by the Elizabethan builders, who could not see the wood for the trees, and that actually it took about 100 years of experiment to produce the man who could see beyond this detail, and establish order and logic in the tangled maze of English architecture; (5) lastly, and as a corollary to this, that the mere fact of his having done so, and the circumstances of the case, have brought about a permanent change in the work and position of the modern architect, to which I will call your attention later. Now,

#### HOW DO WE STAND

at this moment in regard to the theory of architecture? I do not mean abstract theory as to its philosophical basis, but our own attitude to the art. What are the sources to which we look for inspiration? What are the ideals at which we aim in actual design? I fear that the answer to this question can hardly be satisfactory. We are, here at the end of the 19th century, in a condition of greater uncertainty, and more complete absence of conviction than, I should say, at any previous period of history. You have merely to look back upon the last 100 years. We began the century with the remains of the Classical tradition, but Adam had already "improved" it, as he thought; Stuart and Revett had done their work, and the Greek fashion was well in the ascendant. Then came Pugin, ardent, fanatical, full of energy and narrow ideas, a very iconoclast in regard to the old tradition; and after him Ruskin, who thought he had found the key to architecture in his personal preferences and the morality of Exeter Hall. Then came the rush for Gothic, Early English, Early French, Early Italian, with a vehemence that threatened to sweep the board clear of everything but a heterogeneous collection of details from every country. Every man has been for himself, and meantime architecture has gone to the wall. The serious study of architecture, not only as an art, but also as an expression of the intelligence which is not arbitrary, but determined by certain inevitable causes, has almost dropped out of sight, and I suppose that, in

practice, the very worst work that has ever been done in England has been done in the last fifty years. I need hardly add that a few men of powerful and original mind have done admirable work, but the average of architecture has been left untouched, and it is by the average level that the state of architecture has to be gauged. We cannot look back with pride on the artistic attainments of the 19th century, judged from any standpoint, and it appears likely that we shall enter on the 20th century without having hit upon any certain way through this quagmire of modern architecture. It is here that

#### THE STUDY OF THE PAST

must help us. The days of the craftsman working independently, yet in unconscious unison, ceased when the choice of styles arose. He tasted of the tree of knowledge, and henceforth to his knowledge of his craft had to be added the responsibility of conscious judgment, if he was to undertake, I will not say architecture, as it might be thought to beg the question, but building of any sort. Because, in any building nowadays, a man has to use one method of expression in preference to another, and implicitly in this there is raised the whole question of selection. Now, this responsibility proved too much for the simple craftsman, as you may see from the blunders in design which abound in more ambitious Jacobean works; and it was only a question of time how soon there should arise the man who had sufficient training and intellectual capacity to enable him to discriminate between good and bad, to enable him to grasp the logical coherence in expression which is an essential element of architecture. As soon as such a man arose, the matter was settled for good or bad. The architect ceased to be a craftsman in the technical sense, and what might be lost in craftsmanship was assuredly gained in architecture. I think, therefore, that this critical function of an architect, this detachment from the actual details of craftsmanship, which chafes the enthusiasm of some of by no means the least gifted of our younger men, is of the very essence of his work. The more of craftsmanship he has the better; but a man may be a very good architect without being a very good craftsman—I mean a good craftsman in the sense of being able to carve his own woodwork and model his own ceilings. His craftsmanship must be of a wider range. It must embrace full knowledge of the past; it must rest on a constant habit of analysis of the best methods of expression in building, and a keenly critical insight into the abstract qualities of architecture, mass, balance, rhythm, and proportion. An architect, to my mind, should be like a fastidious man of letters, he should not be content to express his purpose anyhow, he should be anxious to find the exact inevitable phrase. It is in this sense, I think, that an architect should be an artist of the highest order, and this is the position that has, in fact, been forced upon him since the days of the Renaissance. Perhaps this reflection may be some consolation to those who would reluctantly abandon the idea that in craftsmanship lies the future of architecture. Nor, again, is this ideal less exacting than the other. To attain to this faculty of reasonable judgment it is clear that a man must possess knowledge of what has actually been done in architecture—the more the better, provided he is not over-burdened by it; and this knowledge is not mere student's learning, but means a practical knowledge of buildings, gained by careful analysis and measurements, and by exact observations of materials and local circumstance. A lifetime of constant study is not too much for such a task. I would suggest to you, therefore, to those of you, that is, who are now beginning your career, that there is

#### NO SHORT CUT TO ARCHITECTURE

through pattern-books, or even through the pleasant paths of detail craftsmanship; but that, nowadays at any rate, you must have knowledge, and that now, as always in the history of architecture, you must seek that knowledge not only in books, but also in the builder's yard and on the scaffolding of buildings. I have still one more point to bring before you. Perhaps in this paper I may seem to you to have insisted too much on knowledge, too little on imagination, and the criticism has been made on some remarks of mine elsewhere. In the first place, I would point out that we seem to be face to face with

#### SOME DANGEROUS DEVELOPMENTS OF ORIGINALITY,

or, rather, eccentricity. To judge by the majority of our buildings, it appears to be thought

that "knowledge hampers imagination," as it was put by the eminent Capability Brown. Certainly, the results are a very nightmare of architecture. Now, there is only one antidote to this sort of originality, and it is knowledge. I fancy that some of the more accomplished of our original designers would be rather surprised to find that the flattest of their ogees, the boldest of their amazing proportions, have been anticipated, not only in Italy, but even in England. Even a cursory knowledge of the work of such a man as Baldassare Peruzzi would show them that profound knowledge is not incompatible with the most complete freedom in design; and further, that the most daring imagination can co-exist with the most trivial detail. You may recollect the indignation of the old *Sieur de Chambray* at the pretensions of the men of his time, who thought that by turning a capital upside down, or something of the sort, they had invented a new architecture, "as if the Pantheon" (I quote the *Sieur de Chambray*) "that same stupendous and incomparable structure, were not the invention of the architect who built it, because he has vary'd nothing from the Corinthian ordnance, of which it is entirely composed." In the second place, and this is the gist of all that I have said, this

#### KNOWLEDGE IS NOT AN END, BUT A MEANS.

For an architect does not study in order to reproduce what other men have said once and for all, but to perfect his own mastery of expression; and just as a poet does not invent a jargon of his own or write in the language of Chaucer, but takes the current language of his time, and compels it to his purpose, so an architect would not waste his time in a vain ambition of a new style, or a futile copy of an old one; but would master the best in all the architecture of his country, and find thereby an ample language for his own individuality. It is, not styles, therefore, that we are concerned with, but style, that indefinite quality of all good architecture, whether Greek or Roman, Gothic or Renaissance; indefinable, and ever varying, because it varies with the individuality of the artist, because it depends on the faculty that the man possesses of giving the simplest and yet the most complete expression of all his purpose. It is here that knowledge must come in, as the groundwork of good architecture. We want to know, as part of our training in our art, how other men in the past have solved the difficulties that confront us now; and it is only by this long laborious study that we can learn to discriminate between good and bad, and to free our own method of expression from what is trivial and irrelevant. It is this way, and not along the pleasant paths of the amateur, there lies the best chance of the architecture of the future.

#### THE ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Architectural Association was held at 9, Conduit-street, W., on Friday evening, the President, Mr. G. H. Fellowes Pryne, F.R.I.B.A., in the chair.

Mr. G. B. CARVILL, hon. sec., proposed a vote of thanks to Col. R. W. Edis, F.S.A., for conducting members over the Hotel Great Central, Marylebone, on the 11th inst., and to Mr. E. Wragge for acting as guide on the same afternoon during the visit to the adjoining railway terminus. Mr. Carvill added that the next spring visit would take place on the 25th inst. (tomorrow) to the fire-testing station of the British Fire Prevention Committee at North Bank, Regent's Park, at 3 p.m.

#### THE NEW COMMON ROOM.

THE PRESIDENT said he had great pleasure in announcing that the new Common Room would be formally opened on the following Monday evening. It would be found to be a very great improvement on present conditions, and an important step in the direction of securing new premises. Mr. E. HOWLEY SIM added that the President had laid the corner stone of the Common Room by presenting a clock.

THE PRESIDENT mentioned that on Wednesday, the 22nd inst., the class of Quantity Surveying conducted by Mr. H. J. Leaning would commence, and that on April 12 that of Land Surveying, under Professor Henry Adams, would be opened. He also announced that the annual soirée would take place at St. George's Hall, W., on the evening of Friday, April 21, when a play of exceptional interest, written by their



hon. secretary, Mr. Carvill, would be performed; the ladies' night would be two days earlier, on the 19th prox.

#### CERTAIN REFLECTIONS ON THE ENGLISH RENAISSANCE.

Mr. REGINALD T. BLOMFIELD read a paper on this subject, reported on p. 399, and illustrated by some admirable drawings of old work from the lecturer's pen and pencil.

In inviting discussion, the PRESIDENT remarked that Mr. Blomfield had made the subject of the English Renaissance his own, and they were to some extent familiar with his views and conclusions as set forth in his valuable book. He agreed with the lecturer that an all-round knowledge of what had been done in architecture should be the keynote of an architect's training as opposed to the cramped idea now prevalent in some quarters that he should apply himself to mere craftsmanship. There were many points in the paper open to discussion, and it was one well worthy of careful consideration and study.

Mr. LEONARD STOKES, past president, said he came to that meeting as a mere Gothic architect to learn of Mr. Blomfield, but he found himself in entire agreement with the lecturer, and only able to say ditto, ditto, especially to some things. There was a certain class of architects who thought that without knowledge of past work they could do everything; if they knew a little more, they would do a little less, and would do that little a great deal better. Mr. Blomfield had ably put before them the truth, that craftsmanship was not everything to an architect, but that he needed to have a general knowledge of the details of the crafts, and a thorough grasp of the principles underlying the work. There were many men outside that room, of course, who thought that if they knew a few details, and were able to introduce them bodily into the works, they need not trouble about general principles; but a deeper study of past work would save them from committing many mistakes. He proposed a vote of thanks to the lecturer.

Mr. L. A. SHUFFREY, in seconding the motion, remarked that the advice given was clearly put, and was most necessary at this juncture.

Mr. A. T. BOLTON, in supporting the vote of thanks, expressed a hope that the paper would reach some of the men who had got on the wrong track, and were regarding craftsmanship as the chief aim of the accomplished architect. A case in illustration of the value of design, apart from the actual craftsmanship, was St. Paul's Church, Covent-garden, which had suffered much from fires and restoration, and yet impressed the visitor with the genius of Inigo Jones as displayed in its design and planning. So did the Banqueting Hall at Whitehall, also by Inigo Jones, although much pulled about by Sir John Soane. Again, recent investigations had shown that the Propylæa at Athens was finished and polished down by slave labour. Surely at the present day mere craftsmanship ought not to be exalted at the expense of design. Machinery was not necessarily fatal to good design, and consequently to architecture. He disagreed with the lecturer on one point; the Anglo-Classic School did very little for the ordinary small dwelling-house, nor were the churches of Inigo Jones and Wren suitable for modern uses. The great development in the smaller English house was due to Mr. Norman Shaw, and other men of the present day had evolved the inexpensive modern church. He did not think the progressive character of the English Renaissance had been sufficiently emphasised by the lecturer.

Mr. A. H. HART thought Mr. Blomfield had done young architects good service in insisting upon the importance of studying old work broadly from buildings themselves, and not merely from books, and in pointing out the folly of attempting to design by merely annexing little bits that attracted the eye.

Mr. ROWELL also endorsed the lecturer's view so clearly expressed that detail is not architecture, but that a knowledge of general principles is essential to the architect.

Mr. C. H. BRODIE thought it curious and, indeed, extraordinary that such a paper should be read that evening in the Metropolis where its cathedral, acknowledged to be Wren's masterpiece, was being spoiled by mere craftsmanship; it was indeed strange that Londoners were allowing an artist, however eminent and clever, to alter the architectural effect of this building without protest. Then, with reference to the Vauxhall Bridge, where was the architect, and

what was his name? The authorities had shown themselves unwilling to hear the protests of architects against the proposed work.

Mr. TEMPLE MOORE thought they wanted to drive a knowledge of broad principles not so much into architects, but into the heads of the general public, who paid for the work. At St. Paul's Cathedral, those who did know what was right and wrong had no weight in preventing the making of mistakes.

Mr. MATT GARBUTT said he had been rather amused at the remarks on general principles enunciated in the discussion. He had had the greatest difficulty in finding even a hint in the lecture as to principles. They had heard some criticism on the work in progress at St. Paul's, but he feared there were very few architects who had had sufficient training in colour possibilities to put even passable colours on to internal walls. He wished some one would arise who would produce a sixpenny handbook showing what the true principles of architecture were, for he had never heard them formulated. There had been a great deal of slanging with reference to Vauxhall Bridge, but he had not yet seen so much as a sketch of what architects agreed should be done, put in competition with the published design. The engineer did not pretend to evolve an artistic structure, but had merely designed something that would stand and carry the estimated weights to pass over it.

In summing up the discussion, the PRESIDENT observed that he did not disagree with a single point advanced by the lecturer. He had expected to hear some objections raised to Mr. Blomfield's strictures on the hopeless state of present-day architecture; but no one had taken up the gauntlet nor pointed to a gleam of hope. Brunelleschi brought order out of chaos at the beginning of the Renaissance by going back to the fountain-head of architecture—Greek and Roman work—and certainly with great success. He for one hoped that the work now in progress at St. Paul's would be stopped. Among the general public there was a curious unanimity as to the waste of money and labour in executing work which could not be properly seen, and certainly it was but little in sympathy with the architecture of the building. Two observations in the paper deserved to be remembered by all architects—viz., that you must seek a knowledge of architecture not only in books, but in the builder's yard and on scaffoldings, and that not styles, but style was the indefinite quality of all good architecture.

In acknowledging the vote of thanks, which was carried by acclamation, Mr. BLOMFIELD said he agreed with Mr. Stokes that the primary craft of an architect was to control and direct all building operations, and it was the work of a lifetime to acquire this craftsmanship. Mr. Brodie had raised some large issues; the best way to check mistakes in work would be for architects to put their own house in order, and to get some general consensus of opinion quite independently of the particular phase of the individual work criticised. As Mr. Garbutt had said, it was rubbish to talk of general principles; architects should face the problem of a building as a whole, and details would fall into their proper relationships. No general set of rules for building could be formulated; each problem had its own guiding principles. He agreed in the main with Mr. Bolton. There was much 18th-century work in England, such as Groombridge, which was comparatively small in scale but good in character, and many of the buildings which looked so hopelessly dull, as portrayed in the "Vitruvius Britannica," were in reality very fair work. His own idea was that modern churches should be designed on much larger lines than 18th-century examples; but if they divested their minds of the trumpery details of these buildings, they would see much to admire in the planning and fine proportions. A fine architectural effect could be obtained quite apart from the conditions of craftsmanship. As for originality, that was a gift of God, and not within the reach of every student of architecture.

The dedication of the vicarage of All Saints with All Hallows, Euston-road, Bristol, took place recently, the Bishop performing the ceremony. The building, which is adjacent to the church, is a house of twelve rooms, constructed of Winterbourne stone with Bath stone dressings. It has been erected at a cost of £2,500, the site accounting for an additional £630. The house was designed by Messrs. Crisp and Oatley, and the builders were Messrs. Walters and Son, all of Bristol.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary meeting of the Institute was held on Monday evening, the president, Professor George Aitchison, R.A., in the chair. The hon. secretary, Mr. W. Emerson, announced the deaths of two associates—Mr. Frederick Mew, of 9, Gordon-street, W.C., elected in 1859, and Mr. William Reddall, of 10, South-street, Finsbury, E.C., elected in 1874.

#### NORMAN VAULTING IN ENGLAND.

A paper on the "Beginnings of Gothic Architecture," illustrated by over sixty lantern-slides, was read by Mr. JOHN BILSON, F.S.A., F.R.I.B.A. In some preliminary remarks the author alluded to the recent investigations of MM. E. Lefèvre-Pontalis, Louis Gonse, Anthyme Saint-Paul, E. Enlart, and Herr G. Dehio into the origin and development of Gothic architecture, particularly in reference to Burgundy and the Ile de France, which had shown many of the propositions laid down by the late Viollet-le-Duc to be untenable in the light of more recent inquiry. Passing then on to his more immediate topic, Mr. Bilson rapidly sketched the development of Norman Romanesque resulting from the revival of architecture in Normandy early in the 11th century, and noted some of its most striking characteristics. Available literary evidence tends to show that some of the Norman methods were already in use in England before the Conquest; but we are not justified in believing that the design of these English buildings was marked by the logical precision so characteristic of Norman work, or that the English had taken any step in the direction of vaulting over their churches.

#### THE VAULTING OF CRYPTS AND SIDE AISLES.

In studying the development of vaulting, as illustrated by English examples between the Norman Conquest and the middle of the 12th century, the author dealt first with the vaults of the lower parts of churches, such as aisles and crypts, citing existing examples of the various forms described. The groined vault in its simplest form results from the intersection of two semi-cylindrical vaults at right angles to one another—a survival, in fact, of the Roman groined vault. Generally, however, these groined vaults are banded by semicircular transverse arches or "doubleaux," usually of simple square section, and forming a kind of permanent centring. The adoption of these doubleaux, however, involved considerable inconvenience in the construction of the springing of the groin. In the Roman groined vault and its imitations the groin springs from the external angle of the pier or pilaster. In many of the Early Norman vaults the groin springs either from the internal angle formed by the junction of the transverse arch at its springing with the wall-face, or from the face of the wall or arch close to the angle. As the vaults were constructed of rubble masonry with thick joints, and covered with plaster, this method of springing the groin was obviously defective as a matter of construction. Consequently we find the difficulty met at a very early date by a further development in the membering of the supporting pier; the pilaster which carries the transverse arch is flanked on each side by a secondary pilaster, which affords an independent support for the groin. In some crypts, where the vaulting is supported by single cylindrical shafts, the springing of the vault is subdivided in a similar manner, so as to give a separate projection for the springing of the groin. A further advance consisted in the substitution of a shaft for the square pilaster which supported the groin. At Saint Etienne, Caen, and at Winchester Cathedral an improvement is found in the construction of certain of the vaults—the haunches of the vault, for a short distance above the springing, are constructed of ashlar, above which the vault is of rubble plastered. Having described the modification the simple groined vault underwent when necessitated by the oblong or irregular plan of the bays to be vaulted, the author passed to his main subject—

#### THE RIBBED VAULT.

Wherever it originated, or whatever the circumstances under which it was evolved, the advantage gained by the introduction of the rib was obvious. It afforded a permanent centring for the groin, the weakness of which in vaults over wide spans must always have rendered them liable to failure. It completed the membering of the vault, which



had commenced when the transverse arch was added to the Roman groined vault. The new expedient was readily adopted and rapidly developed by the Normans in England as well as in Normandy.

#### THE VAULTING CRUX IN DURHAM CHOIR.

The cathedral church of Durham is, the lecturer claimed, the most complete early example of the adoption of the ribbed vault in England. Contemporary chronicles record that every part of the church was covered with ribbed vaulting between 1093 and 1133. The plan of the choir and east side of the transepts shows that it was the intention from the first to cover both the aisles and the main spans with the vaults which were actually constructed. The aisle vaults of choir and transepts (the various features of which were described in detail by the author), constructed under Bishop William between 1093 and 1096, are clearly part of the original work; masonry and mouldings correspond in character with those of the choir arcades, and for constructional reasons the aisle vaults must as usual have been erected along with the main walls. The vaults of the nave aisles, the characteristics of which were next discussed, are the work of Bishop Ralph Flambard (1099-1128), and, as he completed the nave as far as the high vault, the aisle-vaults may safely be attributed to the first decade of the 12th century. They correspond in character with the aisle-vaults of choir and transepts, except in a few minor points.

#### WINCHESTER.

The next dated example of ribbed vaulting is to be found in the reconstructed parts of the transepts of Winchester Cathedral. The original work in these transepts belongs to the church which Bishop Walkelin commenced in 1079, and which the monks entered in 1093. The works of reconstruction necessitated by the fall of the central tower in 1107 are easily distinguishable from the original work by the different thickness of the masonry joints. The date of these ribbed vaults may be put within two or three years after the tower fell.

#### THE VAULTS AT PETERBOROUGH.

Peterborough Cathedral presents examples of ribbed vaults, the date of which is proved by documentary evidence. The earlier church was destroyed by fire in 1116, and the present building was commenced in 1117 or 1118. In 1140 or 1143 the monks entered the new church. The parts then completed include the choir and east side of the transepts (except, perhaps, the clerestories). The aisles of choir and transepts throughout are covered with ribbed vaults, the distinctive features of which the author described. The paper then went on to discuss M. Félix de Verneilh's conclusion with regard to the Peterborough vaults, on which M. Lefèvre-Pontalis based his statement that the ribs were added afterwards in the second half of the 12th century. M. de Verneilh's theory was that the supporting shafts were designed to receive the projecting groins of un-ribbed vaults, and that the actual ribs were added afterwards. In the recent taking down and rebuilding of the central tower, however, no evidence whatever was found to support this theory. It is clear that these Peterborough vaults are original from the fact that they do not stand alone, but are analogous in their method and construction to a large number of vaults which cannot all be the result of such an alteration as M. de Verneilh suggested. The author then passed to the consideration of examples of similar ribbed vaults to which, in default of documentary evidence, approximate dates only can be assigned from the character of the work. The following examples were discussed:—The vaulting over the north aisle of the nave of Gloucester Cathedral, which may be safely assigned to the first twenty years of the 12th century; Avening Church, Gloucestershire, ribbed vaults, c. 1120-1130; Southwell Minster, the aisles of the nave of which are covered with ribbed vaults, c. 1120; the Priory Church of Lindisfarne, built by Edward (who died probably near the end of Ralph Flambard's episcopate, 1128)—this church throughout was covered with ribbed vaults, and its design is evidently inspired by Durham; the nave of the abbey church of Dunfermline, also inspired by Durham, probably erected soon after the accession of David I. (1124); Selby Abbey church, whose eastern bays of the nave also afford marked indications of Durham influence; Romsey Abbey church, vaults of choir aisles; and the church at Lessay, Normandy—examples

interesting as showing how the idea of the ribbed vault was introduced, during the course of construction, in works originally planned only for unribbed vaults; the two churches at Devizes, Wiltshire, affording examples of aisleless chancels covered with ribbed vaults, and to be attributed with some probability to the architectural influence of Bishop Roger, of Salisbury, and dated approximately c. 1125-1130, St. John's being slightly earlier than St. Mary's.

#### VAULTING DIFFICULTIES.

The difficulties which confronted the builders of these early ribbed vaults, so long as they employed only semicircular or semi-elliptical curves for the ribs, were entirely surmounted by the adoption of the pointed arch for the doubleaux. The nave aisles of Malmesbury Abbey Church have been frequently quoted as the earliest example in England of this new method of construction, and have been attributed to Bishop Roger, of Salisbury; it is scarcely probable, however, that the rebuilding of the church was commenced before the bishop's death in 1139; it must, nevertheless, have closely followed that event, and the existing nave cannot be assigned to a later date than the middle of the 12th century. There is no evidence whatever to support Mr. C. H. Moore's assertion that the vaulting is an imitation of French work. The style of Malmesbury is purely Anglo-Norman, and shows no trace of the influence of such French work as the chapel of Bellefontaine and St. Denis. At the same time, the Malmesbury aisle vaults bring us to the threshold of the complete Gothic vaulting system, and almost to the time when French influence undoubtedly began to affect English work. In treating of the

#### VAULTS OVER THE PRINCIPAL SPANS

of churches, the author said that the Normans aimed at covering all parts with stone vaults. The plans of piers sufficiently indicate that the vaulting of the principal spans was intended to follow the vaulting of the aisles. The choir-piers of St. Nicholas, Caen, and St. Georges de Boscherville were cited as typical examples. Each shows a group of three shafts on each side of the pier to carry the arch-orders of the main arcades, a single shaft which receives the transverse arch of the unribbed aisle vault, and a corresponding shaft towards the main span. It is not improbable that the failure which naturally attended the construction of the earliest vaults over wide spans may in some cases have rendered subsequent reconstruction a necessity. Very few early examples of vaults over wide spans have survived. The earliest instance in England of a ribbed vault over the principal span of a great church is the choir vault of Durham Cathedral, though here the original vault was replaced by the existing vault in the 13th century. The vault over the north transept of Durham is probably the earliest of such vaults still existing. The evidence of the structure itself, the analogy of the other vaults of the church, and the documentary evidence, taken together, enable one to speak with some approach to certainty of the character and date of the original choir-vault of Durham. The plan of the choir, consisting of two double bays, is a type usually associated with a sexpartite vault. But the date is much too early for this kind of vaulting. There can be no doubt that the original choir-vault was a ribbed vault, and it may safely be concluded that the choir was originally covered with a double quadripartite vault over each double bay, closely resembling the vault of the north transept, erected almost immediately afterwards.

#### THE WESTERN VAULTS AT DURHAM.

The vaults of transepts and nave at Durham next came under examination, and were discussed at length, the author showing that the character of the work indicated that the vaulting idea was present in the earlier parts of the structure, and that it was abandoned and again taken up while the work was still in progress. Touching the date of the nave-vault of Durham, there is absolutely no authority for Billings's statement, repeated by later writers, that it was constructed between 1233 and 1244, in the Norman style. Symeon's continuator proves that the nave was vaulted between 1128 and 1133, and this is borne out by the character of the masonry of the vault itself. Durham affords complete proof of the ability of Norman builders to construct ribbed vaults over the principal spans of a great church, and to abut the thrust of these vaults by arches across the triforium, of

which the flying buttress is merely a development. Evidences quoted by the author indicate that the choir-vault was constructed by 1104; the vault of the north transept may be assigned to a date within the first decade of the 12th century, and that of the south transept within the first quarter of the century; while the nave-vault, with its pointed transverse arches, was constructed between 1128 and 1133. Examples of vaults showing the influence of Durham were cited in the priory church of Lindisfarne, no part of which appears to be later than the middle of the 12th century, and, on a small scale, Warkworth Church, Northumberland. The nave of Lincoln was vaulted before the middle of the 12th century. It was built by Remigius, and dedicated in 1092, was injured by fire in 1141, and Giraldus Cambrensis states that it was vaulted by Bishop Alexander. Henry of Huntingdon places the date of this work at 1146. What this vault was like may be gathered from the chancel of Stow Church, Lincolnshire, the detail of which so closely resembles Alexander's work at Lincoln as to prove that it was executed by the same school of masons. The evidence here indicates that Alexander's nave-vault at Lincoln must have been ribbed.

#### EARLY EXAMPLES OF RIBBED VAULTS TO APSES

were referred to, and their characteristics described:—The small apsidal chapel on the east side of the south transept of Christ Church, Hants, appearing to date from early in the 12th century; the apsidal chapel on the east side of the south transept of Tewkesbury Abbey Church, which may be assigned to the first twenty years of the 12th century; Birkin Church, Yorkshire, middle of 12th century; the octopartite vault of the Treasury of Canterbury Cathedral; the apse-vault of the chapter-house of Durham Cathedral, a larger and more advanced example, finished by Bishop Geoffrey Rufus, 1113-1140. The last named was partly destroyed by fire in 1796; but Carter's drawings have preserved an accurate record of it.

#### ENGLISH VAULTING NOT DERIVED FROM THE ÎLE DE FRANCE.

The author concluded his paper with some observations on the bearing of the English evidence on the general question. Before the introduction of the rib, the Normans were already developing the articulation of their construction to an extent quite unknown in the Ile de France. The earliest ribbed vaults exhibit a system which is slightly less advanced than even the primitive vaults over the aisles of St. Etienne, Beauvais. The large number of ribbed vaults still remaining proves the existence of an active school, which had already accomplished much before the introduction of the pointed arch. It is remarkable that all these English vaults are quadripartite. No example is met with either of the sexpartite vault or of the intermediate form—quadripartite cut by a secondary transverse rib—both of which occur in the group of churches in and around Caen. Obviously the quadripartite vault was the earliest form, and varieties could not have been developed if the quadripartite vault had not previously been known. The evidence of the rib sections points in the same direction. As in their system so also in the profiles of the rib mouldings, the earlier ribbed vaults in England come into line with the quadripartite vaults at Lessay, and represent an earlier stage than the vaults of the Caen group. These latter, whether sexpartite or of the intermediate form, show one easily-recognised type of rib section, a more refined and clearly later type not found in England until the octopartite vault over the treasury at Canterbury Cathedral, probably erected soon after 1130. The approximate date of 1130 suggested for the earliest vaults of the Caen group seems probable enough, and the experiments which the builders of these vaults tried in setting out the curves of the ribs indicate that they were not adopting ready-made a system already worked out elsewhere. Apart from the English evidence, the authenticated dates of the earliest ribbed vaults prove that influence from the Ile de France is quite impossible, and show the complete independence of the Norman school up to, at any rate, the end of the first third of the 12th century.

Mr. R. PHENE SPIERS, F.S.A., in proposing a vote of thanks to the lecturer, expressed regret that Mr. Bilson had not more fully dealt with the sequence of the early vaulted churches in



Normandy. The author had sought to prove that English Norman vaulted buildings were not necessarily copied or imitated from those in the North of France, but were, in fact, developed earlier. The revival of architecture all through Europe commenced early in the 11th century, and, as a matter of fact, the builders of Normandy lagged behind those of other parts of France. The earliest church in Normandy—that of Kerqueville—was not older than the beginning of the 10th century, and there was no other contemporary example in Normandy. At the church at Bernay, both the triforium and clerestory were of about the year 1030, and the character of the carving and vaults was later, perhaps about 1050, and both Mr. Bilson and himself had independently arrived at the conclusion that they were of Burgundian origin. Not until they came to the period of the Norman invasion of English did they find a rapid advance in architecture, and even then the Normans were soldiers rather than builders; for example, in Sicily they employed local labour in construction, and consequently the works in that island were of a Saracenic character. In Normandy itself, they sent into Burgundy or to Cluny for skilled people to carry out their carving and building. Then they came to the question of the churches in Caen. The late Mr. J. H. Parker made in 1863 a most minute examination of the two great churches in that city, and concluded that they were probably not vaulted before 1150, or from 20 to 40 years later than the date assigned to the Durham vaults by Mr. Billson.

MR. FRANCIS BOND, M.A., said the paper represented an enormous amount of care and labour on the part of Mr. Bilson, and it seemed unfair to criticise such a lecture without reading and weighing the evidence carefully. If the author was right in his argument, then they had in the builder of the choir-vault of Durham Cathedral the greatest and foremost architect in Western Europe, and he for one would be very glad to be able to accept that view if sufficient confirmatory evidence were forthcoming. The difficulty of interpreting documentary evidence in all cases of the data of particular parts of a building was to ascertain what was actually in the mind of the early chronicler. The building operations described by him were one, and the ones understood by Mr. Hodges and Canon Greenwell were quite another. It turned upon the correct translation of the term *testudo* as applied to vaulting; this often designated a wooden roof as well as a stone vault, by which we understood it, and, indeed, in some cases, he qualified it by stating it was *testudo lithis*—i.e., a stone covering. They were quite at liberty to assume that a wooden roof was placed upon the choir of Durham in 1128; but it was very difficult to believe that it was roofed with stone so early as 1104. If one looked back at contemporary vaults thrown high up in the air over a vault with aisles, and pierced by clerestories, they found them divided into oblong compartments, over which the builders boggled, and they generally shirked the problem of introducing a clerestory. He questioned very much whether a single vault so early in date could be found. Work known to have been done at St. Ambrose, Milan, in 1050, was much simpler, more archaic, and without mouldings, and, which was still more to the point, the clerestory was omitted, the aisles being raised to two stories in height, and the main roof correspondingly depressed. The vaults of Cluniac churches were a little later, and in these there was a clerestory, but only a barrel vault over the main span. The Cluniac church at Vézelay had an intersecting vault, but it was only groined, and not ribbed like that at Durham; it was erected in 1120—i.e., some sixteen years later than the date claimed for Durham, while it was far less advanced in character. There were very important examples all less advanced than Durham, and if Mr. Bilson was right in dating its choir-vault 1104, then it was obviously the first solution of the problem of constructing a ribbed vault with a clerestory. If so, would not one imagine that the fame of such a constructional triumph would spread far and wide, and they ought to find many slightly later buildings. It was time that Lindisfarne and Warkworth church appeared to have been altered in like manner; but the period was not clear, and both were appendages and neighbours of Durham, and the treatment in each must have been very simple. As for the vault of Lincoln, the Norman

nave had hopelessly gone, and one could not judge of its form. The chancel of Kirkstall Abbey was still in existence, dated 1159 or 1160—a very long while after 1104—and even there the work was very simple in character, and they must go to the choir of Canterbury Cathedral, built in 1180, or to Boxgrove church or the presbytery of Chichester Cathedral, both works of the last few years of the 12th century, to find similar vaulting to that they had been shown at Durham, to which work they had, therefore, nothing leading up, and at the date sought to be assigned to that work it should be recollected Norman architecture had only been introduced into England during less than 40 years. He believed the vault was of the period of Bishop Pudsey. He wished to second the vote of thanks to Mr. Bilson.

MR. W. H. SR. JOHN HOPE, F.S.A., wished to draw attention to the parallel cathedral church at Norwich, which was building about the same time, and, although the nave was not vaulted till the 15th century, the choir very possibly had an earlier vault. Norwich was, as they knew, built by Herbert de Losinga between 1096 and 1119. Beginning at the east end, that bishop had carried the work at the time of his death in the last-named year as far as the altar of the Holy Cross, or down to the present choir screen—i.e., to the fourth or fifth bay westward of the nave. This work included the eastern arm and Lady Chapel, the crossing, transepts, and eastern portion of nave. The work was carried on by his successor, Bishop Everard, 1121-41, who was said to have finished the main buildings. The architectural evidence of the cathedral was perfectly clear that it was intended to be vaulted from end to end. The aisles are perfectly plain; they have wall ribs, not paralleled at Durham, and are vaulted throughout. Norwich, like Durham, is divided into double bays—fourteen in the nave alone. The principal piers in the nave are enormous shafts running to triforium level, and then ending with broad capitals. It was evident that these were to carry transverse ribs. The nook shafts also carry ribs, and were plainer in treatment than those at Durham. Unfortunately, a series of disastrous fires prevented the execution of the original vaulting of the nave or transepts, for which latter parts similar preparations for vaulting were made. This evidence is also emphasised by indications of abutments in the triforium, showing that it was intended to throw a half arch over the aisle. The responds to carry flying buttresses remain to this day on the south side. In the history of vaulting, he thought Norwich Cathedral ought to be taken into consideration.

MR. E. W. HUDSON thought there was a danger of neglecting some examples of Norman vaulting close at hand in the Confessor's work at Westminster, the barrel vault in the White Tower, and the later work at St. Bartholomew the Great, Smithfield. The crypt of the priory of St. John of Jerusalem was an excellent example of ribbed vaulting, similar to the early work at Gloucester Cathedral.

MR. BILSON, in reply, said M. Phené Spiers had quite misunderstood his references to the contemporary Norman work in Normandy and the Ile de France, which was quite independent of and later than that in this country. It would take an evening properly to reply to Mr. Bond, but he thought that speaker had very much overrated the extent of the problem solved at Durham. It had been solved before at St. Nicolas, Caen, in 1080. He quite admitted the difficulties in crediting the reading he gave, and had only gradually come round to those views after Canon Greenwell had shown him the vaulting, and Professor Baldwin Brown was also sceptical at first. He was obliged to Mr. St. John Hope for calling attention to Norwich, and he believed that when examined it would substantiate his case. He felt that we were only at the beginning of knowledge as to the development of Gothic architecture, and hoped yet to learn a good deal more.

#### INTERNATIONAL EXHIBITIONS: A RETROSPECT.

THE Great Exhibition of 1851—how many readers of these lines have a clear remembrance of this wonderful, and then altogether novel, collection of the world's wonders? In all probability not many. Forty-eight years is a long period in the allotted span of life. Sad ravages are made in the list of one's friends and acquaintances in even half that time! As a boy of some nine summers, I well recollect the great

glass-house rising up from off the green sward in Hyde Park, and wonder, almost amounting to juvenile awe, pervaded the minds of we boys when a huge tree that grew in the midst of the site, instead of being hewn down as a matter of course, was left where it stood, and literally spanned over by the crystal roof. Of the numerous exhibits, the splendid railway engines seem to have impressed me most. And well they might; for amongst them was that famous locomotive, built by the Great Western Railway Company, known as the "Lord of the Isles." It has since been my fate and pleasure to see that grand old engine tearing through the fair capital of the west in which I reside hundreds of times. Further, 42 years after it was shown in the 1851 Exhibition it held its own against the best the United States, or, for that matter, the rest of the world, could produce at Chicago's World's Fair. And when America's finest and most modern railway engine, the renowned "No. 999," also exhibited in the Transportation Building at the same exhibition, was pitted against it for a two-hundred-mile race. National enthusiasm amongst one and all of us who happened to be at the "Windy City" was raised to boiling pitch. And our disgust was just as great when the New York Central Railroad Company, whose property "No. 999" is (well advised, no doubt) removed their crack engine somewhat surreptitiously a night or so before the date fixed for the international contest. Thus it was the race never came off.

Curiously, the one other exhibit that impresses my mind after this long period of time is of quite a different character. It seems to me that some of the most marvellous of all the art treasures collected in 1851 were the wonderful wood-carvings by Mr. Thomas W. Wallis, of Louth. We are accustomed to refer to Grinling Gibbons as a past master of his craft, even as Quentin Matsys, by virtue of his well-known fountain standing by the north-west doorway of Antwerp Cathedral, claims to be the late 17th century's prince of hammered iron. Yet, in truth, it is difficult to see where the Flemish master's wondrous ability exceeds that of some in our midst? Take, for instance, amongst several who may be mentioned, the work of John Singer and his clever sons at Frome, and although Grinling Gibbons has left us many splendid specimens of his skill, for delicacy of manipulation and exquisite detail he seems never to have been in the running with Wallis, of Louth. This latter great artist's favourite material was lime-wood, and in all he did there was an extraordinary mastery of minute detail. Everything his hands turned out was in scrupulous imitation of nature, but, at the same time, without in the least losing the characteristics of a true plastic style. Even to-day, after all one has seen in a knock-about-half-over-the-world sort of life, I remember his carved "Golden Plover" with infinite delight. Mr. Wallis, years afterwards, nearly went blind, and was generally supposed, in the profession, to be dead. Happily, this impression had no foundation in fact. To-day he is a hale and strong, cheery old gentleman, resident in his native town of Louth. His hours of retirement he is utilising in writing what promises to be a very interesting autobiography of himself, a volume that will include a variety of reminiscences spreading over a period of some sixty years. It is promised from the publisher's hands, I heard recently, this year.

One word in regard to the awards at the 1851 Great Exhibition. Both my grandfathers, William Hems, of London, and George Wostenholm, of Sheffield, received medals. Perhaps few persons living can say the same thing of their respective ancestors?

Here, in Paris, there occurred respectively the International Expositions of 1855, 1867, 1878, and 1889. I don't seem to have any recollections whatever of the first of the French series, but remember well it was in 1867 that season tickets with the photograph of the owner thereon first came in vogue. Likenesses on glass were more common in those days than were prints from negatives. Official orders were issued that all exhibitors, or their representatives, requiring passes, were to attend, bringing their photos to be stamped. At the time I presented my own, a quartet of honest Germans, tall blonde men, arrayed in suits of green, were amongst the applicants. They innocently handed in glass daguerreotypes of their sturdy selves. As the machine that imprinted the photograph upon the season card was a small engine very like unto



those I have since seen stamping five-dollar silver pieces in the Mint at Philadelphia, U.S.A., the faces of the poor Teutons as they looked ruefully at their glass likenesses was a picture never to be forgotten.

Of the next French Exposition, that of 1878, many of us probably retain sunny memories. Before its opening, the Prince of Wales spent much time, here, there, and everywhere, amongst the exhibitors, stimulating and delighting them all. Of course, the late Sir Cunliffe Owen and his staff got the credit for all that was well done in the British sections. But did they deserve it? I think not! The master-mind at Paris that year amongst English officials was Sergeant Wright, of the Royal Engineers. Sergeant Wright (I have no idea whether he still survives) was worth his weight in gold to the exhibitors, and did more useful work for them than did all the rest of the Royal Commission put together.

Three years before (in 1873) the great exhibition at Vienna occurred. It claims a pleasant share of our recollections. What a long ride that was from Antwerp to Vienna! and an especially beautiful one over the portion where the winding Elbe in Saxony flows between perpendicular rocks, almost, if not over, 1,000ft. high, as at Königstein, for instance. Some of these apparently inaccessible precipices are crowned by the ruins of ancient castles, although how they were ever approached is as much a puzzle as are some of the farmhouses one sees perched upon the mountain sides of many of the Norwegian fiords. All along to Bodenback, the Austrian frontier, the scenery is simply sublime; and not a very long way after leaving picturesque Prague (with its Karlsbrücke Bridge and groups of statuary thereon), Austria's capital—an infinitely fairer city to see than is the equally lively one wherein these lined are penned—is reached. The Exhibition at Vienna was situated in the Prater, one of the largest parks in Europe. At the time of the show the recollection of the Franco-German War was still a very sore point with France. When the German Emperor William paid a visit to the Austrian Exposition, the French Courts were kept strictly closed; but the conqueror and his suite, stealing a march upon his old antagonists, visited their courts one Sunday afternoon when no one else was about. Hearing of this, the poor Frenchmen were furious. One of them, representing a leading firm, Cristoff's, got into an awful fume, danced like mad, and, wiring his principals in Paris, asked for instructions. The answer came quickly, and was pre-eminently practical. It ran: "Let him [the Emperor] in, by all means. It doesn't matter. Perhaps he'll buy"! A sunny memory of Vienna in those days centralises itself around the memory of the late Princess Mary of Cambridge, the popular Duchess of Teck. With characteristic geniality, very pleasant did she make herself amongst all her fellow countrymen. Several times a week she lunched quite *infra dig.* in the British Workman's House on the grounds. One day I bought for some of my womenfolk at home a curious muff, made from the fur of some wild animal, whose rather ferocious-looking head was brought round over to the front, and served to form the lappel of an exterior pocket. This muff her Highness espied, and begged me its use for the rest of the day (towards the close of the exhibition the weather in Vienna was somewhat chilly). When returning it, turning archly to the Prince, who stood by, she said: "Don't I wish someone would buy me such a lovely muff."

Time waits for no man! It goes on apace, and, as in a dream, one seems to cross the Atlantic, and the Great Centennial Exhibition of 1876, at Philadelphia—"the City of Brotherly Love"—is seen in the memory's mist before us. The United States authorities—taking the hint, it may be assumed, from Paris—insisted upon the owners' photographs being upon all season tickets. Further, around the edge of these admittance cards were printed dates, representing one for every day the show was destined to remain open. On the owner presenting himself for admission, therefore, the number corresponding with the current day was nicked, and thus a double entry on one date rendered impossible. Philadelphia, perhaps, remains impressed upon most of us more than anything else by the recollection of its superb city hall, the largest erection, undoubtedly, of white marble in the whole world. The late Mr. McArthur, the designer of this splendid edifice, worked thereupon early and late. Not only was he its architect, but practically his own clerk of works too, nothing,

in spite of the immense size of the structure, apparently missing his eye. He laboured harder even than did the late Mr. G. E. Street upon our own Law-courts—and that is saying a good deal. Both met with the same reward. The incessant strain killed them! One of the most charming suburban drives in the civilised world—especially if behind a couple of first-class trotters—is along the road by the side of a turbulent little stream, a tributary of the Schuylkill's, in the "Reservation Land," as far out from Philadelphia as the Indian Rock. No other country can boast of such a delightful ride, winding as it does through wild scenery, every mile of which is as much public property as are our own parks at home.

From Philadelphia in 1876 to Chicago's World's Fair in 1893 may be somewhat of a "far cry"; but, almost last, Chicago's Exhibition was by no means least. It was undoubtedly the greatest thing of its kind the mind of man ever conceived and carried out. Nor will, one thinks, anything approaching it in magnitude ever be erected again. The effort here in Paris, in view of next year, promises to be a mere nothing to Chicago. But Paris, at least, has an enjoyable climate. Chicago has to endure cutting, biting winds for nearly two-thirds of the year, while during the remaining few months one is almost roasted alive. What a chaos! what a slough of despond! was Jackson's Park up to even a month before the opening of its stupendous show in 1893. Mud was predominant everywhere; in many places the army of waggons waded through it literally up to their axles. Wading was no mere figure of speech—it was a most uncomfortable necessity. Boots were never cleaned in Chicago in those days; they were simply washed in a pail. I remember a little Frenchman, just arrived from Paris, asking me, as he stood considerably more than ankle-deep in mud, the nearest way to the French Court. After directing him, he looked down to where his wholly-invisible feet ought to have been seen, and then, raising his benumbed face upwards, he cried, despairingly: "*Mon Dieu!* And it is for this—for *dis*—I half left my own beautiful Paris!"

It may be worth recording that at the opening ceremony on the 1st of May, 1893, by the President of the United States, the only two military attendants on the staff I saw in English uniform were Colonel Edie, F.S.A., the well-known London architect, who looked every inch a soldier in his Artists' Corps uniform, and was the observed of all observers; and my second son, Private Harry Turner Hems, smart in the quieter, if perhaps more serviceable, dark green of the 1st Rifle Volunteers (Devon).

Chicago's mighty—I had almost used an Americanism, and said "almighty"—undertaking practically came to an end with the assassination of Carter Harrison, her mayor, upon the evening of the last Saturday in October, 1893. A singularly fine and active man, Mr. Harrison, late in the afternoon of that fatal day, was chatting jovially with me in the British section—four hours later he lay a corpse, struck to death by a bullet of a miserable assassin. With that shot the curtain fell upon Chicago's World's Fair.

Transatlantic exhibitions are of necessity expensive luxuries for all European exhibitors, but especially have they proved so to English ones. Whilst exhibitors from other countries are invariably liberally helped financially and otherwise by their respective governments, Englishmen get practically no help from theirs. The £66,000 voted by our Parliament towards the expenses of the Chicago Exhibition were frittered away, but not in the interest of the exhibitors. Sir Henry Wood and his Commission contrived to spend almost every penny without apparently benefiting anyone but themselves. Victoria House, the official offices, was situated upon the lake shore, a mile or more from the location of the nearest English exhibitor. Cablegrams from England addressed to exhibitors, care of the Commission, have been known to lie pigeonholed for a week and more after receipt, not one of the staff troubling to deliver them, or to intimate to the interested exhibitor that any sort of communication awaited him. The local management at Chicago by the U.S.A. over-worked officials was bad enough, goodness knows!—but our own administration was infinitely worse. Practically, it was *nil*. The average cost to every exhibitor at Philadelphia in 1876 has been computed at £800; at Chicago in 1893 it may be put down as £1,300.

A year after Chicago came the International

Exposition at Antwerp (1894). Very small in comparison to the former, its shows were of fair merit, but largely consisted of Chicago exhibits, shipped direct across the Atlantic to the busy Flemish port in question. Of the general management there, again the least said thereupon the better. English exhibitors, however, found a good friend in Sir Charles Malcolm Kennedy, C.B., who proved to be at least one right man in the right place; and who, seen and unseen, watched over British interests with a jealous eye.

And now, here in Paris, what of the coming exhibition? Well, notes upon that must be deferred until next week.

Rue de l'Arcade, March 18. HARRY HEMS.

## WESTMINSTER ABBEY ILLUSTRATED.

[WITH LITHOGRAPHIC ILLUSTRATIONS.]

DEAN STANLEY, Sir Gilbert Scott, and William Burges must continue to stand conspicuously to the forefront as authorities on the history and architecture of the famous abbey at Westminster. Others, like Mr. W. J. Loftie and Dean Bradley, in a minor degree have been more recently associated with popular volumes on the same engrossing subject, while Neale's History of the Abbey, issued in 1818, is still the most complete work on the history of the building. Messrs. George Bell and Sons have now published a really monumental work\* illustrative of this great church, its monuments and its buildings, giving a comprehensive account of its fabric and its dependent surroundings as they exist at the present time. Mr. Henry John Feasey has contributed an historical summary concerning what Mr. Bell calls "the noblest ecclesiastical building in England," describing the inception and growth of its fabric which has been so closely connected with the Nation's social affairs and personal story not only of many of the sovereigns of England, but of the leading clergy and laity alike. Mr. J. T. Micklethwaite, who succeeded the late Mr. J. L. Pearson, R.A., as architect to the Dean and Chapter, furnishes a valuable paper on the more technical and obscure points associated with the early history of the Abbey and its buildings. The author's connection with the church began many years since, when he acted as assistant to Sir Gilbert Scott,† and certainly no one now can claim to be better informed or more learnedly acquainted with this subject than Mr. Micklethwaite. Mr. Edward Bell, who writes the preface, acknowledges his indebtedness to his associates in this admirable enterprise, which he has served to render complete by an appendix, giving an account of such of the sepulchral monuments as may be considered, in respect to date and decorative features, to belong to the architectural history of the Abbey Church. A great feature of this volume is comprised in the full-page colotype reproductions of photographs executed by Messrs. Bolas, and some of the views—more particularly those of details—were taken expressly for this work under the direction of Mr. Micklethwaite. We are enabled to reproduce, on a reduced scale, four of the illustrations referred to, and before alluding to the volume more generally it may be well to quote some descriptive notes furnished with the plates herewith represented. When in 1502 and the following year, Henry VII. removed the Lady-chapel to make way for the costly and elaborate structure, which, in a much restored form, still remains, he also, prompted probably by the recent death of his wife, planned a magnificent chantry and tomb for himself and her. He had already, in the preceding year, begun a tomb of the same kind at Windsor in honour of his uncle, Henry VI.; but with the building of the chapel at Westminster this design was suspended; and in 1512 so much as had been executed by an English artificer was transferred to Westminster, and the completion of the monument was placed in the hands of the Italian artist Torregiano. The tomb itself "consists of a sarcophagus of black marble, divided by gilded bronze pilasters, on which rest the effigies of the King, and Elizabeth of York, his Queen, in

\* Westminster Abbey Historically described by HENRY JOHN FEASEY, with an account of the Abbey Buildings, by J. T. MICKLETHWAITE, V.P.S.A., Architect to the Dean and Chapter. An appendix on the Medieval Monuments, by EDWARD BELL, F.S.A., and seventy-five plates. London: George Bell and Sons, 1899. £5 5s.

† A list of the master masons and architects of the Abbey was given in the R.I.B.A. Journal, Dec. 20, 1898, compiled by the late Wyatt Papworth.



bronze. In the panels are bas-reliefs in bronze of the Virgin and Child, the Archangel Michael, the two St. Johns, SS. George of England, Anthony of Padua, Christopher and Vincent, the Magdalene, and SS. Barbara and Anne. These bas-reliefs are set in wreaths, carved out of the black marble. At the ends of the tomb are the armorial bearings of England, France, Wales, and Mortimer. All the details of this beautiful work, executed in bronze, are unmistakably Italian, and probably executed by Torregiano himself; but it is almost certain that in carrying out the accessories Torregiano employed English workmen." The screen surrounding the tomb is generally supposed to be the work of Esterfield, and it is likely that the great bronze doors between the chapel and the Abbey Church are products of the same English school. We publish an illustration of them, and at an early date will give some details to a good scale. Torregiano also made the high altar, supported on white marble pillars, and surmounted by a baldachino for the chapel, which was completed in 1522, but destroyed 120 years later. It stood at the head of Henry VII.'s tomb, and had angels above the cornice and Royal Arms. The frieze of the small altar erected by Dean Stanley, and two of the marble pillars which support it, are the only remaining relics of this work. In Dean Stanley's "Westminster Abbey Supplement," an interesting account is given of the opening of the vaults under Henry VII.'s monument in 1869. Our second photographic plate shows in the first half the north turret door of Henry V.'s chapel, which is located between the entrance to Henry VII.'s chapel, and the easternmost bay of the choir apse. The view is taken looking west, standing in the chantry, so that the rear side of the high altar screen is seen beyond the Confessor's chapel. The altar in Henry V.'s chapel was restored by Dean Stanley, who inclosed in it the remains of Queen Catherine of Valois, which underwent various translations, and for two centuries lay in an open coffin near the tomb of her husband. On either side of the altar and above it are recesses, once closed by shutters, and intended for the keeping and display of relics. Henry V. directed by his will that a "high chantry" should be built over his body in Westminster Abbey Church, and so it came about that this chapel, which now forms so striking a termination to the eastern extremity of the choir, was carried out over the ambulatory. The front of the structure is described by Mr. Bell as being somewhat in the form of a gatehouse, having an octagonal turret at each angle and an elaborately vaulted chamber or passage, containing the tomb, beneath an upper story, to which access is gained by stairs in the turrets. This was the "high chantry." In front, as will be seen by the view, it has only a low parapet, and was so designed that the priest during the services might be visible from distant parts of the church. The sides of this chapel are richly decorated with numerous figures in niches. The altar was dedicated to the Annunciation. On a beam above the chantry are still to be seen the helmet, shield, and saddle which formed part of the insignia carried at the funeral.

Our last picture represents the famous Jerusalem Chamber, of which no notice appears to be furnished in the present volume, excepting the incidental mention of the death of Henry IV., which occurred in this room on March 13th, 1413, of epilepsy, with which complaint he was attacked while praying before the tomb of the Confessor. The Jerusalem Chamber was the guest chamber for the abbot's house, and was erected by Abbot Littleington between 1376 and 1386. It most likely obtained its name from tapestry scenes of the history of Jerusalem, with which it was hung. Shakespeare gives the last words of Henry IV.:—

*King Henry:* Doth any name particular belong  
Unto the lodging where I first did swoon?  
*Warwick:* 'Tis call'd Jerusalem, my noble lord.  
*King Henry:* Land be to God:—even there my life must end.  
It has been prophesied to me many years,  
I should not die but in Jerusalem;  
Which vainly I supposed the Holy Land;  
But bear me to that chamber; there I'll lie;  
In that Jerusalem shall Harry die.

2 Henry IV. Act IV. Sc. 4.

Dean Williams, in the time of James I., decorated this beautiful old room, but the glass in the windows is more ancient. The panelling is in cedar, and over the chimney-piece in the modern painted frieze is a representation of the death of Henry IV., with the legend formed by the

last line in the above quotation. These decorations include a representation of the coronation of Queen Victoria. The plaster ceiling was removed in Dean Stanley's time, and the present open timber roof was decorated in colours. For many years previous to the erection of the Church House, Dean's-yard, Convocation held its meetings in the Jerusalem chamber. Episcopalians and Presbyterians met there for ecclesiastical disputations during the 17th century, and the Royal Commission on ritual was held in this room in 1867.

The paper included in the volume before us, from the pen of Mr. Micklethwaite, is illustrated by plans drawn by the author. The first shows a suggested arrangement and extent of the older or Confessor's church, dating from 1055 to 1220, and a section is also furnished. A view is given in this connection of the still-existing chamber of the Pyx, so named from the chest in which sample coins from the Mint reserved for trial were deposited, and which at one time was kept there. It was, however, the Monastic treasury, and passed to the Crown only at the dissolution of the abbey. This apartment was formed in the 13th century out of two bays of the vaulted basement of the dorter built in the 11th. There had been an earlier division of the basement. Mr. Micklethwaite relates in detail his painstaking history, giving his authorities and a ground plan of the existing buildings, which, broadly speaking, date from 1055 to 1512. A longitudinal section which displays by varied hatchings the main general periods of its parts, is also printed with the text. The church as it stands comprises three distinct buildings, the construction of which extended over a period of one hundred years, and was practically completed in 1410. Henry III. built the east end. Edward I. carried on the work, the nave being added by Richard II. and Henry V., or, properly speaking, that portion left incomplete by Edward I.; the chantry of Henry V. and the chapel of Henry VII., by order of the monarchs bearing those names. Sir Christopher Wren rebuilt the north transept front, now pulled down and replaced a few years' since by the design of the late J. L. Pearson, R.A. One of Wren's pupils (Hawkesmoor) built the western towers under George II. Sir Gilbert Scott, who lies buried in the nave by the side of Sir Charles Barry and G. E. Street, rebuilt the Chapter-house, a work begun in 1866, and Scott also refurnished the altar and choir as they now stand at that time. He also did the new north portals and erected the pulpits. Sir Christopher Wren's drawing of the north transept was published in the BUILDING NEWS for October 26, 1888. The restoration work of the west front and towers is now in process of doing under the direction of Mr. Micklethwaite.

With regard to Messrs. Bell's charming volume, we may add that it is admirably produced in green linen, with a parchment backing. The printing and type leave nothing to be desired. The photographic views in almost every instance are excellent, and, what is more, they are taken from really important points of view, and always illustrate something worthy of record. It would have been an advantage to the general reader to have had the various positions indicated on a key-plan with the numbers of the plates figured for reference. Unfortunately, as it is, the plates themselves are not numbered, and the index at the end of the book is too sparse to be of much use. Every architectural library will remain incomplete without this book. It would grace the shelves of any collection of art volumes. In America, we can understand Bell's "Westminster Abbey" meeting with a large demand. The Chapter-house interior should have been included among the illustrations, as it forms a very important part of the Abbey buildings, even if some people wish it had not been restored.

The following references may serve to assist those who are particularly interested in the subject. We have published from time to time many illustrations of the Abbey, and without a key of this kind it is not easy to look up any special point; we therefore add a list made up to date:—

The following illustrations of Westminster Abbey have appeared in the pages of the BUILDING NEWS:—Ground plans, July 2, 1869, and May 16, 1884; do. of conventual buildings (by late Rev. Mackenzie E. C. Walcott), May 31, 1872, and March 3, 1876; do. of St. Catherine's chapel, June 28, 1872; do. of apse (by late G. E. Street), May 30, 1879; ancient views by Braun (1872) and Faithorne (1669), June 28, 1878; west front, Jan. 15, 1886; Wren's autograph drawing of north front, Oct. 26, 1888; north transept exterior (the late Herbert E. Gribble, sketch-book series, Nov. 17), Feb. 4, 1870; north transept,

as restored by Scott and Pearson, 1877-91, June 5, 1891; do. (drawing by the late J. L. Pearson), Dec. 9, 1892; Nathaniel Hitch's new statues for same, April 10, 1891; north transept (the late Sir G. G. Scott's restoration, May 3, 1879; east end of choir, Jan. 22, 1880; choir from apsidal chapel (R. J. Johnson), April 17, 1885; three interiors, choir, north transept, and north aisle of choir (Herbert Railton), Jan. 1, 1892; bay of choir (Sydney Vacher), Jan. 15, 1877; St. Edward's shrine in the 14th century (T. H. Longfield), Sept. 10, 1875; Islips Chapel (A. Needham Wilson), May 30, 1889; doorway to St. Erasmus' Chapel (A. Bennett Bamford), Dec. 6, 1889; restoration of Henry III.'s tomb (T. H. Longfield), April 1, 1887; tomb of Aylmer de Valence (H. G. Drinkwater), Aug. 23, 1873; do. (by T. Miller), Feb. 6, 1880; iron grille, Queen Eleanor's tomb (T. F. Pennington), Aug. 8, 1879; iron grille in Henry V.'s chantry (G. A. T. Middleton), May 20, 1893; gates of Henry VII.'s Chapel (G. E. Lawrence), April 10, 1885; panel in Henry VII.'s chapel (I. J. Phillips), July 30, 1880; bay of south transept and triforium carvings (J. Atwood Slater), Jan. 12 and 19, 1883; do. upper arcade (the late Jas. Hicks—sketch book series No. 14), Jan. 14, 1870; diagram of groined vault of nave (Lawrence Harvey), Nov. 17, 1893; pulpit (Sir G. G. Scott's new), Sep. 12, 1862; memorial brasses (to Sir Gilbert Scott), Sep. 1879; (to G. E. Street), Oct. 10, 1884; carved dragon from a tomb, Jan. 15, 1888; cloisters, north walk of (W. H. Lockwood), April 12, 1872; do. (by J. McLaren), Feb. 15, 1884; do. lavatories in south walk of cloister (A. Needham Wilson), April 3, 1885; chapter-house entrance (M. Allen), Jan. 27, 1881; do., panel in doorway (T. F. Pennington), July 23, 1870; proposed Campo Santo (Sir G. G. Scott's design), Feb. 29, 1884; do. (J. L. Pearson's design), perspective and plans, Dec. 26, 1897.

## THE SURVEYORS' INSTITUTION.

AT the ordinary general meeting of the above-named institution, held on Monday evening last, a paper was read by Colonel Raikes on "Valuation and Rating in Respect of the Tithe-Rent Charge," based on the preliminary report of the Royal Commission on Rating. The author commenced by giving a history of tithes in England and the purposes for which they were enforced, being at first devoted to "the maintenance of the Church's fabric, the use of the bishop and the incumbent, and also, to some extent, to the feeding of the poor and the entertainment of strangers." When Henry VIII. dissolved the monastic or religious houses, the "appropriated" tithes were vested in the Crown, and afterwards granted partly to religious foundations and partly to lay-rectors or "impropriators." The maintenance of the poor had, previously to 1536, legally devolved upon the evenness of the vicars or secular clergy, supplemented by the alms of the monasteries, collegiate churches, hospitals, and cathedrals. It then became necessary to provide other means for their maintenance, and by the Act of 27 Henry VIII., it was enacted that in every parish voluntary or charitable alms should be collected for this purpose, and provision was made to "compel all and every the said sturdy vagabonds and valliant beggars to be set and kept to continual labour, in such wise that they and every of them may get their own livings with the continual labour of their hands." These alms were only to be "gently asked or demanded"; but as they proved insufficient, in 1562 the bishop was empowered to commit to general sessions all who obstinately refused to pay, with a view of having them sent to prison if they still remained in arrear. In 1572 the first assessment was made of all inhabitants to poor-rate, and in 1597 the burden of relieving the poor became compulsory. In 1601 the famous Act 43 Elizabeth was passed, by which parsons and vicars were mentioned specifically as liable to be rated as inhabitants, according to their ability, but not as appropriators of tithe, whereas the impropriate tithes—i.e., those held by lay rectors and separated from the benefice—were, together with coal mines and saleable underwood, specifically mentioned as taxable, all other mines and woods being exempt till 1874. But the parsons' tithe, being taken in kind, was readily cognisable, and he gradually came to be rated on this tithe in the same way as the lay impropriator. By 1840 the custom of rating tithe had become so general that all attempts to evade payment were futile. Although until 1836 tithe had been generally paid in kind, it had in some few cases ceased to be so in consequence of the expense and the bad feeling frequently engendered. But the Act of that year substituted a rent charge based on the estimated value of the old tithe, and varying from year to year with the price during the previous seven years of the principal cereals—wheat, barley, and oats. This charge had varied with the varying fortunes of agriculture, the average from 1836 to 1898 being 97 per cent. of the amount fixed in the former year. At the present value of £100 of tithe rent, charge was only £63, while rates had probably increased by 30 per cent.



during the 62 years, and the description of tithe rent-charge as a "fixed income," which a Royal Commission had recommended should on that ground be free from new or additional rates, must, the author thought, sound somewhat illusory to the present tithe owners. Tithe owners contended that a deduction in assessing rent-charge should be made of 15 per cent. for rates, repairs of chancel, expenses of collection, &c., and 30 per cent. for tenants' profits—i.e., personal services, and that the tithe should be dealt with as land, in order to have the benefits of the Agricultural Rates Act, including the return of the proportionate rates paid since the Act came into force two years ago, but the author, while not being able to contend that the tithe should not pay rates, thought that if 5 per cent. were deducted for cost of management and collection, and 50 per cent. off the rates to cover all other claims, few tithe owners would complain.

A discussion followed, in which Messrs. E. P. Squarey, A. Buck, Rev. Lamplugh, J. H. Sabin, H. M. Grellier, and E. W. Peterson took part.

While we are going to press there are being examined at the temporary premises of the Institution some 300 candidates for the Professional Associateship and the Fellowship. The outdoor work in surveying and levelling, and in practical timber valuing and measuring, occupied the whole of Monday and a portion of Tuesday, and this part of the examination was conducted in the fine park of Osterley, near Isleworth, by the kind permission of the Earl of Jersey.

#### THE APPOINTMENT OF SUPER-INTENDING ARCHITECT, L.C.C.

**A**FTER months of inquiry and hesitation, the London County Council have selected a successor to Mr. Blashill, their superintending architect, in the person of Mr. W. E. Riley, assistant permanent director of engineering works at the Admiralty. Last autumn, it will be remembered, the County Council advertised for candidates, offering a salary of £1,500 a year; but, although nine gentlemen were selected by the General Purposes Committee from the 68 architects who responded to the advertisement, it was thought no one of them possessed the exact qualifications for filling the office. It was then resolved to increase the proposed salary to £2,000 per annum, and 43 applications were sent in. These were weeded down to nine, who were interviewed by a sub-committee, who further reduced the number to four. The committee submitted to the County Council on Tuesday the names of Messrs. Frederick R. Farrow and W. E. Riley, and recommended that the latter gentleman should be appointed to the post.

When the recommendations came up for consideration at the Council meeting, some objections were taken to the proposed appointment on the ground that the selected candidate had had little experience in dealing with the London Building Act. Mr. Richard Strong (chairman of the committee) pointed out that Mr. Riley had had large experience at the Admiralty in regard to different kinds of architectural work, some of which had been carried out by the direct employment of labour and some by contract. Every investigation had been made into his qualifications, the result being highly satisfactory. He felt sure that Mr. Riley would be competent to deal with any of the Council's work which might come before him. The recommendation of the committee was adopted, and Mr. Riley, having been called in, briefly returned thanks for his appointment.

Mr. William Edward Riley, A.R.I.B.A., M.Inst.C.E., the newly-elected administrator of the London Building Act and architectural adviser to the London County Council, is 46 years of age, and was born at Ossett in the West Riding in 1852. Mr. Riley was articled in 1868, and having served four years in a provincial town with an architect and engineer, obtained an appointment as architect's assistant in the office of Messrs. Beek and Lee, of Finsbury-circus, E.C., with whom he remained two-and-a-half years; and at that period personally designed some important blocks of workmen's dwellings for the Improved Industrial Dwellings Company. Another like period of two and a half years was devoted to general practice. In April, 1877, Mr. Riley was the only successful competitor in an open examination for the appointment of architectural draughtsman in the department in which he has during the subsequent twenty-two years risen

through every executive grade to the highest possible position, that of senior permanent civil officer, a position attained some three and a half years ago. The syllabus for the competitive examination includes the history and styles of architecture, drawings, designs, and details of architectural works and ornaments; strength and use of constructional materials, specifications, measurement of quantities, and estimates of cost of building works. He also passed in 1882 the voluntary examination of the Royal Institute of British Architects, and was elected an Associate, his sponsor being Mr. Blashill. Mr. Riley has had exceptional and varied experience in building operations at home and abroad, having had independent charge of the whole of the Admiralty works at Bermuda, Chatham, Portsmouth, Devonport, and Malta collectively for nine years, and during the last three years he has had the personal charge of the whole of the Coastguard buildings, designs, and contracts in Great Britain. Among the recent designs made either personally



MR. W. E. RILEY.

by Mr. Riley or under his direct control are those for several important buildings in Malta requiring sympathetic treatment to avoid violating the historical surroundings; the extension of the Naval Engineering College at Keyham, and the new Observatory buildings at Greenwich. At 21, Northumberland-avenue, Mr. Riley has gained the character of an exceptionally hard worker, and one, therefore, able to obtain from his staff willing and efficient services, combined with efficient control and economical administration of the department.

The design of Messrs. Atkinson Bros., of Newcastle-on-Tyne, has been selected for the stained-glass window to be erected in St. Silas's Church, Heaton, an offering from the children and Sunday-school teachers. The subject of the window is "Christ Blessing Little Children."

A model house erected by the corporation was opened at Stonehaven last week. It has been built from designs by Messrs. J. and J. A. Souttar, architects, of Aberdeen, is situate in Allardice-street, provides 40 cubicles, and has cost £1,400.

The contract for the erection of workshops and offices at Hadley, near Wellington, Salop, on the site of the old Castle Ironworks, has been secured by Messrs. Hughes and Sterling, of Liverpool, and the cost of the buildings alone will be between £30,000 and £40,000. The work is being done for Messrs. Milnes and Company, of Birkenhead, and it is proposed to manufacture tramcars, omnibuses, &c., in which occupation about 600 or 700 hands will be employed.

The Court of Appeal (Lords Justices A. L. Smith, Collins, and Romer), dealing on Saturday with cases under the Workmen's Compensation Act, decided that a county-court judge who had disposed of a matter under the Act could not grant a new trial. In these cases the judges, under the Statute, sat as arbitrators, and were not vested with their ordinary county-court jurisdiction.

#### COMPETITIONS.

**FLETON.**—For the new board school to accommodate 600 children, seven competitive sets of plans were submitted, and those by Mr. W. Boyer, of Cowgate, Peterborough, have been selected.

**THE LEEDS NEW MARKET HALL COMPETITION.**—The markets committee has resolved to apply to the President of the Royal Institute of British Architects, requesting him to nominate three gentlemen, any one of whom the committee might invite to act as assessor.

#### PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL SOCIETY OF GLASGOW.**—Mr. James A. Love Tindal, writer, Glasgow, delivered a lecture last week before the architectural branch of the Glasgow Philosophical Society, at the Society's Rooms in Bath-street, Glasgow, his subject being "The Workmen's Compensation Act, 1897, so far as it Affects Builders and Architects." Mr. P. Macgregor Chalmers, president, occupied the chair. The lecturer said that by the Workmen's Compensation Act of 1897, workmen were practically insured at the expense of their employers and the trade, and as a necessary result, at the expense of the consumers of the commodities produced by that trade. So far as the 1897 Act was concerned, the law of negligence might have had no existence, as a workman coming under the Act was entitled to compensation irrespective of negligence or carelessness on his part, so long as he was not proved to have been guilty of serious and wilful misconduct. The Act was probably the commencement of a system of compulsory restrictions on the freedom hitherto exercised by employers and their workmen, and further legislation extending and emphasising the principles which it promulgated might be expected. Mr. Tindal thereafter took the Act clause by clause, explaining the effect of each specially with regard to the building trade, and pointed out various conditions which restricted the operation of the Act, particularly that its provisions would not apply unless the building being constructed, repaired, or demolished exceeded 30ft. in height. A discussion followed.

#### CHIPS.

The gas committee of the town council of Leeds propose an expenditure of £111,630 for the extension and enlargement of mains required during the next five years.

The corner-stone of the electric-lighting station in connection with the Barnsley Town Council's scheme for supplying electric light and energy was laid on the 9th inst. The town council have obtained power to borrow £25,000, and the premises now being erected in Beckett-square from designs by the borough surveyor will house an installation capable of supplying 6,000 8-candle-power lamps, and will be capable of extension.

Colonel A. G. Durnford, R.E., held a Local Government Board inquiry at Ilfracombe on Friday concerning an application by the urban district council to borrow £5,659 for public improvements. It was proposed to spend £3,156 on street improvements, £1,340 on public walks and pleasure grounds, £607 on water supply, £507 for new sewerage works, and £39 on the fire brigade.

The West Lancashire Rural District Council met at Ormskirk on Monday to make the final selections for the offices of surveyors over the highways rendered necessary by the taking over of the powers of the highway boards in the district. For the chief surveyorship (the starting salary of which is £150 a year) six had been selected, and Mr. Charles Law-Green, A.M.I.C.E., of Croydon, was appointed. For the Ormskirk district, Mr. Hugh William Chadwick, of Croston, was unanimously appointed, and the remaining appointments were as follows:—Southport district, Mr. John Orritt (surveyor to the present highway board); and Tarleton sub-district, Mr. William Banks, of Chapel-lane, Tarleton.

The Light Railways Commissioners held an inquiry in the town-hall, Rhyl, last week, respecting an application made to lay a light railway between Rhyl and Prestatyn. The proposed railway will commence at the East Parade near the Westminster Hotel, then proceed along the Marine Drive, pass the Golf Links, and on to Prestatyn, where it will terminate in High-street. The length will be three miles and five furlongs, of which two miles and seven furlongs will be a single line; the remainder will be doubled. The railway will, if sanctioned, be worked by electrical power, on the overhead trolley system, and the gauge will be 3ft. 3in. The estimated cost is £26,000.



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## ILLUSTRATIONS.

WESTMINSTER ABBEY.—NEW PALACE OF JUSTICE, BUDA-PESTH.—NEW HOSPITAL, BOSCOMBE.—HOUSE NEAR MANCHESTER.—HOUSE AT HERNE BAY.

## Our Illustrations.

WESTMINSTER ABBEY.

(See review on page 404.)

NEW PALACE OF JUSTICE, BUDA-PESTH.

We published the plan and three views of this grand group of legislative buildings in our issue for Feb. 17 last, when we printed an account of the undertaking, which was carried out by the Hungarian Government at a cost of £295,000. To-day we give a view of the grand staircase, with Mr. Alajos Strobil's figure of "Justice" in the central bay of the arcade, facing the entrance of the great hall. A reference to the plan will explain how this staircase rises from the right and left-hand sides of the hall. Prof. Alois Hauszmann, Hon. Cor. Member of the R.I.B.A., is the architect of the work. We are indebted to Mr. Ernst Wasmuth, of Berlin, for the loan of the colotype view herewith reproduced. It forms one of the plates in the last part which he has sent us of Mr. Hugo Licht's "Architektur der Gegenwart," a folio assemblage of contemporary buildings of the greatest interest to those engaged in building operations.

NEW HOSPITAL, BOSCOMBE, BOURNEMOUTH.

THIS Hospital has been designed on the pavilion system, and in order to obtain efficient basement ventilation the entire building is raised on piers and arches, the floor level being 7ft. above the ground, with the exception of the main corridor, the space under which will be utilised to carry the water-gas and electric mains. In order to provide for future extension, the walls of the pavilions will be built of sufficient strength and thickness to carry additional floors over when the necessity for increased accommodation demands. The hospital provides for 34 beds, with provision to increase the number to 68. The buildings will be of red brick and Douling stone, with green Westmoreland slate roofs. Fireproof construction with terrazzo finish has been provided in the floors throughout. It is proposed to proceed with the first section, comprising two of the pavilions with the necessary corridor and offices, and the separation ward forthwith. The architect is Mr. G. A. Bligh Livesay, of Bournemouth, whose design was successful in the preliminary scheme for remodelling the existing hospital.

HOUSE NEAR MANCHESTER.

THIS house, about to be erected, has been designed with the entertaining rooms towards the garden, as the site had a north aspect. The ground story will be faced with first-quality red Accrington bricks set with a weathered joint, the first story being tile-hung with best red Ruabon weather tiling, and the gables will be executed in half-timber work of red deal. The roof will be covered with best Broseley tiles. The stable block will be faced with "white ends," with arches,

bands, quoins, &c., of red Accrington bricks. The architects are Messrs. C. K. and T. C. Mayor, of John Dalton-street, Manchester.

HOUSE AT HERNE BAY.

THE drawings show the plans and front of a house facing the sea, now being erected on the East Cliff at Herne Bay, for Mr. Charles Chalmers. It is faced with red bricks, with red Bowstone dressings, and covered with Broseley tiles. The house is most pleasantly situated—just on the rise of the hill on to the Downs. Mr. C. E. Skinner, of Chatham, is the builder, his contract price being £3,800, and Mr. G. E. Bond, of Rochester, is the architect.

\*\* THE illustrations of the Crown Theatre, Peckham, in our issue of the 10th inst., were reproduced from photographs by Messrs. S. B. Bolas and Co., who have written demanding this acknowledgment. We had no knowledge of the fact at the time, or should, of course, have willingly appended their name. Architects, when sending us photographs, should kindly mention the name of the photographer, or we may quite innocently infringe copyright, which is the last thing we desire to do. Architects will do well to bear in mind that, although they may employ a photographer to photograph a building for them, the copyright of the photograph is *his*; and they will do well to stipulate for the right to reproduce it in our pages or those of the other professional journals, or they may occasionally land us in a difficulty.

Mr. E. A. Sandford Faucett, one of the inspectors of the Local Government Board, held an inquiry on March 6 at Sevenoaks, as to sanction for a loan for £1,800 for the erection of houses under the provisions of the Public Health Act, 1875, and the Houses for the Working Classes Act, 1890. The land, 2 roods 38 perches in extent, will be purchased for £160 from the rector. The estimate of Mr. Constable, the builder, for the erection of six cottages is £1,463 10s. 9d., and the architect's charges will bring the total expenditure up to about £1,750. The rent of the cottages will be 5s. per week.

A new church of St. Faith is in course of erection at Waterloo, Liverpool, at the sole cost of Mr. Douglas Horsfall. The architects are Messrs. Grayson and Ould, and the contractors are Messrs. Roberts and Robinson, both of Liverpool. The style adopted is Decorated Gothic of a simple nature. The nave will seat 650 worshippers, and the total accommodation, including choir and transept, will be 800. The materials used are red Runcorn stone and red Accrington bricks, with hammer-beam roof, the thrust from which is transmitted by flying buttresses to the aisle walls. The church is now about half-built.

The Board of Trade have recently confirmed the following orders:—North Shields, Tynemouth, and District Light Railways Order, 1898, authorising the construction of light railways in the townships of Chirton, North Shields, Tynemouth, and Cullercoats, and the urban district of Whitley and Monk-eaton; the Leek, Caldon Low, and Hartington Light Railways Order, 1898, for the construction of light railways from Cheddleton Junction, on the North Staffordshire Railway, to Caldon Low and Hulme End; and the Kinver Light Railway Order, 1898, authorising the construction of light railways from Stourbridge to Kinver.

Mr. Henry Holliday has just completed a large altar picture of the "Last Supper" for the decoration of the east wall of Kirby church, near Liverpool. The work is executed in glass mosaic, framed with a border in opus sectile, in which symbolic figures are treated in a rather more decorative and conventional manner than in the picture. The material is for the greater part the dead glass manufactured by Messrs. Powell and Sons; but the designer has introduced some American glass having the variety of colour and character of onyx.

At the last sitting of Glasgow Dean of Guild Court 45 new cases were passed, the valuation amounting to £166,000. A lining was granted for the erection of a botanical laboratory at the University. The lecture-theatre will have accommodation for 256 students, and there will be a laboratory with tables for 100 elementary students, and a smaller laboratory for advanced students. The other rooms include a museum, herbarium, bacteriological laboratory, professors' and assistants' rooms, and workshop. There will be accommodation for 420 students.

The Light Railway Commissioners, who held an inquiry into the proposed Trent Valley Light Railway on Feb. 16 last, have granted the application as applied for in the Order deposited with them in November last. The engineers are Messrs. Jeyes and Godden.

## OBITUARY.

THE death occurred at Paris, on Thursday evening in last week, of M. KRANTZ, at the age of 82. He was born at Givet, Ardennes, and was educated at the Polytechnic School, Paris, as a civil engineer. In 1867 he designed for the International Exhibition a building so constructed that by walking round its ring the visitor could see everything exhibited of a particular class, while by striking down from the circumference to the centre he saw the entire products of a particular country. M. Krantz also assisted in improving the navigability of the Seine, and during the siege of 1870 he constructed bridges to facilitate sorties. In July, 1871, he was elected a Deputy for the Seine, and drew up various reports on railways. In December, 1875, he was elected a life Senator, and in 1878 he was Commissioner-General of the International Exhibition. His nephew, M. Camille Krantz, is now Minister of Public Works.

## CHIPS.

There has been introduced into Roseburn Free Church, Edinburgh, a two-manual pipe-organ, built by Mr. James J. Binns, Bramley Organ Works, Leeds. The total number of speaking stops is 20, number of pipes 1,097, couplers and accessories 15. The organ is built in the recess of the north gallery. The case is of fine pitch-pine, with bays of silvered pipes.

The City Court of Common Council have decided to spend £2,000 in extending the newspaper-room at the Guildhall Library and improving the lavatory accommodation in connection therewith.

New branch premises have just been completed for the London and Westminster Bank at the corner of City-road and Old-street. Up to the first-floor cornice the building, which is Italian in treatment, is constructed in red and grey Aberdeen granite, while the upper part is in red brick with Portland stone piers. The building consists of three stories, the apartments over the ground floor forming the club premises for the Finsbury Central Club. Mr. Bennett, of Cheapside, was the architect; Messrs. J. Grover and Sons, of New North-road, were the builders; and Mr. E. Seale, of Camberwell, executed the carving.

A new Liberal clubhouse is being erected in Hatfield-road, St. Alban's, from plans by Mr. S. N. Edwards. The building covers an area of 32ft. by 50ft., and is two stories in height, the style being domestic with steep tiled roofs. The facings are of brickwork and rough cast cement. Mr. E. Dunham has taken the contract at £878.

The commissioners under the Light Railways Act have authorised the construction of a light railway from Trowse to Beccles, *via* Loddon. The projected railway is 17½ miles in length, and is to be constructed on a gauge of 4ft. 8½in. The speed is not to exceed 25 miles an hour. Junctions will be made with the Great Eastern Railway system at each extremity of the line.

The memorial to the late Lord Leighton, which Mr. T. Brock, R.A., has in progress, shows an effigy of the artist on a sarcophagus. At the head is a figure of Painting, and at the feet Sculpture. The commission for the memorial statue to Millais, which will be erected at the Tate Gallery, Millbank, has also been intrusted to Mr. Brock.

A carved-oak chancel screen has just been erected at Holy Trinity Church, Chester, and is the only chancel screen at present in any church in the city. It is of 14th Century character, and light in design. There is a wide central doorway, with four bays on either side, all surmounted by crocketed gables, the middle one being carried considerably higher than the others, and crowned by a cross. A feature is the large number of carved statues that occupy the niches (all cut in the solid timber) upon the eastern as well as the western face. The work has been executed by Messrs. Harry Hems and Sons, of Exeter.

The retirement will shortly take place of Mr. Harold Copperthwaite, J.P., of York, engineer to the North-Eastern Railway Company, which position he has held since 1874, when he was appointed to succeed Mr. Thomas Cabry as engineer of the southern division.

The Admiralty have sanctioned extensive new works in Devonport Dockyard; £25,000 will be spent on new workshops and preparations for another building slip; and the Keyham machine shop, brass foundry, and police quarters are to be extended at the cost of £12,000. At the Royal Naval Barracks, Keyham, a church is to be built at a cost of £8,000. In Stonehouse £13,000 is to be spent in extending the Royal Marine Barracks, over £60,000 in increasing the accommodation at the Royal Naval Hospital, and £16,000 on the new coopers at the victualling yard.



## Engineering Notes.

**LEEDS.**—In July electric tram-cars will probably be running on the Chapeltown and Headingley routes. Rapid progress is, says the *Leeds Mercury*, being made with the extensions to the electric generating station at Crown Point. The existing premises are being more than doubled in size, and workmen are putting the roof on to the new portion. When this is complete, the two apartments will be thrown into one. This will form one of the finest engine-rooms in the country. The size of the engine-room will be about 100ft. by 88ft. Built of red brick, it is lined with glazed bricks. The additional plant will include four new boilers, two 1,200H.P. power engines, and further dynamos. When all is finished, the station will be able to supply power sufficient to run 100 electric cars. Messrs. Gould are doing the building work, Messrs. Fowler have the contract for the engines, Messrs. Greenwood and Batley that for the dynamos, and Messrs. Clayton, Son, and Co. are supplying the boilers. The city engineer, Mr. T. Hewson, is superintending the carrying out of the work.

**PENARTH.**—A subway, 6ft. in width, and with 6ft. 6in. of headway, is being constructed under the River Elyat Penarth, to afford better pedestrian communication between the Docks and Cardiff. The Greathead system is adopted, and cast-iron segments are used instead of steel for the lining. The subway will be reached by an inclined plane on either side. The tunnel is nearly 50ft. below high-water mark, and will have a total length of 1,250ft., with an external diameter of 10ft., and a clear internal diameter of 8ft. 10in., the space of 2ft. 10in. outside the footway being utilised for four pipe lines conveying the company's hydraulic power, gas, and water from the dock works to the harbour and other Taff Vale property across the river. The gradients at each end are 1 in 9, and under the bottom of the river bed they are to be connected by a vertical curve of 800ft. radius. The engineer is Mr. George T. Sibbering, M.I.C.E., of the Taff Vale Railway Company, and the contractor Mr. Thomas Taylor, of Pontypridd. The work has been in progress about two years, and two-thirds of the boring operations are completed.

### LEGAL INTELLIGENCE.

**ABBEY MANSIONS ONCE MORE.**—William R. Rickard, the builder of Abbey Mansions, Victoria-street, again appeared before Mr. Marsham at Westminster Police-court on Monday to summonses with respect to alleged breaches of the Building and Dangerous Structures Act. The proceedings really had reference to the condition of the building at the early part of last year. It may be remembered that Mr. Marsham dismissed summonses supported by the district surveyor, Mr. E. Dr-Drury, holding that the buildings, as Crown property, were exempt from proceedings. A special case was stated, and the matter was now remitted to the magistrate, his view of the matter as to Crown property not being upheld by the superior Court. Pending the decision of the High Court, there were further proceedings before Mr. Marsham, and the matter was referred to arbitration. The arbitrator decided in favour of the views of the district surveyor, and the County Council now asked for the costs of these proceedings, it having cost £49 to take up the arbitrator's award. A mass of evidence had to be taken as to the condition of the premises last year, and as to the alleged excessive height, Mr. Avory contending for defendant that the building had not been erected to a height greater than 80ft., exclusive of ornamentalations. He also submitted that the erection of the building was a clear case of acquiescence on the part of the Council, which amounted to consent. Mr. Marsham said he should see the buildings, and would give his decision a week hence.

**ARBITRATION RELATING TO UNEXECUTED WORKS INVALID.**—*DAVIS V. WITNEY URBAN DISTRICT COUNCIL.*—Sitting in the Court of Appeal on the 15th inst., Lords Justices A. L. Smith, Collins, and Romer gave judgment in this case, the plaintiff's appeal from a judgment of the Divisional Court, consisting of Justices Ridley and Channell. It was an action on an award, certain questions of the defence and reply on which had been set down for argument by an order of a Master in Chambers. The urban district council in April, 1897, gave the plaintiff notice that they proposed, under powers given them by the Public Health Act, 1875, to make a new sewer, part of which would pass under some fields belonging to her. In September, Mrs. Davis claimed £300 as compensation for injury and damage that would be suffered by her by reason of the

intended construction and extension of the proposed sewer through her property, and that she required an arbitration. The lady also gave notice that she had appointed her arbitrator. The matter went to arbitration; but, before the award was made, the council abandoned the scheme, and gave notice to the plaintiff of their decision. The arbitrators, however, made their award, and directed the council to pay the plaintiff £10 in discharge of all claims for damages or compensation, the costs of the arbitrators, and also to pay the costs of the plaintiff as between solicitor and client. The defendants alleged that the award was bad, for while purporting to be an award under the Public Health Act, 1875, as to arbitration, it awarded the plaintiff compensation in respect of matters which were not the subject of compensation under the Act—namely, in respect of facts, matters, and things intended to be done, but never in fact done, by the defendants. The works had never been executed, and the arbitrators had no jurisdiction to make an award at all. The plaintiff showed that she had by the receipt of the notice incurred, with the costs of the arbitration, a loss of about £250, and she contended that she was, by the Public Health Act, 1875, entitled to be compensated for this loss by the defendants. Mr. Justice Ridley held that the award was bad, that the plaintiff was not entitled to the £10 awarded for damage or injury, nor could the plaintiff recover her costs under the award. Mr. Justice Channell agreed on the first but not on the second point, but, as he was the junior judge, he withdrew his judgment. The plaintiff thereupon brought this appeal. Lord Justice A. L. Smith, in giving judgment, said it was on the assumption that the work would be executed that the matter went to arbitration. As the sum of £10 so awarded could not be recovered, because the work had never been begun and had been abandoned, the part of the award dealing with the costs must go by the board also. Lord Justice Collins concurred. Lord Justice Romer said he agreed; but he desired to point out that the Act gave the landowner power to go to arbitration, and get compensation, if the landowner could show that damage had ensued by reason of the receipt of the notice of intended works. Lord Justice A. L. Smith concurred in the view expressed by Lord Justice Romer, that the plaintiff had a right to seek compensation still for loss arising from the service of the notice. Lord Justice Collins agreed. In the result, therefore, the plaintiff's appeal was dismissed, the Lords Justices supporting Mr. Justice Ridley's view that this award of the arbitrators appointed on the assumption of the work being executed was wholly invalid and could not be enforced.

**ANOTHER WORKMEN'S COMPENSATION ACT APPEAL.**—*HODDINOTT V. NEWTON, CHAMBERS, AND CO. (LIMITED).*—This case was first heard in the Court of Appeal on Saturday by Lords Justices A. L. Smith, Collins, and Romer, and was the employers' appeal from an award made by Judge Lushington, sitting as arbitrator under the Workmen's Compensation Act, whereby the workman received £243 as compensation. Mr. Bray, Q.C., in support of an appeal, said the workman had originally sought compensation for injury he sustained while engaged on a temporary erection, fixing some iron stays in a stable which had recently been built for the London General Omnibus Company. The grounds of the appeal were that the workman at the time was not engaged either "in repairing or constructing a building," nor was the building "thirty feet high." The question turned upon the actual "height of the building," and the level from which this height should be extended, and in the end the hearing was adjourned pending a production of a model of the stables.

**A SLATING CONTRACT.**—*BROADBENT AND CO. V. SAUNDERS AND CO.*—This action, tried by Mr. Justice Day on Saturday, was brought to recover £50 for work done and goods supplied upon a contract dated July 26, 1898. The defendants had a contract with the Admiralty for the erection of a new coastguard station in the Isle of Grain, Kent. They requested the plaintiffs to give a quotation "for about 80 squares of slating, to be used in the erection of a new coastguard station, Isle of Grain." The plaintiffs quoted 38s., and the defendants accepted. On October 27, 1898, the terms of payment were fixed by memorandum, signed in the name of the defendant firm, as follows:—"Oct. 27, 1898. In consideration of Broadbent and Co. doing the slating at Isle of Grain, I undertake to pay £50 when slates are delivered, £50 when the job is half-done, £50 when the job is completed," and the balance to be paid by acceptance. The present claim was for the second £50, the plaintiffs alleging that more than 40 squares of slating had been done, and that 32 squares only remained for completion. Mr. Lewis, for the defendants, contended that the contract was to execute the slating upon the specific works, and that the reference to "about 80 squares" in the correspondence was only an estimate of the probable amount of slating required, and was intended as a *minimum* upon which to enable the plaintiffs to give a quotation. The contract was not limited to 80 squares, and, as a fact, 113 squares

would be involved in the completion of the contract, and until half this work had been done the defendants' liability had not arisen. The defendant, Mr. Saunders, and his foreman gave evidence that less than 40 squares had, in fact, been executed; but the latter in cross-examination admitted that he had signed and given a memorandum to the plaintiffs that 41½ squares had been done, and that 24 squares only remained for completion. Mr. Justice Day said that there must be judgment for the plaintiffs. Judgment accordingly.

**IN RE ROBERT GOOCH, OF SOUTHEAD.**—A meeting of the creditors of Robert Gooch, builder and contractor, Southend-on-Sea, was held at the London Bankruptcy-court, on Thursday in last week, the Official Receiver, Mr. Cecil Mercer, presiding. The statement of affairs showed gross liabilities £1,792 0s. 7d., of which £2,418 3s. 6d. is estimated to rank for dividend. There are fully-secured creditors to the extent of £2,227 17s. 3d., partly-secured creditors £120, and creditors for rent, wages, and taxes, payable in full, £131 9s. 10d. The net assets are estimated at £648 10s. 3d., and show a deficiency of £2,418 3s. 6d. The debtor commenced business as a builder in Southend about ten years ago, with a capital of £60. During the last few years he has done certain contract work, and estimates he has lost over £1,000 in connection therewith. He was treasurer of the Loyal Cliff Town Oddfellows' Lodge, and the Society is returned as a creditor for £73 12s. 6d. The debtor attributes his insolvency to losses on contracts. The debtor stated that he had no offer to make, and resolutions were passed for adjudication in bankruptcy.

**A PORTLAND ARBITRATION CASE.**—In this case, remitted from the Court of Queen's Bench, the plaintiff was Mr. Robert Comben, of the Albert Inn, Weston, a lime burner and hauler, and the defendants, Arthur May and Co., builders and contractors, of London. The claim was for £87 19s. 6d. for work done and goods supplied. The defendants counter-claimed £150 for breach of contract, alleging that plaintiff had failed to carry out the terms of his contract with them dated 4th August, 1897, whereby he undertook to haul all the materials which they required for the building of six houses upon St. Martin's Estate, Portland, for the sum of £25 per house, payable by four equal instalments, the first to become due when the first-floor joints were up. The plaintiff's denial to the counter-claim was that the defendants had committed a breach of the contract by refusing to pay him the first instalment when it became due, and that he was therefore entitled to rescind the contract and sue on the *quantum meruit* for the work actually done and the goods supplied by him. The case was referred to Mr. Verey, one of the official referees of the High Court, for trial, and was partly heard by him at the Victoria Hotel, Portland, and then adjourned to the Guildhall, Weymouth. After a lengthy hearing, the Official Referee found the defendants had committed a breach of the contract by not paying plaintiff when the money was due, and he was therefore entitled to rescind the contract and he paid for the full amount claimed, less the sum of £5 16s. paid by the defendants for water during the time he was doing their work, and a further sum of £1 13s. 9d. overcharge for lime supplied to them at the rate of 2s. 6d. per ton, and 12s. charged for hauling water, leaving the total sum of £79 17s. 9d. due to the plaintiff, for which sum the Referee gave judgment with costs.

An "Old Blue" has forwarded a cheque for £1,500 to the treasurer, through the architects (Messrs. Aston Webb and Ingress Bell), to defray the cost of providing an organ for the chapel in the new Christ's Hospital School buildings at Horsham.

Mr. J. Boyd Harvey, managing director of North's Navigation Collieries, opened Colonel North's memorial hall and library at Maesteg last week. The first floor consists of a reading-room, committee-room, and reference-room, and on the second floor are a billiard-room, a bagatelle-room, and a public hall. The builders were Messrs. Rattry and Jenkins, and the architect was Mr. Burnett, Tondur.

Mr. G. F. Watts, R.A., has offered to erect entirely at his own expense a covered way in the churchyard of St. Botolph, Aldersgate, in which to place tablets illustrating heroism in everyday life; while Mr. Sigismund Goetz has offered his figure of the Dead Christ, exhibited last year at the Royal Academy under the title of "Eloquent Silence," for the decoration of the church at the east end. Two other paintings will represent the motto "Watch and pray." The vestry has resolved to apply for the necessary faculty.

In the case of George Rowe Rowe and Rowe Henry Rowe (carrying on business as Rowe Brothers), Wellington-street, Camden Town, N.W., builders and contractors, the order of discharge from bankruptcy has been suspended for two years ending Jan. 31, 1901.



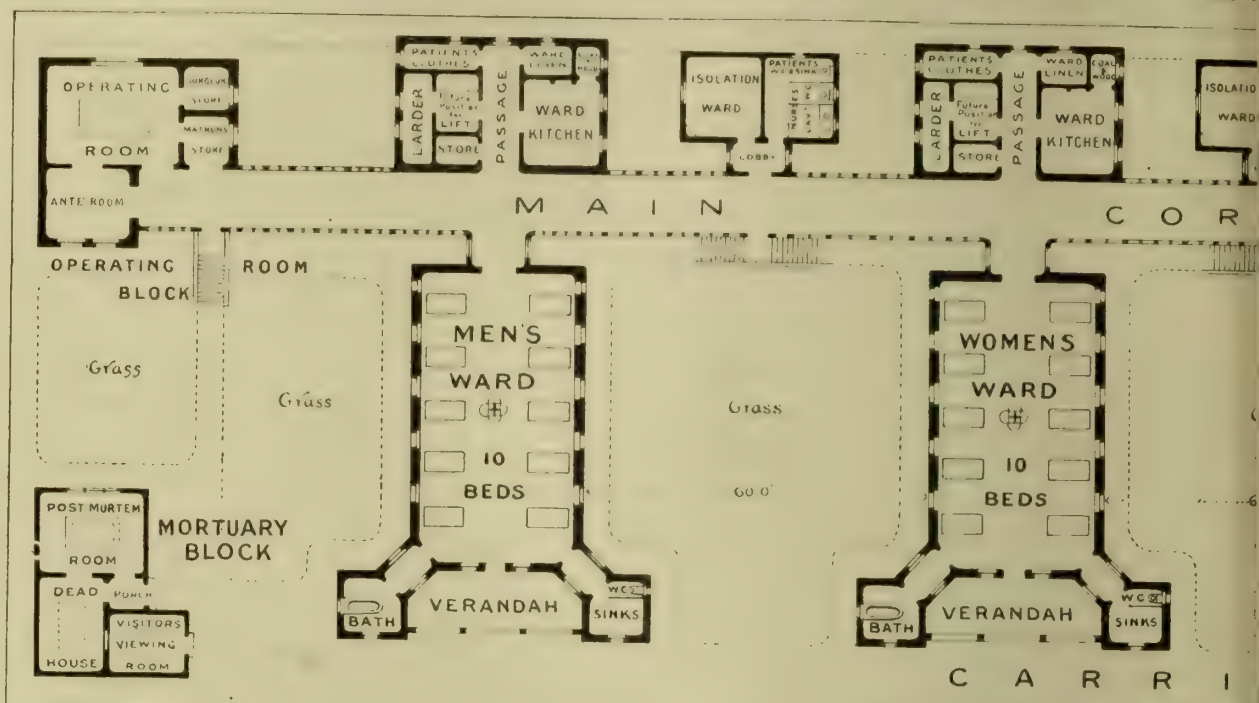






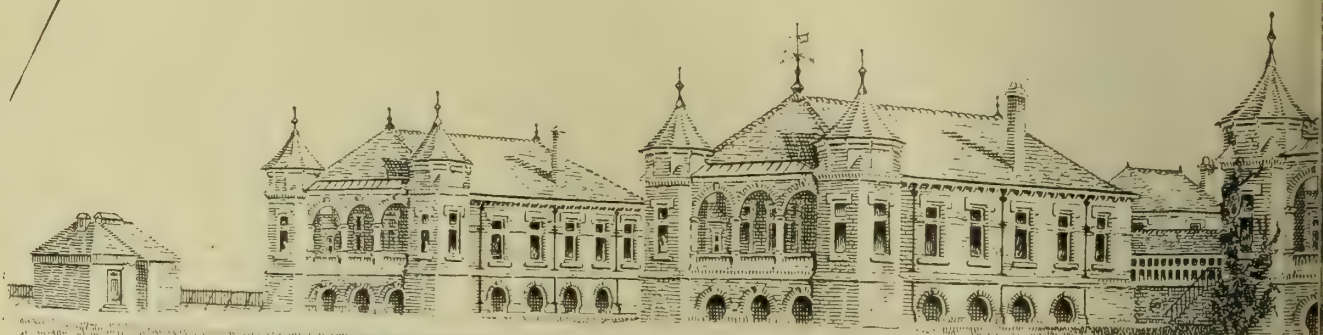
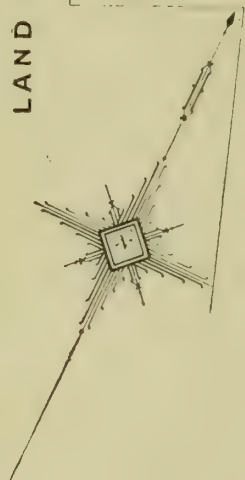
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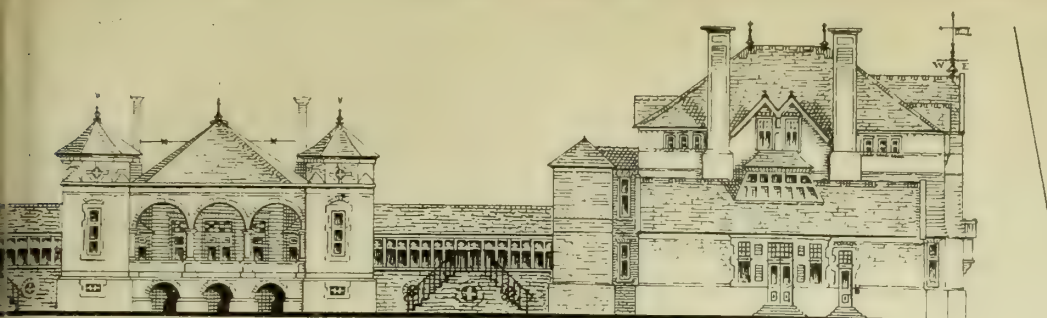
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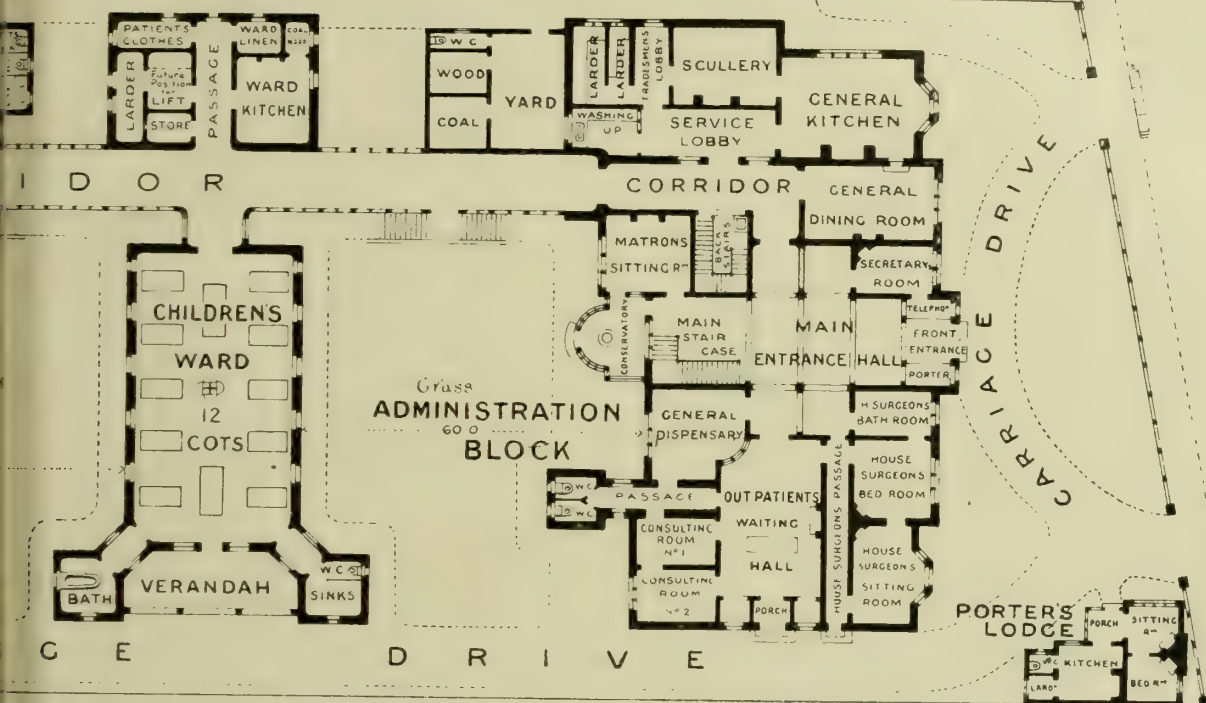




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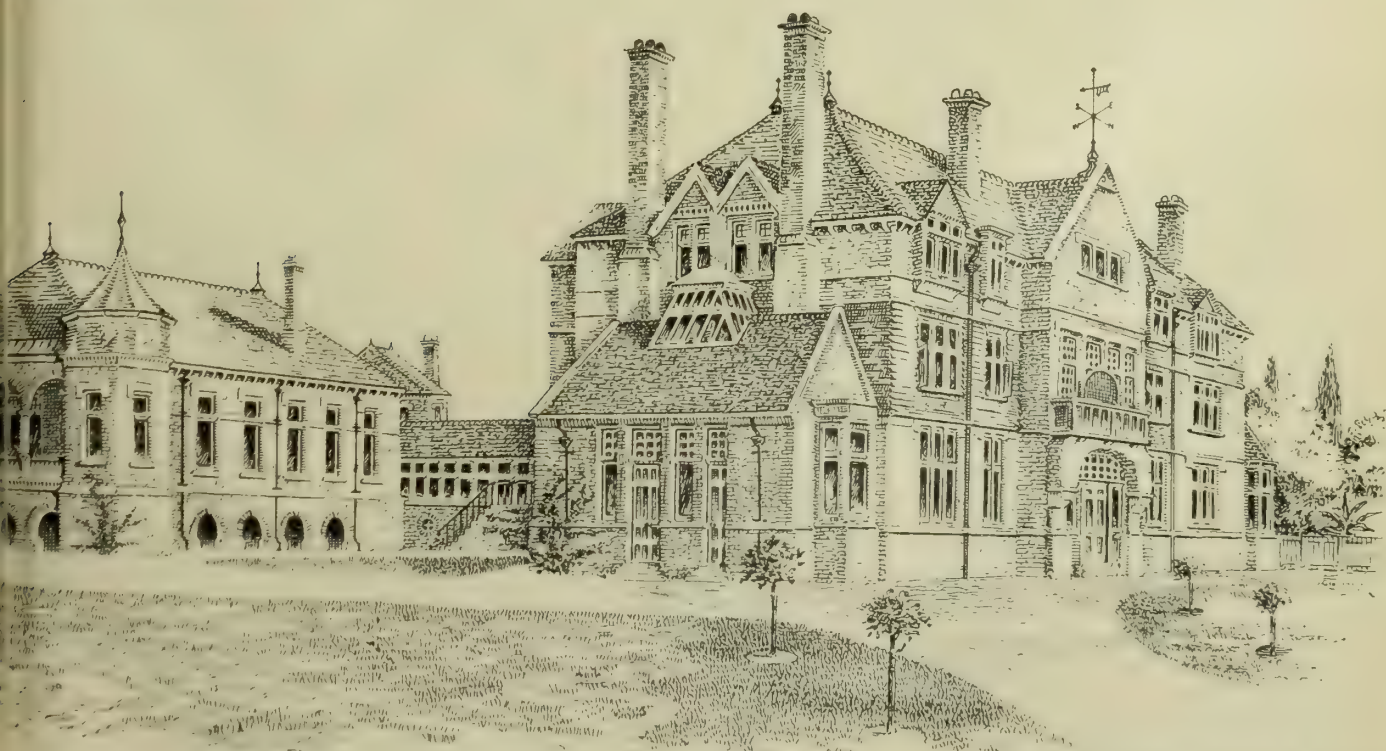
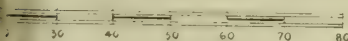
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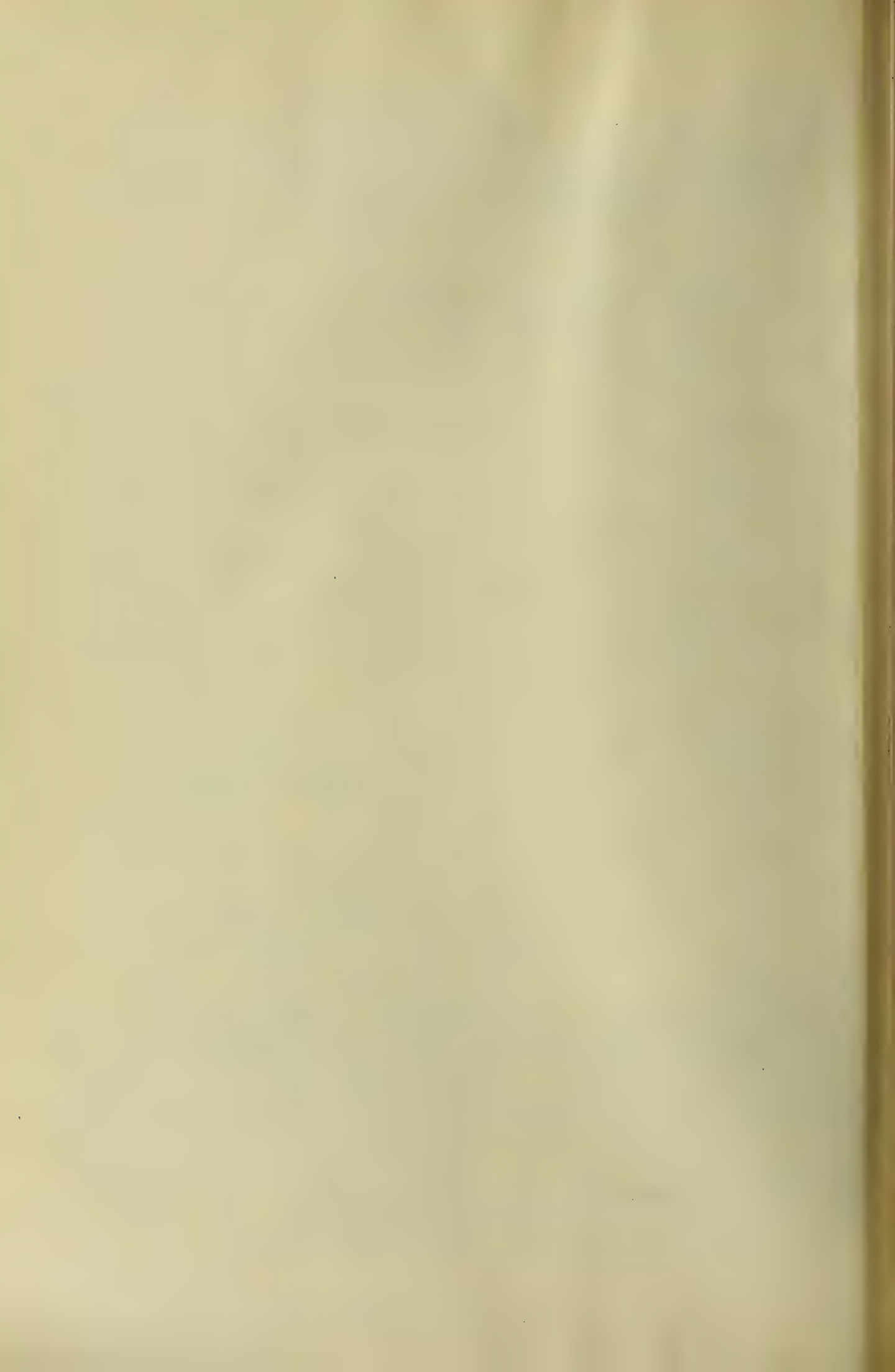
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Feet



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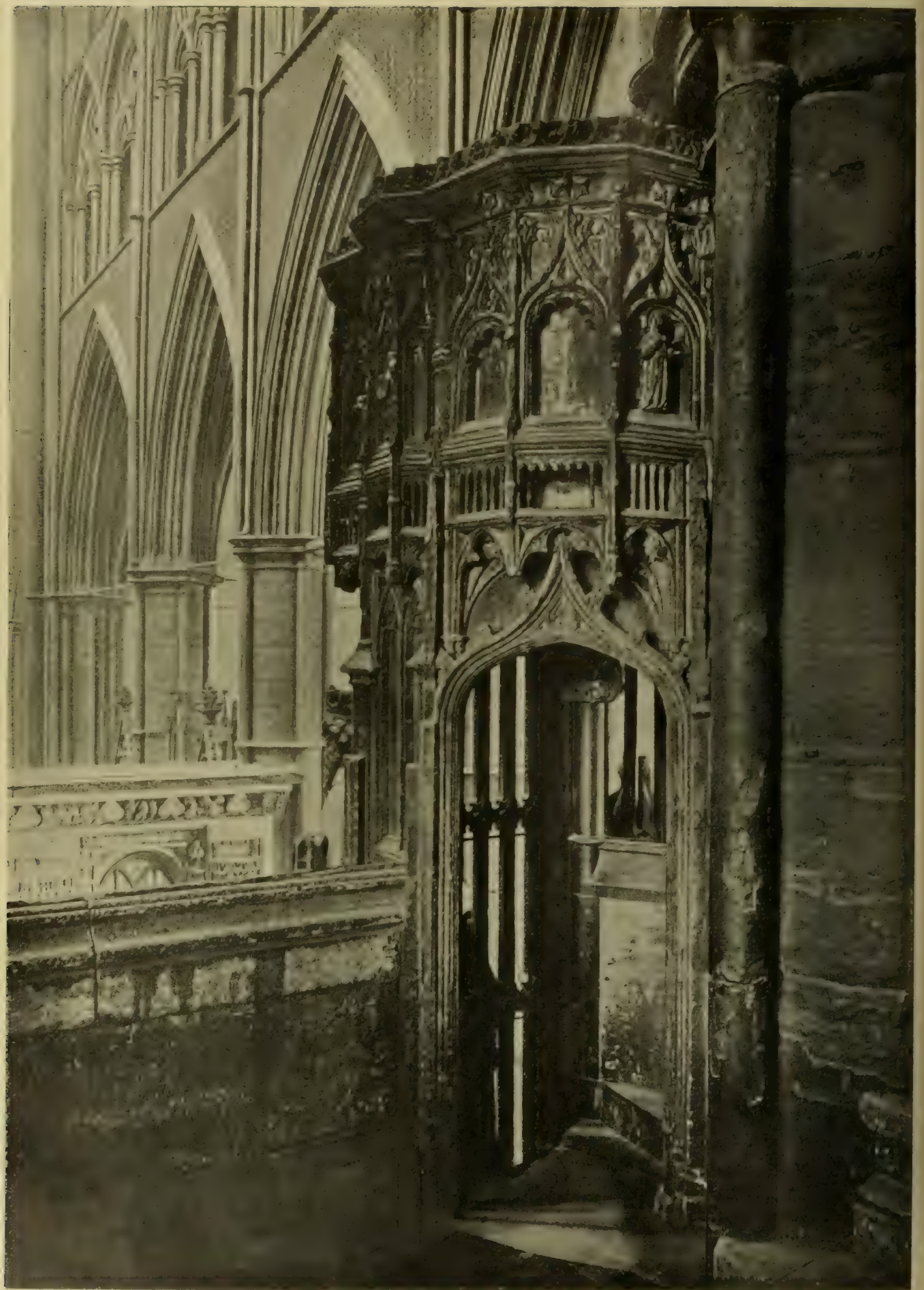


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NORTH TURRET DOOR, HENRY V. CHAPEL.

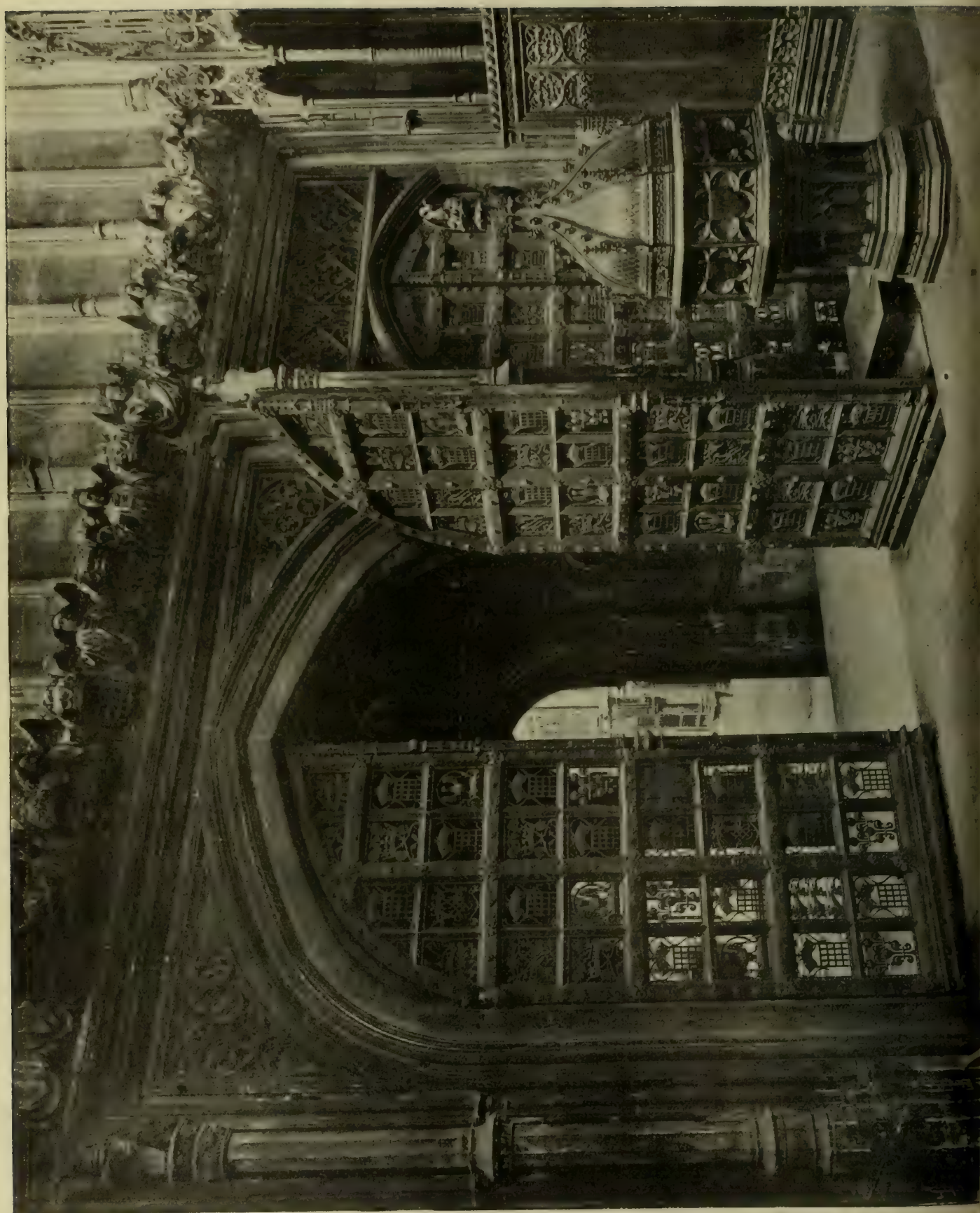
*From "Westminster Abbey Historically Described"*



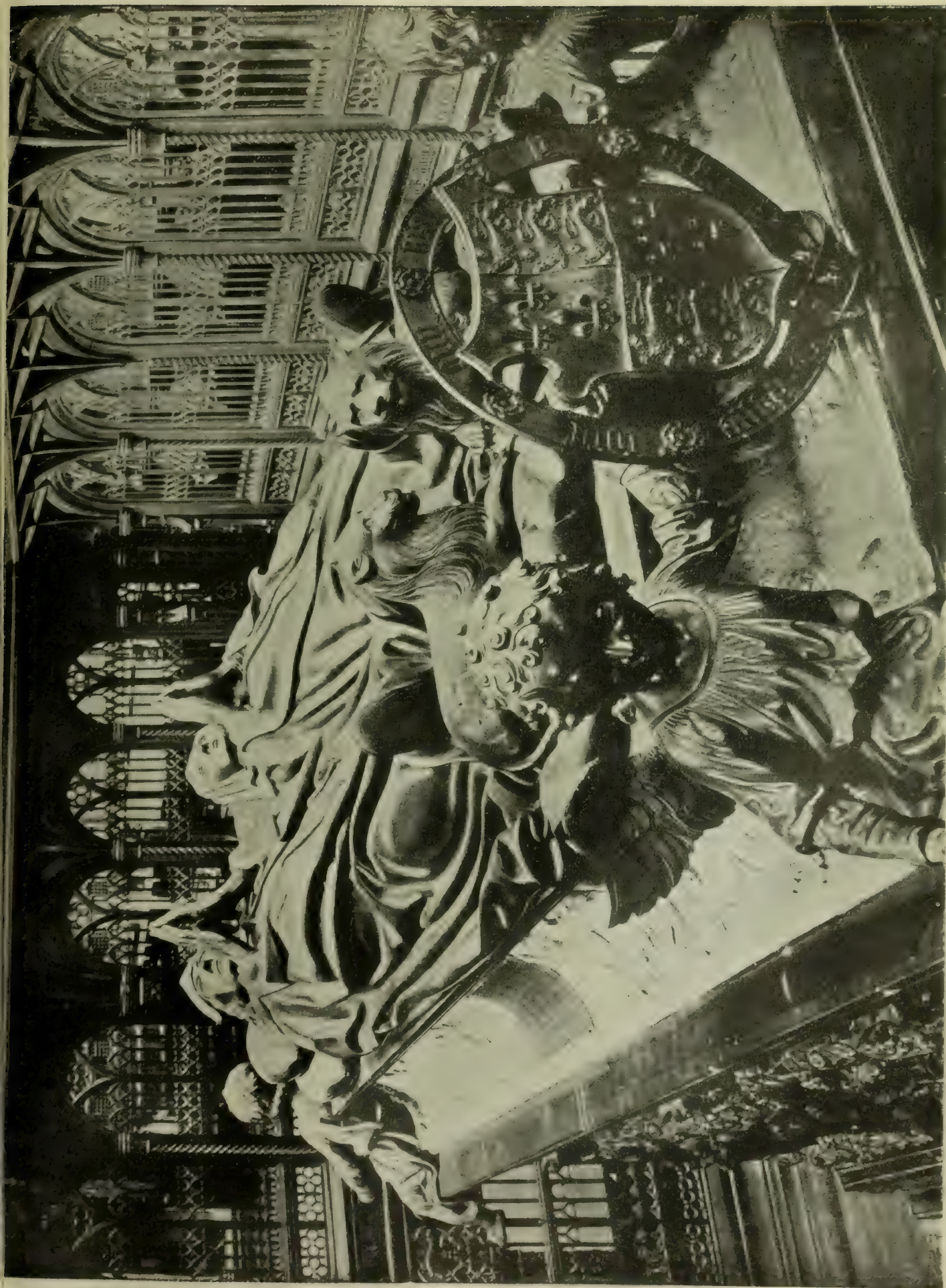




THE BUILDING NEWS, MARCH 24, 1899.







EFFIGIES OF HENRY VII. AND HIS QUEEN.









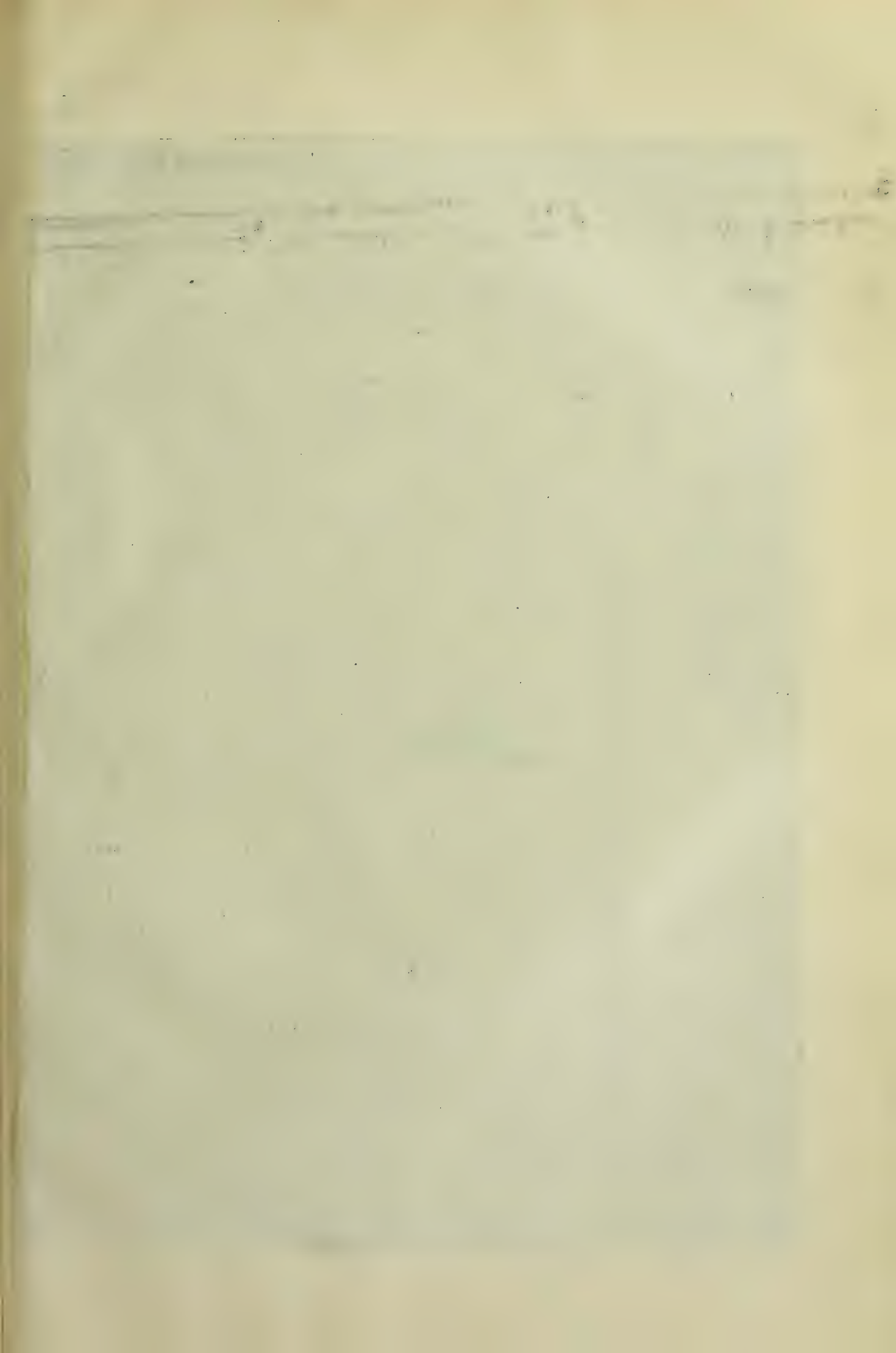
PHOTO PROCESS BLOCK BY J. A. MARSHALL & CO. ST. DEN-AY

THE JERUSALEM CHAMBER.













END OF THE GREAT HALL, PALACE



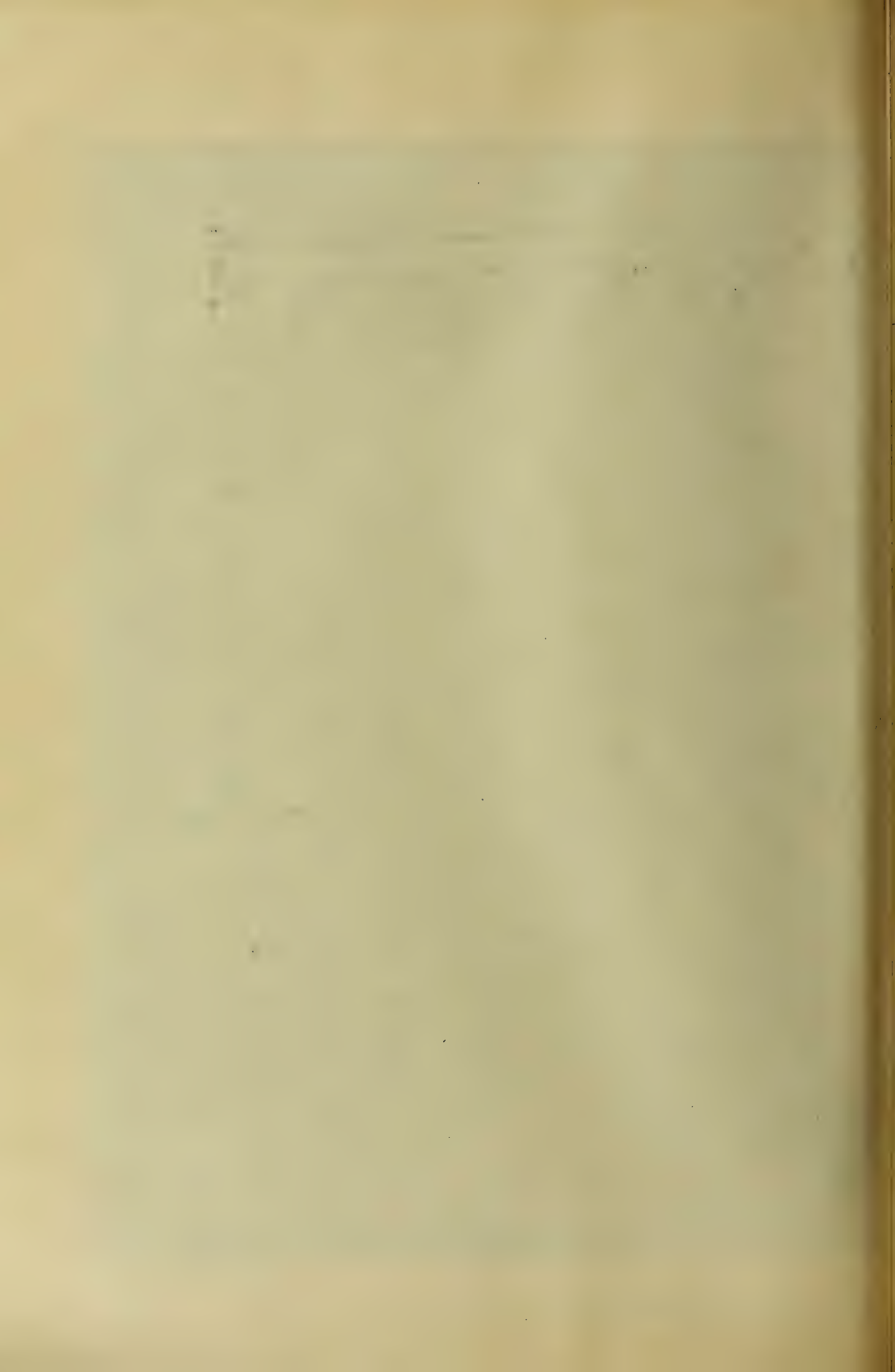
MARCH 24, 1899.



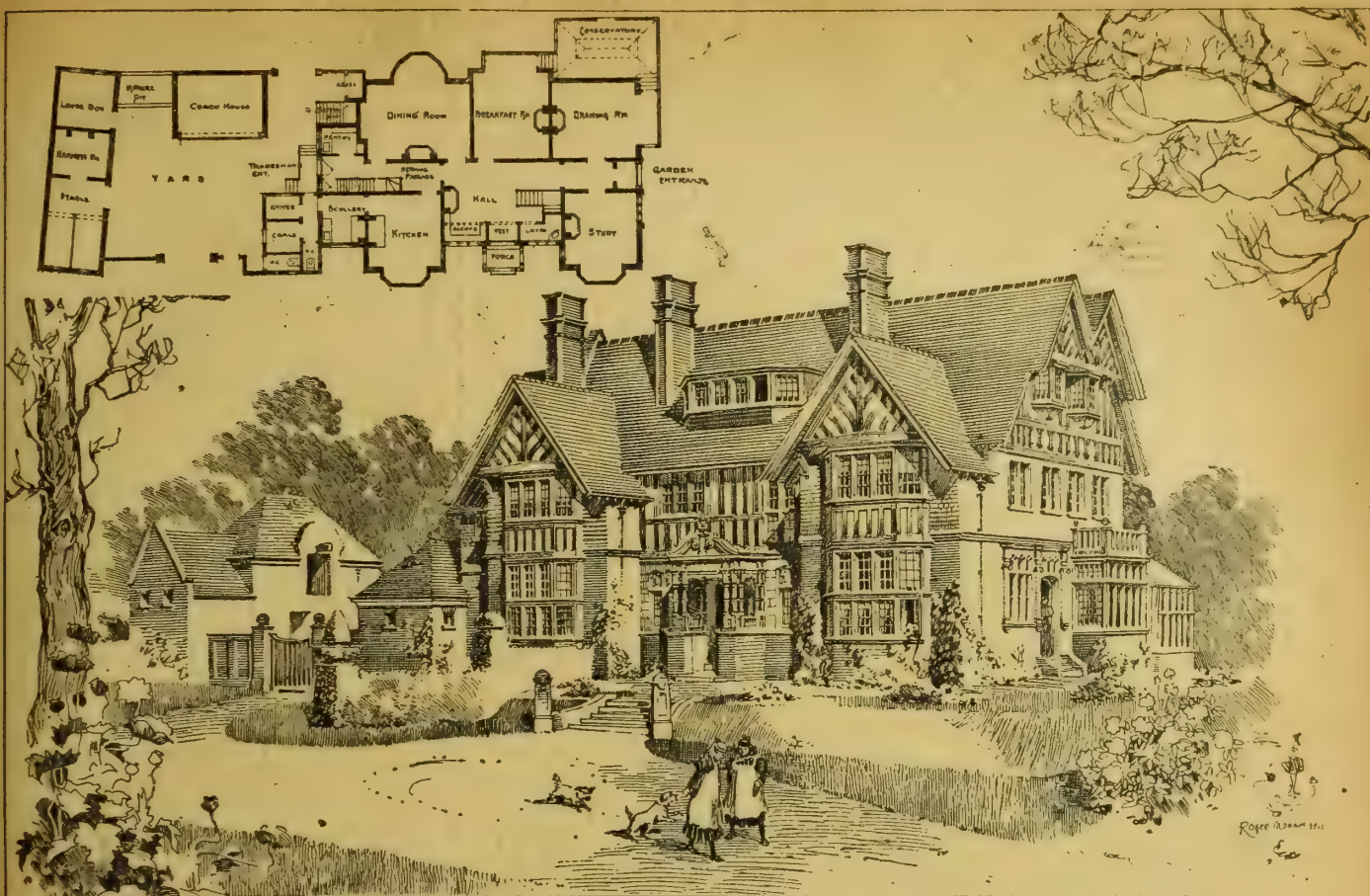
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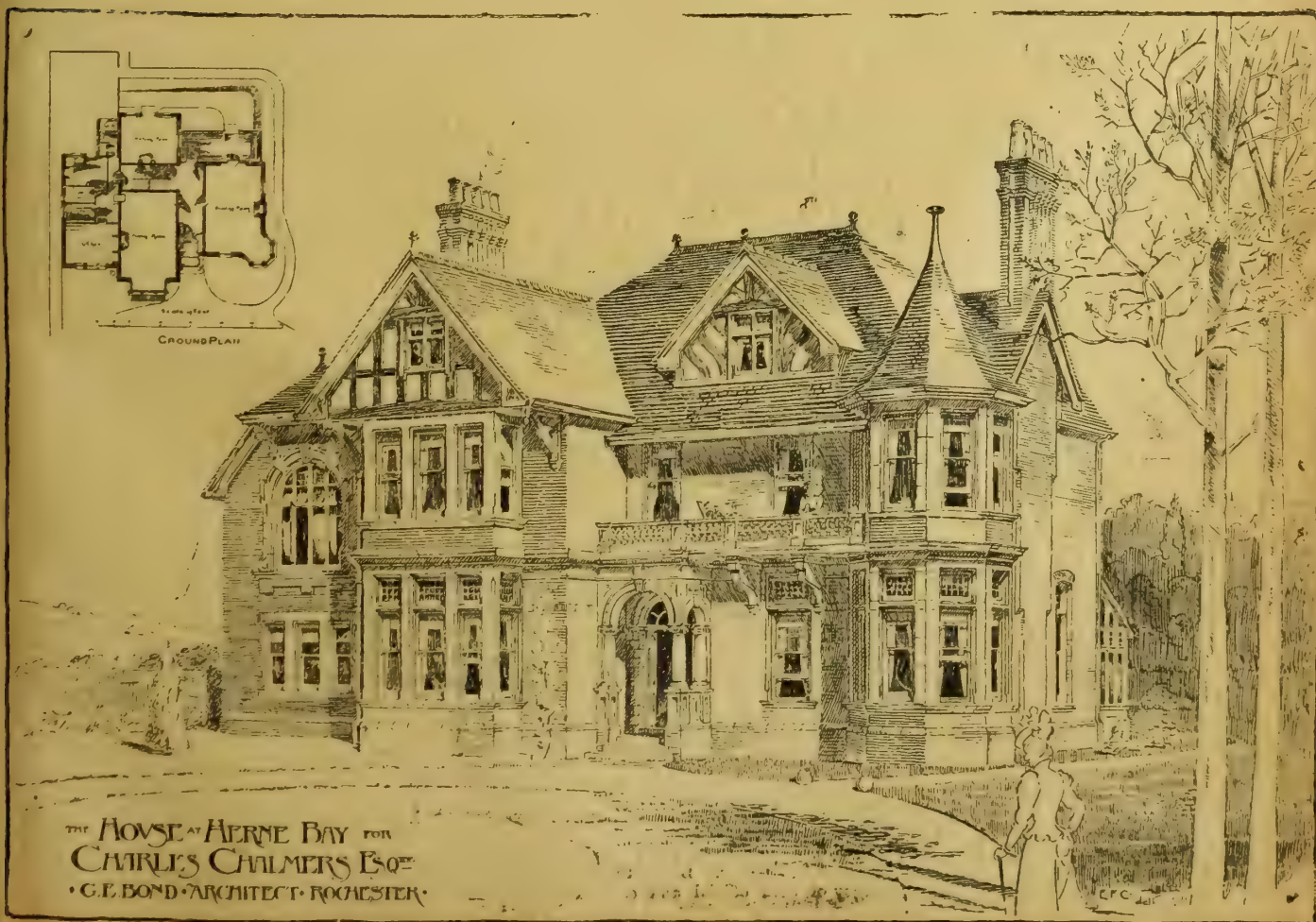








HOUSE NEAR MANCHESTER.—C. K. & T. C. MAYOR, Architects.



THE HOUSE AT HERNE BAY FOR  
CHARLES CHILMERS ESQ.  
• G. E. BOND ARCHITECT ROCHESTER.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 832, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) for any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 8dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 38fr. 30c.). To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

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The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight words, the first line counting as two, the minimum charge being 5s. for four lines.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLVI., XLIX., LI., LII., LIV., LV., LIX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

## GOOD FRIDAY.

NEXT week the BUILDING NEWS will be published on THURSDAY. All Advertisements for the next issue, therefore, must reach the Office by THREE p.m. on WEDNESDAY NEXT, instead of on Thursday as usual.

J. W. R.—(Batsford, 94, High Holborn, will recommend you a good book on quantities. Nothing better on "Model Specifications" can be had than our own series of articles just completed.)

RECEIVED.—A. B. and Co.—E. G.—C. R.—F. G.—A. N.—R. F. (Salop.)—J. M. and Co.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Clegornie."

## Correspondence.

## THE MILLBANK COMPETITION.

To the Editor of the BUILDING NEWS.

SIR,—It is not pleasant work for me to criticise adversely the doings of the London County Council; but in asking you to publish the inclosed letter, which I have addressed to each of the competitors (save three, whose addresses I could not find nor get from the L.C.C.) in the above competition, and the replies thereto; it is but right to point out that the action of the Housing Committee in the matter of the Millbank estate is, to say the least, strange.

Let us note how the matter stands. There is the vacant land. The people are sore pressed for want of room. The architect's department of housing is overwhelmed with work. What does the Housing Committee do? It resolves on a competition, by which means it may or may not have fondly thought to get some new ideas as to, and assistance in, the designing of workmen's dwellings from outside architects. Having got the idea of outside help into its head, the Housing

Committee, like Mr. Dick, failed to get rid of it; but it, in process of time, however, managed to dilute the idea, and to so attenuate it that its head became again practically empty. This was the mode. A snail's pace was to be adopted. Now mark the following dates:—

Feb. 2nd, 1897.—The Council authorises the Housing Committee to advertise for outside architects willing to design dwellings.

Nov. 16, 1897.—After a delay of nine months, particulars of the competition were approved, and the advertisement authorised above inserted in the papers.

July 12, 1898, eight months later, the Housing Committee reported as follows:—

"In reply [to the advertisement] some seventy architects have intimated their willingness to submit competitive designs, and from these we have made a careful selection." Then followed the names of 18 architects or "firms," as the report calls them, one or two of whom since withdrew.

Aug. 5, 1898.—The particulars, which had been drawn up eleven months before, were sent to the competitors selected.

Nov. 1, 1898.—The plans were delivered.

March 14, 1899.—After four months and a half the meagre announcement was made by the Housing Committee that the sum of £300, which the particulars said was to be divided among "the competitors," was to be divided among five only; moreover, the Housing Committee in entirely ignoring the existence of the twelve other competitors, made it appear that but five had responded by sending in plans.

Besides all this, no publication was to be made of the assessor's report, and no exhibition of the plans, and, further, the report of the Housing Committee, meagre as it was, expressed a doubt as to whether any of the plans were usable.

The matter was, apparently, to be closed up. Some £500 were to be spent, the public were to receive no benefit whatsoever, and the labour and expense which eleven or twelve "carefully selected" architects had been put to, under the express condition that they were to receive some payment, were to be wasted.

This matter, certainly, is one for grave inquiry. Two years and nearly two months have slipped by since the Council resolved to advertise for outside help. Nothing has come of it. It is true that some 70 architects were ready to render assistance, and although there is great delay in the Council's housing schemes, the Council does not adopt the healthy procedure of putting some of its work into the hands of capable outside architects; it prefers, on the contrary, to further crowd the architect's department by employing further temporary assistance, and to which end it voted, last week, £50 per week for assistants and £11 11s. for clerks of the works.

Allusion is made in my circular to the lowering of the Council's health code in the matter of light, air, and space. This is a most wanton flouting of the hygienic knowledge which the medical and other officers of the Council possess; and this retrograde step was decided upon while the competition was *sub-judice*, and it was after the plans were in that the Housing Committee approved of that which I call, because of the smallness of the rooms, the plan of a modern slum, with regard to which I want to ask a question, and would like the Housing Committee to answer. Were the five designs which were sent to the Council's officers compared with a plan recently prepared in the Housing Department, and was this comparison reported to the Housing Committee?

The attention of the people of London should be drawn to this unwarrantable setting aside of sanitary laws by the Council's deliberate action.

There is no question in my mind but that the crowded plans which the Council are now preparing are a deliberate step backwards, and it is a step in the dark and a deliberate breach of good faith with the competitors who had a larger size of room given to them than was since adopted by the Housing Committee. Had I known personally that the Council desired other than a healthily designed building, I would not have wasted any time and money in competing.

But it is the people to be housed who will suffer—the people who pay rents, whereby, as in the Bethnal Green scheme, some 9 per cent. is made by charges and interest on the capital expended, and these are the people who have no voice in the matter. Beside these, that fearsome bogey of both official and councillor—the ratepayer—will suffer, because the people are being

educated very fast that a workhouse or an asylum is a far more airy and salubrious place than cramped block dwellings such as the Council are about to erect on the Millbank estate.—I am, &c.,

ROBERT WILLIAMS.

## COPY OF CIRCULAR SENT TO COMPETITORS.

(Will those who may not have had a copy please take this as out.)

20, Northbrook-road, Lee, London, S.E.

## THE MILLBANK COMPETITION.

DEAR SIR,—As one of the competitors in the above, may I ask you to join with me in petitioning the London County Council to—

1. Exhibit the designs.
2. Publish the assessor's report.
3. Publish the report of the "officers of the Council."
4. Request the assessor to reconsider the division of the £300, in accordance with the conditions which state that—

"A sum not exceeding £800 will be awarded among the competitors in such proportions as the assessor may determine."

I may say that I have written to the clerk, L.C.C., on these points, and have seen several members, who agree that this thing should not be hid in a corner.

I have also seen Mr. Blashill, who promised to use his endeavours to get the designs exhibited.

It is highly important that the public should see the designs for the purpose of criticism and comparison. There are reasons for believing that a low canon of hygiene has, since the publication of the conditions and the delivery of the plans, been adopted by the L.C.C.; whether that has influenced the decision in the selection I cannot tell. But it is a fact that on November 22nd (the plans being in on November 1st), the council approved of plans for the Millbank estate, showing living-rooms of 147 and bedrooms of 100sq.ft. respectively, while the average of those required by the conditions was to be 160 and 120 respectively.

Personally, I am quite willing to abide by the assessor's selection for the first five; but having entered this competition (a) with the understanding that it was to be a paid one, and (b) that I should, being a writer on the subject of "Housing," be able to compare my own idea of a sufficiency of light, air, and space in and about a block dwelling with those of others, I feel confident that you will assist in making the whole of this matter public.

Kindly reply as soon as possible, informing me if I may have your name to append to the petition referred to above.—Yours faithfully,

ROBERT WILLIAMS.

## EXTRACTS FROM LETTERS RECEIVED FROM COMPETITORS IN REPLY TO THE FOREGOING CIRCULAR.

Mr. H. W. Dodd (premiated).—"I shall be pleased to sign a petition to the L.C.C., asking them to exhibit the designs, &c."

Messrs. Gibson and Russell (premiated).—"Willing to sign the first three heads of your petition. As for the fourth, we do not see that you can read into the condition that each competitor is to receive a share of the £300."

Joseph, Son, and Simkens (premiated).—"We believe the designs are to be exhibited, and do not think it necessary to petition the L.C.C."

Spalding and Cross (premiated).—"We cannot support you in petitioning the London County Council in the way you suggest; but we shall be glad to hear that the designs are to be exhibited to the public, and that the assessor's report is to be published."

Mr. Francis Hooper (not premiaded).—"I had previously written to the clerk for a copy of the assessor's report, and will, with pleasure, write as to the exhibition of the designs."

Messrs. Waring and Nicholson (not premiaded).—"We are quite with you as to the plans being exhibited, if only to ascertain the points of excellency that have decided the award for future guidance, and we have already asked, and been informed at the office of the London County Council, that such is their intention."

"With regard to your other points, we do not consider any good would result from petitioning the London County Council. The most effectual course would be to ask a member to raise the question in the Council itself."

Mr. Geo. S. Hill.—"I am in receipt of your communication regarding above competition, and am quite at one with you on the points you mention. I certainly had the idea from the wording of the conditions that each competitor would receive some remuneration for his trouble in the matter, and the exhibition of the designs and publication of the reports are very desirable. In thanking you for taking up this matter, I have pleasure in allowing you to append my name to the petition."

Mr. Seth-Smith.—"Although selected, Mr. Seth-Smith did not compete."

NOTE.—The L.C.C. had no intention of exhibiting the designs or doing anything more than quietly burying this matter until I called on Tuesday the 14th. The letter of the clerk, intimating the decision of the assessor, had the following words:—"Your plans will be forwarded to you in due course," not a word about exhibiting.

A word as to Mr. Dodd, the only premiaded competitor who is altogether at one with myself. As one who refused a premium in an important public work because of unfairness to others, I glory in finding another of the many yet in the Israel of architecture who have not bowed the knee to Baal. If Mr. Dodd continues, he will die a poor man; but a few will die with him, and they will be genial companions.—R. W.

[Since this letter was in type, Mr. Williams has sent us several more letters from architects who have replied to him, for which we really have not room. We certainly think some action is desirable, and that some explanation by the L.C.C. is due to the architects who competed.—Ed.]

The extension to Padstow of the North Cornwall Railway was formally opened yesterday (Thursday).



## Intercommunication.

### QUESTIONS.

[12215].—**Right to Pull Down and Rebuild Wall Dividing Two Properties.**—A and B own properties, both being freehold. The two properties are divided by a 14in. wall, which is on A's land, and a few years ago was A's exclusive property. A subsequently made an agreement with B, whereby B becomes entitled to the full use of the wall for a limited height only. A now desires to pull down and rebuild the 14in. wall dividing the properties, but B resents any interference with the wall so far as it interferes with his property, which is on lease to a banking firm for a term of years. Can A pull down and rebuild the wall? How should A proceed to do this? And what are his responsibilities in the matter?—LANCASTRIAN.

### REPLIES.

[12210].—**Scraping Stonework and Marble.**—The stone may be rubbed down. As for the marble, it is better left, as any removal of the skin may be injurious. I am not aware of any wash that would remove the stains.—A. D.

[12212].—**Excavating Trenches for Drains.**—I should say approximately 6d. per cube yard; but, of course, it will depend on the kind of soil, and the portion to be filled in.—PER CUBE.

[12213].—**Greenhouses.**—I should write to a builder of greenhouses, and ask him for a price. Apply to Messenger and Co., Ltd., Loughborough, or 95, Victoria-street, Westminster, sending dimensions, &c. I should say, roughly, a lean-to house of the size required, would cost about £20 to £23. The heating apparatus being extra.—G. H. G.

## WATER SUPPLY AND SANITARY MATTERS.

**SOUTHPORT.**—Mr. James Mansergh, C.E., has submitted an important report to the Southport Corporation in reference to the sewage disposal of the borough. In a previous report Mr. Mansergh set out a scheme of chemical precipitation, but at the same time called attention to the bacterial methods of sewage treatment. After an investigation into the present position and development of the bacterial process in England, Mr. Mansergh now states that he has no hesitation in recommending it to the Southport Corporation for adoption. The treatment he advises is that known as Mr. Dibden's. The total cost, with a pumping plant at the Crossens outfall, in addition to the bacterial process, with five beds, is estimated at £54,000, and annual working expenses £825. Omitting the five beds, and the cost is given at £35,000 and annual working expenses £775. The cost of the scheme of chemical precipitation was estimated at a capital expenditure of £32,200, and the working expenses at £2,240 per annum. The sewerage committee, who have dealt with the report, states that whilst it regards with favour the bacteriological process of sewage treatment, it does not feel warranted in recommending the council to adopt the system until an opportunity has been afforded of seeing it in operation on a large scale.

**LEEDS.**—Some successful experiments are being carried out at the Leeds sewage works at Knoctrop with regard to the treatment of sewage by the bacteriological process. On Saturday the Manchester Sewerage Committee visited Knoctrop to see the system in operation, and the Royal Commission on Sewage will, at a later date, inspect the works. At the last meeting of the Sewerage Committee the Lord Mayor reported that the three pairs of new bacteria beds are working satisfactory, under the superintendence of Mr. Cameron, of Exeter; a septic tank is being constructed, and during the present week the committee have commenced some new experiments with open septic tanks, and also with beds constructed so as to give continuous supply and continuous aeration.

Mr. Herbert Steward, Assoc. Am. Soc. C.E., one of the leading New York contractors, died in that city on March 5. He was engaged on the construction of many notable works, including the Sixth Avenue elevated line in New York, the Washington arch bridge over the Harlem River, and the 155th-street viaduct.

The Devonport Town Council resolved, on Friday to acquire a site of about seven acres of land, upon which to erect an infectious diseases hospital, and a committee were asked to consider the advisability of disposing of a field adjoining the technical schools, which was purchased primarily for the purpose of building thereon municipal offices.

In order to facilitate the archaeological discoveries made during the excavations now being carried on in the Forum under the auspices of the Italian Government, Mr. Lionel Phillips, the South African financier, has contributed £2,500, the estimated cost of expropriating the houses now standing above the ruins of the Basilica. These houses have hitherto constituted an insuperable obstacle to the excavation of that most important archaeological site.

## Our Office Table.

THE District Surveyors' Association have presented a petition to Parliament against the provisions of the London Local Government Bill, pointing out that the official, personal, and private rights and interests of their members, as well as their ability to discharge their duties in administering the London Building Act, 1894, will be very materially and prejudicially affected if the Bill becomes law in its present form. There are, they mention, at the present time 65 districts in London each under the control of a district surveyor, who is virtually an independent statutory officer; but there is an appeal against his requirements under the Building Act to a metropolitan magistrate upon points of law and fact and to the Tribunal of Appeal constituted by the Act upon matters of discretion. By Clause 5 of the Bill it is *inter alia* proposed to authorise the transfer from the London County Council to the borough councils to be formed by the Bill such powers as may be agreed upon between the respective councils, and by Clause 6 it is also proposed to give power to the Privy Council to determine "which of the powers under the London Building Act, 1894, or any amending Act, other than the powers mentioned in Part I. of the second schedule to this Act, are to be exercised by the London County Council and the borough councils respectively, and the conditions under which they are to be exercised." The petitioners strongly object to the powers sought to be conferred on the borough councils by the above clauses in the Bill, and they submit that if the same are sanctioned they would constitute a serious hindrance to the district surveyors in the conscientious discharge of their duties and a danger to the public interest. The transference of any of the provisions of the Building Act to the control of the borough councils would not, they consider, be for the public benefit, as the district surveyors would no longer be able to discharge their duties fearlessly and impartially, while uniformity of administration would be destroyed. They ask that Clause 5 should be struck out of the Bill, and Clause 6 either amended or also omitted from the Bill.

The remains of St. Cuthbert experienced many vicissitudes before they found a resting-place beneath the magnificent shrine of the great Cathedral of Durham. From Lindisfarne, where the body of the saint was first deposited, the monks, under stress of Danish invasion, carried it to many places before Durham was finally reached. When, in 1104, the body was transferred from the older to the new church built by Bishop William, the curiosity of the monks led them to open the coffin, which also contained the head of King Oswald, slain in 642, and other relics. In 1542 the magnificent shrine was defaced, and the body buried beneath the floor of the church. In May, 1827, the tomb was opened and the bones of the saint were found, and with them St. Oswald's head. The tomb has recently been opened once more under the supervision of the dean, Canon Fowler, and Dr. Greenwell. They found the coffin entirely rotten. With the bones presumed to be those of the saint were found many others, possibly relics of other saints, including those of a child. A portion of what may have been the skull of St. Oswald was also there, with a part of the forehead sliced off as with the stroke of a sword. In the account of the examination, we are told: "The complete skeleton is that of a man of fifty (which was the age of St. Cuthbert), and of good height and strength. The skull is by no means of the low, unintellectual type given in Raine's representation of it, but is well balanced, with a slightly receding forehead." It is intended to place the relics in a new oak coffin.

It is announced that a syndicate has been formed in the Vermont slate district, in the United States, with a view of increasing the export of slate to Europe and of controlling the prices. The syndicate has already taken over eight of the best quarries in the Poulney district, and is managed entirely by practical Welshmen. They have acquired already the best quality sea-green and mammoth vein slates, and are preparing to export 7000 "squares" per month. Since the breakdown of the Sea-green Trust some months ago, the competition between Welsh and American slates has not been so keen, and the shipmen's at Carnarvon are now greater than ever they were, in spite of the fact that last

year the value of American slate exported exceeded by £41,000 that of 1897, and that the price of American slate in this country is 9s. per 1000 cheaper than the best Welsh qualities.

GRAVEL roads are commended for light travel in the annual report of Mr. James H. MacDonald, commissioner of highways of Connecticut, who says: "A mistaken idea prevails to some extent that to make a perfect system of roads throughout the State, a macadam system must be inaugurated. This is not of necessity so, as I have seen many miles of roads in different towns in the State of splendid natural gravel roads. What I mean by natural gravel roads is that the roads have been laid out through territory of gravel formation. All that was necessary in the improvement of the road was to open up the road without the addition of any other material than was found on the road itself. These roads could be made first-class roads by widening out and shaping the road and forming gutters, thus making them first-class roads with very little expense."

### MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).**—Edinburgh Architectural Association. Visits to Houses, Morton-hall-road and Grange House. 2.25 p.m.

**TUESDAY.**—Institution of Civil Engineers. "Alloys of Iron and Nickel," by Robert Abbot Hadfield, M.Inst.C.E. 8 p.m.

**GOOD FRIDAY.**—Glasgow Architectural Craftsmen's Society. "Architect v. Contractor," by J. Lockhead; and "The Public and Architecture," by C. E. Moore. 8 p.m.

### CHIPS.

Business at the Estate Mart last week, although most unpromising on the opening days, was conspicuous by the successful negotiation of two important sales, one being that of an entire Adventurer's Share in the New River Company, which realised £112,500, and the other a complete disposal of the third portion of the Angerstein ground-rents. Metropolitan house property continues to furnish the bulk of the operations. Provincial doings are much quieter than was apparent last year. The totals on the week were £296,827.

A Local Government inquiry was held on Friday at the Municipal Buildings, Middlesbrough, by Mr. A. E. Meade-King, M.I.C.E., respecting an application of the Middlesbrough Corporation to borrow £36,000 for electric lighting purposes. Mr. R. Hammond, consulting engineer, said that his experience was that in nearly every case where corporations had commenced electric-light works they had proved successful.

At the age of 84 years, the death took place on Thursday, in last week, at 15, North-road, Chapham-park, S.W., of Mr. Thomas Loyd, who for many years carried on business at 32, Nicholas-lane, Lombard-street, E.C., as a plumber and decorator. Mr. Loyd had served on two occasions the office of master of the Glaziers' Company, and at the time of his death was the father of that guild.

The Scottish Court of Sessions considered on Friday a report by Mr. Dick Peddie, architect, Edinburgh, on the buildings which have been re-erected for the Callander and Trossachs Hydropathic Company, in connection with an action against them by Wm. H. Marshall, W.S., Edinburgh. Mr. Dick Peddie reported that the buildings were of the structural value of £15,000, and had been re-erected to his satisfaction. The Court approved of the report, absolved the defenders from the conclusions for damages, found the defenders liable in the expenses of the reporter's fee, and quoad ultra found no expenses due.

Alexander Lumsden (30), builder and contractor, of the firm of Lumsden Brothers, 19, Bellfield-street, Glasgow, met with a fatal accident on Saturday at a building in course of construction by his firm in East Nelson-street, Glasgow. While Mr. Lumsden was letting himself down from the top of the new building by a hoist used for raising building materials and worked by a pulley and ropes, the hoist struck a beam, tilted over, and threw out Mr. Lumsden, who was instantaneously killed.

The Cromer Protection Bill for the extension of the sea-wall and the erection of a pier at Cromer at an estimated cost of £46,000 has passed its third reading in the House of Lords. The engineer of the scheme is Mr. Douglas, C.E.

New business premises in Houndsditch and Stoneys-lane were formally opened on Thursday in last week. They have been built, from designs by Mr. Benjamin Tabberer, by Messrs. Patman and Fotheringham.

The corporation of Newcastle-upon-Tyne have adopted plans by Mr. W. G. Laws, the borough engineer, for alterations to the meat and provision markets, including a new roof, and estimated to cost about £7,000.



## Trade News.

### WAGES MOVEMENTS.

**ARBROATH.**—The operative painters in Arbroath having applied for an increase of wages at the rate of  $\frac{1}{4}$ d. per hour, the local branch of the Master Painters' Association of Scotland has unanimously resolved to refuse the advance, as the state of the building trades in the district does not warrant it.

**BROUGHTY FERRY.**—After consideration, the operative joiners have agreed to accept the offer made by the employers of a rise of  $\frac{1}{4}$ d. per hour on their wages. Their acceptance of the compromise settles the dispute.

**CARNARVON.**—All the journeymen employed by the master painters at Carnarvon struck work on Monday, demanding more money and less hours. They claim an increase of  $\frac{1}{4}$ d. per hour in their wages.

**HAWICK.**—A meeting of the Border Counties Master Painters' Association was held at Newtown St. Boswells on Saturday afternoon, when the requests of the Hawick operatives were considered. The first, that the wages should be increased from  $7\frac{1}{2}$ d. to 8d. per hour, commencing on April 1 next, was granted, on condition that the working day be reduced to one of nine hours. The demand that overtime be paid at the rate of time and quarter was also granted generally; and to other points, that labourers ought not to do painters' work, and that the number of apprentices should be reduced, it was decided to reply that both these could be regulated by the men.

**HULL.**—The master joiners have resolved: "That the joiners' application for an advance of one half-penny per hour be not considered until a uniform code of working rules has been amicably arrived at." The Master Builders' Association are moving with a view to securing a uniform code of working throughout all branches of the building trades.

**MAIDSTONE.**—On Saturday a demonstration took place at Maidstone, under the auspices of the local branch of the United Builders' Labourers' Union, in favour of a rise in the wages of the labourers of  $\frac{1}{4}$ d. per hour on the present remuneration of  $\frac{1}{2}$ d. A public meeting was subsequently held at the Skating-Rink. Mr. John Potter, J.P., president of the Maidstone and District Trades Council, presided, and was supported by Mr. W. Stevenson (general secretary), Mr. F. Kennedy (organiser of the Union), Mr. A. Field (secretary of the Maidstone and District Trades Council), Mr. E. Cooper (local secretary), and others.

### CHIPS.

The London County Council resolved, on Tuesday, to purchase the freehold of premises in Cockspur-street at a cost of £100,000 to increase the office accommodation. It was stated that the premises would accommodate 140 officials.

The Prince of Wales has consented to lay the undation-stone of the new Post Office Savings Bank building at West Kensington. The ceremony will probably take place in June.

The Technical College and Public Hall, West Hartlepool, has been fitted with improved hot-water heating apparatus by John King, Limited, engineers, Benson-street, Liverpool, employing the new "Rajah" ventilating radiators.

The disused baths in Ferndale-road, Brixton, long a white elephant in the possession of the Vestry of Lambeth, have at last been disposed of by that body to the Technical Education Board, the purchase sum being £4,000 for land and buildings—just one-seventh of the original cost. The buildings, which were at one time opened as a polytechnic, will be converted into a technical school for the building trades.

At the Central School of Arts and Crafts, 316, Regent-street, W., a lecture (with lantern illustrations) on "metal-work" will be given this Friday evening, at 8 p.m., by Mr. J. Starkie Gardner.

A new Post-office is now being erected at Port Elizabeth, South Africa, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

There seems some probability that that long-delayed project, the rebuilding of the tower of Liskeard Church, will be begun ere long. Several meetings have been held during the last few days, and it has been announced that building operations will commence very shortly. The architect, Mr. John Sansom, is preparing working plans, and when they are ready no time will be lost in obtaining tenders for the work. A sub-committee has been appointed to prepare for the laying of the corner stone.

The name of Edward Locke, of Thornton Heath, architect and surveyor, appears in the list of receiving orders in Tuesday's *Gazette*.

The council of Charing Cross Hospital has appointed Mr. A. Saxon Snell, F.R.I.B.A., architect, in connection with the proposed rearrangement and extension of the hospital.

A case was heard on Friday at the County of London Sessions before Mr. Loveland, Q.C., and a jury, in which Mr. Meakin, lessee of the Elephant and Castle Tavern, Newington Butts, claimed from the County Council compensation for the loss of 1,046ft. of frontage in widening the thoroughfare. The jury awarded the claimant £7,912 compensation and expenses.

Messrs. Wm. Potts and Sons, clock manufacturers, of Newcastle-on-Tyne and Guildford-street, Leeds, have just erected a new turret clock at the Newcastle-on-Tyne infantry barracks for H.M. Government. They are also erecting a new turret clock to show the time on three external dials for Messrs. Swan and Hunter, shipbuilders, Newcastle-on-Tyne.

An important case arising out of the late Colonel North's proposal to build a new suburb at Ostend, to be known as North City, is to come before the Belgian Courts. An architect named Maguet, who was employed by Colonel North to produce the plans, is suing Colonel North's heirs for 80,000 francs for work and compensation. The plans were for buildings to cost 8,000,000 francs, and the claim is at the rate of 2 per cent. Colonel North's heirs are stated to have offered 25,000 francs (or 8 per cent.) in settlement, but this has been refused, and the case is to be heard at Brussels. Well-known counsel have been engaged on both sides.

A Select Committee of the House of Commons yesterday approved the preamble of the Charing Cross, Euston, and Hampstead Electric Railway Bill, which grants an extension of time for the works authorised in 1893, and also sanctions three new railways, bringing the proposed line into direct connection with the South-Eastern at Charing Cross, the North-Western at Euston, and the Midland at Kentish Town. The first engineers are Mr. W. R. Galbraith, C.E., and Sir Douglas Fox; total length of the lines, which will be from 40ft. to 50ft. below the surface level, is  $4\frac{1}{2}$  miles, and the estimated cost is £290,000.

At the last meeting of the Wangford Rural District Council, Mr. W. E. Warburton, of Audley, was appointed district road surveyor.

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A Washable Sanitary Distemper for Whitening and Disinfecting Walls and Ceilings of Passages, Cellars, Stables, Kennels, Sheds, Farm Buildings, Railway Trucks, Horse Boxes, and for General Use.

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The most extensive Stock of every kind of Wood in Planks and Boards, dry and fit for immediate use.

## LATEST PRICES.

IRON, &c.		Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0	to	£6 10 0
Rolled-Steel Joists, English.....	6 10 0	"	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	"	6 10 0
Bar Iron, good Staffs.....	7 5 0	"	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	"	17 5 0
Do., Welsh.....	5 15 0	"	5 17 6
Boiler Plates, Iron.....	7 17 6	"	8 5 0
South Staffs.....	10 0 0	"	10 10 0
Best Suedeshill.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., 6d. extra.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge.....	£10 15 0	£11 0 0	
Best ditto.....	11 5 0	11 10 0	
Cast-Iron Columns.....	£6 5 0	to	£8 15 0
Cast-Iron Stanchions.....	6 5 0	"	8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	"	8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	"	7 15 0
Galvanised.....	10 10 0	"	11 10 0
Cast-Iron Sash Weights.....	4 2 6	"	4 5 0
Cut Clasp Nails, 6in. to 6in.....	9 0 0	"	10 0 0
Cut Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9			per cwt.
Cast-Iron Socket Pipes—			
6in. diameter.....	£5 10 0	to	£5 15 0
4in. to 6in.....	5 5 0	"	5 10 0
7in. to 24in. (all sizes).....	4 15 0	"	5 0 0
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lillishall.....	105s.	to	110s.
Hot Blast, ditto.....	57s. 6d.	to	63s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard			
Lists f.o.b.:—			
Gas-Tubes.....			75p.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 5cwt. casks.			
Per ton.	Per ton.		
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 8lb. per sq. ft. super.....	16 10 0	"	17 10 0
Pig Lead, in 1cwt. pigs.....	15 10 0	"	16 10 0
Lead Shot, in 28lb. bags.....	20 0 0	"	21 0 0
Copper Sheets, sheathing and rods.....	83 0 0	"	84 0 0
Copper, British Cake and Ingots.....	74 15 0	"	75 5 0
Tin, Straits.....	106 0 0	"	107 0 0
Do., English Ingots.....	112 0 0	"	113 0 0
Spelter, Silesian.....	27 0 0	"	27 1 3
TIMBER.			
Teak, Burmah.....per load	£13 0 0	to	£15 10 0
" Bangkok.....	10 10 0	"	14 10 0
Quebec Pine, yellow.....	4 7 6	"	6 5 0
" Pitch.....	8 10 0	"	8 15 0
" Oak.....	4 0 0	"	6 0 0
" Birch.....	3 0 0	"	5 0 0
" Elm.....	4 12 6	"	5 15 0
" Ash.....	3 17 6	"	5 5 0
Danitic and Memel Oak.....	3 5 0	"	3 15 0
Fir.....	2 0 0	"	4 0 0
Wainscot, Riga p. log.....	3 15 0	"	5 15 0
Lath, Danitic, p.f.....	4 10 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	8 0 0	"	8 5 0
Box.....	4 0 0	"	15 0 0
Sequoia, U.S.A. ..per cube foot	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5	"	0 0 7
" Honduras.....	0 0 3	"	0 0 4
" Mexican.....	0 0 3	"	0 0 4
Cedar, Cuba.....	0 0 4	"	0 0 4
" Honduras.....	0 0 3	"	0 0 4
Satinwood.....	0 0 9	"	0 1 9
Walnut, Italian.....	0 0 3	"	0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in.			
by 1½in.—			
Quebec, Pine, 1st.....	£18 15 0	to	£25 5 0
" 2nd.....	13 15 0	"	17 0 0
" 3rd.....	6 0 0	"	10 0 0
Canada Spruce, 1st.....	8 15 0	"	10 15 0
" 2nd and 3rd.....	7 0 0	"	8 15 0
New Brunswick.....	7 0 0	"	7 15 0
Riga.....	8 5 0	"	10 5 0
St. Petersburg.....	11 15 0	"	14 5 0
Swedish.....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	18 0 0
Battens, all sorts.....	5 0 0	"	18 0 0
Flooring Boards, per square of lin.:—			
1st prepared.....	£0 9 0	"	£0 15 3
2nd ditto.....	0 7 0	"	0 12 3
Other qualities.....	0 5 3	"	0 6 8
Staves, per standard M:—			
Quebec pipe.....	—		—
U.S. ditto.....	£35 0 0	"	£42 10 0
Memel, cr. pipe.....	210 0 0	"	220 0 0
Memel, brack.....	180 0 0	"	190 0 0
OILS.			
Linseed.....per ton.	£17 10 0	to	£18 0 0
Rapeseed, English pale.....	22 10 0	"	22 15 0
Do., brown.....	20 15 0	"	21 5 0
Cottonseed, refined.....	16 0 0	"	14 10 0
Olive, Spanish.....	30 0 0	"	32 0 0
Seal, pale.....	21 0 0	"	21 5 0
Cocoanut, Cochin.....	29 5 0	"	29 10 0
Do., Ceylon.....	25 10 0	"	25 15 0
Palm, Lagos.....	24 0 0	"	24 10 0
Oleine.....	18 15 0	"	19 15 0
Lubricating U.S.....per gal.	0 6 3	"	0 7 6
Petroleum, refined.....	0 0 6	"	0 0 6
Tar, Stockholm.....per barrel	1 0 0	"	1 5 0
Do., Archangel.....	0 15 0	"	0 18 0
Turpentine, American.....per ton	28 15 0	"	29 0 0



## LIST OF COMPETITIONS OPEN.

Kilmallock—O'Sullivan's Monument	.....	The O'Sullivan Memorial Committee, Kilmallock	.....	Mar. 29
Doncaster—House for Grammar School Master (limit £3,500; Assessor)	.....			
Forfar—Isolation Hospital (Assessor)	.....	J. Geo. Nicholson, Clerk to Trustees, Cleveland-street, Doncaster	.....	30
Swindon—Additional Fever Pavilion (24 beds)	.....	Henry A. Patello, Solicitor, 1, Bank-street, Dundee	.....	31
Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor)	.....	W. H. Kinneir, Clerk, High-street, Swindon	.....	31
Fleetwood—Board Schools, West-street (600 places)	.....			
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	.....	The City Surveyor's Office, Bradford	.....	April 14
Stockton-on-Tees—Market Hall	.....	J. H. Kean, Clerk to Board, Fleetwood	.....	18
Leeds—Market Hall and Shops, Kirkgate Market	.....	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate	.....	30
Okehampton—Workhouse and Infirmary (9 inmates)	.....	The Borough Engineer, Stockton-on-Tees	.....	May 1
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	.....	The City Engineer, Municipal Buildings, Leeds	.....	June 1
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair)	.....	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton	.....	1
Wandsworth, S.W.—Guardians' Board-room, Offices, &c.	.....			
Hexham—Vagrant Wards at Workhouse	.....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	.....	3
Staines—London-rd. Bd. School (250 places; £6 limit per head)	.....			
Ballyshannon—Rectory (probable cost £1,000)	.....	F. Moggridge, 18, King's-place, Portman-square, W.	.....	—
St. Thomas—Boys' School (600 places) and Teachers' Residence	.....	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W.	.....	—
		J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham	.....	—
		J. Anthony Engall, Clerk, Staines	.....	—
		Rev. William Baillie, M.A., Laputa, Ballyshannon	.....	—
		J. Champion, Clerk, St. Thomas, near Exeter	.....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Bridlington Quay—Stable and Coachhouse, Cabron-villas	.....	Mrs. Kirkpatrick	.....	Samuel Dyer, Architect, Bridlington Quay	.....	Mar. 25
South Kirby—Wesleyan Church	.....			G. F. Pennington, M.S.A., Central Chambers, Castleford	.....	25
Blackhall Mill, Durham—House and Stables	.....	G. Nixon	.....	D. M. Spence, Architect, Ashmount, Shotley Bridge	.....	25
Nottingham—New Wing for General Hospital	.....			A. Waterhouse and Son, Archts., 20, New Cavendish-street, W.	.....	25
Beddau—Five Houses	.....	Frank Rees	.....	A. O. Evans, Architect, Post Office Chambers, Pontypriid	.....	25
Hull—House	.....			E. Whitlock, Architect and Surveyor, 26, Scale-lane, Hull	.....	25
Pontypool—Pair of Semi-Detached Villas, Station Field	.....	Miss Mary Wood	.....	D. J. Lougher, Bank Chambers, Pontypool	.....	25
Bourne—New Schools	.....	Trustees of Congregational Chapel	.....	F. G. Shilcock, Architect, Bourne	.....	25
Huddlesden—Congregational Chapel and School	.....			Woods and Thackeray, Architects, Darwen	.....	25
Great Yarmouth—House and Shop	.....	J. W. Argyle	.....	Chas. G. Baker, Architect, Yarmouth	.....	25
Broken Cross—Additions, National Schools	.....	Managers	.....	Whittaker & Bradburn, Archts., 19, King Edward-rd., Macclesfield	.....	25
South Kirby—Wesleyan Church	.....			G. F. Pennington, M.S.A., Central Chambers, Castleford	.....	25
Croom—Sacristy	.....	Rev. James O'Shea, P.P.	.....	J. Moriarty, Main-street, Croom	.....	25
Dewsbury—Extension Electric Lighting Station	.....	Corporation	.....	Hy. Dearden, A.R.I.B.A., Boro' Surveyor, Town Hall, Dewsbury	.....	25
Aberdeen—Winter Garden, Duthie Park	.....	J. Cheeseman	.....	John Rust, City Architect, 224, Union-street, Aberdeen	.....	25
Chopwell—Twelve Houses	.....			D. M. Spence, Architect, Ashmount, Shotley Bridge	.....	25
Staines—New Receiving Wards and Porter's Lodge at Workhouse, Stanwell	.....	Staines Union Guardians	.....	J. A. Engall, Clerk, Clarence-street, Staines	.....	27
Bridlington Quay—Three Houses, Cambridge-street	.....	Hardwick and Sons	.....	Brodrick, Lowther, and Walker, Architects, Bridlington Quay	.....	27
Treorky—Ainon Baptist Chapel	.....			Rev. S. Morgan, 3, Bute-street, Treorky	.....	27
Belfast to Rich Hill—Fourteen Cottages at Level Crossings	.....	Gt. Northern (Ireland) Railway Co.	.....	T. Morrison, Secretary, Amiens-street, Dublin	.....	27
Huddersfield—Station-street Buildings	.....	Armitage and Norton	.....	Abbey and Hanson, Architects, 20, Ramsden-street, Huddersfield	.....	27
Derwent Cottages—Wesleyan Methodist Church	.....			Geo. Thos. Wilson, 121, Durham-road, Blackhill	.....	27
London, E.—Extension of Infirmary, Bow-road, E.	.....	City of London Union Guardians	.....	J. Pridmore, Architect, 2, Broad-street Buildings, E.C.	.....	27
Stockton-on-Tees—Additions to Baths, Portrack-lane	.....	Corporation	.....	M. H. Sykes, Borough Engineer, Town Hall, Stockton	.....	27
Leadsge—New Out-Offices at Cottages	.....	Consett Iron Company	.....	C. E. Oliver, Architect, General Offices, Blackhill	.....	27
Cardiff—Wesleyan Calvinistic Chapel, Crwys-road	.....			John H. Phillips, Architect, St. John's Chambers, Cardiff	.....	27
Rugby—Iron Buildings in Chapel, Crwys-road	.....	Urban District Council	.....	D. G. Macdonald, Surveyor, Rugby	.....	27
Chopwell—Forty-four Cottages	.....	Consett Iron Company	.....	C. E. Oliver, Architect, General Offices, Blackhill	.....	27
Wombwell—Girls' School, Park-street	.....	School Board	.....	Jno. Robinson, Clerk, Park-street, Wombwell	.....	28
Linthwaite—Wesleyan Assembly Hall	.....			John Kirk and Sons, Architects, Huddersfield	.....	28
Poplar, E.—Coroner's Court, Mortuary, &c., High-street	.....	Board of Works	.....	Lansell and Harrison, Architects, 38, Bow-lane, Cheapside, E.C.	.....	28
Combwich—Warehouse	.....			The Secretary, Farmers' Association, Combwich	.....	28
Bridlington Quay—Additions to Havelock House	.....	Mrs. Stow	.....	J. Earnshaw, Architect, Bridlington Quay	.....	28
Glencolumbkille—Extending Parish Church	.....	Select Vestry	.....	S. P. Close, Architect, Donegal-square Buildings, Belfast	.....	28
Tow Law—Two Seven-roomed Houses	.....	Corporation	.....	R. Rawe, Prospect House, Tow Law	.....	28
Coventry—Extension of Electricity Works, Sandy-lane	.....	Board of Guardians	.....	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry	.....	28
Kingston-on-Thames—Female Infirmary, &c., at Workhouse	.....			W. A. Hope, C.E., Architect, Portsmouth-rd., Kingston-on-Thames	.....	28
Griffithstown—Four Semi-Detached Houses	.....	Wandsworth Dist. Board of Works	.....	J. Phillips, 20, Oxford-street, Griffithstown	.....	28
Tooting—Stabling and Cottage at Dust Destructor, Alston-rd.	.....			H. G. Hills, Clerk, East Hill, Wandsworth, S.W.	.....	28
Liverpool—Alterations, Public Washhouses, Burrough's-garden	.....			W. R. Court, Engineer, Cornwallis-street, Liverpool	.....	28
Leeds—Addition of an Apse, Nave Roof, Seating, &c., St. George's Church	.....	Metropolitan Asylums Board	.....	H. Walker, Architect, 8, Upper Fountain-street, Leeds	.....	29
Winchmore Hill—Boiler and Engine House	.....			Pennington and Son, Archts., Hastings House, Norfolk-st., Strand	.....	29
Hawksworth—Enlargement of Schools	.....	Guardians of St. Germans Union	.....	W. Mortimer and Sons, Architects, Lincoln	.....	29
Torpoint—Repairing Workhouse	.....	T. Baxter	.....	Fred. Wm. Cleverton, Clerk, Union House, Torpoint	.....	29
Morecambe—House and Shop, Cross-street	.....	J. Barnes	.....	Marshall Bros., Architects, Back Crescent, Morecambe	.....	29
Elgin—Steadings, Easter Manben and at Claydales	.....	E. H. Bretherton	.....	A. and W. Reid and Wittet, Architects, Elgin	.....	29
Barton Joyce—House and Sale Shop	.....			R. Whitbread, M.S.A., Architect, Carlton	.....	29
Abergavenny—Semi-detached Villas, Hatherleigh-road	.....	Rev. W. F. Cullens	.....	E. A. Johnson, Architect, Abergavenny	.....	29
Whitby—Parish Room, St. Hilda's-terrace	.....	J. Hughes	.....	Edward H. Smales, A.R.I.B.A., 5, Flowergate, Whitby	.....	30
Wheatley Hill—Extension and Restoration of Church	.....	Asylum Committee	.....	James Garry, Architect, 47, Church-street, West Hartlepool	.....	30
Llangollen—Two Houses, Princess-street	.....	Committee	.....	J. Denny, Architect, Llangollen	.....	31
Ipswich—Alterations and Additions to Borough Asylum	.....	Managers	.....	E. Buckham, Borough Surveyor, Town Hall, Ipswich	.....	April 1
St. Peter's Port, Guernsey—School Buildings at Amherst	.....			Colson, Farrow, and Nisbett, Archts., 45, Jewry-street, Winchester	.....	1
Englefield Green—Enlarging School, &c.	.....	Corporation	.....	W. Menzies, Architect, Englefield Green, Surrey	.....	1
Hastings—Stabling at Rock-a-Nore, Vine Farm, St. Helen's, and Silverhill	.....	School Board	.....			
Ardrossan—Additions to Academy	.....	Cwmaman Building Club	.....	P. H. Palmer, M.I.C.E., Borough Engineer, Town Hall, Hastings	.....	3
Cwmaman—Seventeen Houses	.....			John Armour, jun., Architect, Irvine	.....	3
Clifton, Cumberland—Altering and Renovating Parish Church	.....	School Board	.....	Llewellyn Smith, Architect, 20, Commercial-street, Aberdare	.....	3
Great Yarmouth—Additions to Northgate School	.....	Urban District Council	.....	J. Howes, Architect, Workington	.....	4
Leyton—Public Baths	.....	Committee of Visitors	.....	Bottle and Olley, Architects, Queen-street, Great Yarmouth	.....	4
Rauceby, near Skeaford—Superstructure of Lunatic Asylum	.....			Harrap and Duffield, Architects, 31, Queen-street, E.C.	.....	4
Egremont—Additions to Roman Catholic Schools	.....	Terrell and Sons	.....	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-street, S.W.	.....	4
Bristol—Rope Factory, Bath-road	.....			J. S. Stout, Architect, Gilfoll, Egremont	.....	5
Halifax—Iron Foundry, Albert-road	.....	School Board	.....	Henry Williams, Architect, 24, Clare-street, Bristol	.....	5
Tipton—Ocker Hill Schools	.....			Jackson and Fox, Architects, 7, Rawson-street, Halifax	.....	6
Halwell—Two Cottages	.....	Hornsey Urban District Council	.....	A. Long, Architect, 21, High-street, West Bromwich	.....	6
Unahw Moor—Wesleyan Premises	.....	Mrs. Jenkins	.....	Rev. B. Wheel, the Vicarage, Halwell	.....	6
Stroud Green, N.—Branch Public Library	.....	Governors	.....	J. Walton Taylor, F.R.I.B.A., Architect, Newcastle-on-Tyne	.....	7
Cornelly—Villa	.....	Joint Committee of Railway Cos.	.....	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate	.....	10
Durham—Technical School	.....	Robert Newton	.....	P. J. Thomas, Architect, Bridgend	.....	10
Helaby—Six Cottages	.....	Corporation	.....	Oliver and Leeson, Architects, Bunk Chambers, Newcastle	.....	11
Gatehead—Rebuilding the Foresters' Arms, Askew-road	.....	Great Western Railway Company	.....	A. E. Bolter, Secretary, Paddington Station, London	.....	11
Penzance—Buoy Store, &c., Trinity Store	.....	Guardians	.....	A. G. Kyle, Architect, 145, Pilgrim-street, Newcastle	.....	13
Cardiff—Stable	.....	Wood Bros.	.....	Chas. A. Kent, Secretary, Trinity House, London, E.C.	.....	17
Chelsea, S.W.—Two Bath Turrets at Infirmary, Cale-street	.....			G. K. Mills, Secretary, Paddington Station, London	.....	18
Silloth—Stable, Byne, &c., at Wolsty Hall	.....	W. Whitaker and Co., Bradford	.....	Lansell and Harrison, Archts., 38, Bow-lane, Cheapside, E.C.	.....	18
Morecambe—Villa, Stabling, &c.	.....	A. G. Rayner	.....	P. and J. W. Hayton, Surveyors, Bank-street, Carlisle	.....	—
Belfast—Dwelling-houses, Brown's-square and Gardiner-street	.....	C. and W. C. Keighley	.....	Marshall Bros., Architects, Back Crescent, Morecambe	.....	—
Olley—Rebuilding Black Horse Hotel	.....	James M'Mullan	.....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast	.....	—
St. Mellon's—Three Cottages	.....	Rogers and Co	.....	H. Chippendale, Architect, Springfield, Guiseley	.....	—
Colchester—House, Rawdon-road	.....			David Oaklands, St. Mellon's, Mon.	.....	—
Ashton-under-Lyne—Fourteen Cottages	.....			C. E. Butcher, Architect, 3, Queen-street, Colchester	.....	—
Morecambe—Two Semi-Detached Houses, Rossendale-avenue	.....			T. George and Sons, Architects, Old-square, Ashton-under-Lyne	.....	—
South Acton, W.—Laundry Premises	.....			Marshall Bros., Architects, Back Crescent, Morecambe	.....	—
Lurgan—Grocery Premises, Market-street	.....			G. P. Pratt, A.R.I.B.A., 10, The Parade, Churchfield-road, Acton	.....	—
Priest-on-Sea—Small House	.....			W. J. Moore, Architect, Ann-street, Belfast	.....	—
Cardiff—Additions to 1, Adam-street	.....			Beresford Pite, F.R.I.B.A., 49, Harley-street, W.	.....	—
Kidderminster—Two Shops and Houses, New-road	.....			J. P. Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff	.....	—
				J. M. Gething, Architect, Oxford Chambers, Kidderminster	.....	—



BUILDINGS—continued.

Morecambe—House and Shop, Sefton-road.....	J. Statton .....	Marshall Bros., Architects, Back Crescent, Morecambe .....	—
Cardiff—Church.....	C. E. Maulden .....	Frederick R. Kempson, F.R.I.B.A., Hereford .....	—
Bulmer, Sudbury—Rebuilding Fox Inn .....	Goole Steam Laundry Co. ....	John Shewell Corder, Architect, Wimbourne House, Ipswich .....	—
Stapleford—Primitive Methodist Chapel and School .....	R. Haastewell .....	Hy. Harper, Architect, 8, Beasmarket Hill, Nottingham .....	—
Goole—Alterations to Building in Victoria-street .....	G. R. Burnett .....	J. Roberts, Clarkson's Hotel, Goole .....	—
Morecambe—Alterations to 22, The Crescent .....	Aldrich and Co., Limited .....	P. B. Rigg, Architect, Market-street, Morecambe .....	—
Haltwhistle—Dwelling-House .....	A. Wenlock .....	H. Higginson, M.S.A., Carlisle .....	—
Ackworth—Two Stone Houses .....	School Board .....	Walter E. Richardson, Architect, 28, Bond-street, Leeds .....	—
Seascale—Preparatory School .....	J. Abraham .....	W. Mason and Son, Architects, Ambleside .....	—
Bermordsey, S.E.—Factory .....	Ed. Woodward .....	Wm. Freeman, Surveyor, 162, Kennington-road, S.E. ....	—
Dis—Warehouse and Offices .....	Halstead Co-operative Society .....	J. Shewell Corder, Architect, Wimbourne House, Ipswich .....	—
Bradford—Porch, Seating, &c., at Park Chapel, New Cross-st. ....	Jas. Campbell .....	Sam'l. W. Pichers, 14, Grantham-place, Bradford .....	—
Brightlingsea—House and Shop, High-street .....	Managers .....	Chas. E. Butcher, Architect, 3, Queen-street, Colchester .....	—
Aberfan—Pair of Semi-Detached Cottages .....	Waterloo Co-operative Society .....	William Dowdewell, Architect, Treharris .....	—
Long Eaton—Schools and Swimming-Bath .....	Pragnell and Co. ....	E. R. Ridgway, Architect, Long Eaton .....	—
Nacton—Additions to Rectory .....	Port Talbot Development Co. ....	J. Shewell Corder, Architect, Wimbourne House, Ipswich .....	—
Clevedon—House and Shop, Kenn-road .....	School Board .....	C. R. Middle, Clevedon .....	—
Pudsey—Five Small Through Houses, Somerset-road .....	Geo. Ford .....	George D. Goforth, Richardshaw-lane, Pudsey .....	—
Hanley—Shop Premises and House, Keeling's-lane, Northwood .....	Industrial Co-operative Society .....	A. P. Miller, Architect, Frederick-street, Hanley .....	—
Ballynahinch—Business Premises .....	S. H. Jackson .....	H. M. Reid, C.E., Ballynahinch, Ireland .....	—
Littlemoss, Ashton—Branch Store .....	Trustees .....	Goodey and Cressall, Architects, 2, Victoria Chambers, Colchester ..	—
Allerton—Villa Residence, Chellow Dean .....	Valentine Harrison .....	Walter Durrant, Hermon Lodge, Felixstowe .....	—
Thorham—Repairing Nave Roof of Church .....	—	W. J. Moore, Architect, Ann-street, Belfast .....	—
Bristol—Additions to Premises, Broadmead .....	—	Thos. Wm. Cotman, Architect, Northgate-street, Ipswich .....	—
Shipley—Combining Shed .....	—	F. Hunter Lynes, A.B.I.B.A., Gresham Chambers, Wolverhampton ..	—
Dewsbury—Glassworks, Savile Town .....	—	Wood and Kendrick, Architects, West Bromwich .....	—
Port Talbot—Fifty Cottages .....	—	A. J. Howcroft, Architect, 12, Clegg-street, Oldham .....	—
Bradford—Alterations to Premises, Leeds-road .....	—	J. W. C. Atkinson, Architect, 1, Ivegate, Bradford .....	—
Wrexham—Central Stores, Bridge-street .....	—	The Vicar, Thorham, Norfolk .....	—
South Uist—Additions to Eriskay School .....	—	James Hart, Corn-street, Bristol .....	—
Beaslow—Enlarging Cottage .....	—	John Jackson, M.S.A., Barry-street, Bradford .....	—
Allerton—Four Houses and House and Shop, Prospect-terrace ..	—	J. Judson and Moore, Architects, York Chambers, Keighley .....	—
Southend-on-Sea—Tower Boarding House, Beach-road .....	—	David C. Salmond, Architect, 7, Windsor-place, Cardiff .....	—
Derby—Seven Cottages, Nottingham-road .....	—	Empsall and Clarkson, Architects, 7, Exchange, Bradford .....	—
Coxhoe—Assembly Hall .....	—	Morrison and Son, Architects, King-street, Wrexham .....	—
Rugeley—Bakery and Slaughter-House .....	—	J. Wedderspoon, C.E. Inverness .....	—
Bradford—Warehouse .....	—	W. Cecil Jackson, M.S.A., 23, Knifessmithgate, Chesterfield .....	—
Ashby-de-la-Zouch—House and Stable, Tamworth-road .....	—	R. Drake, Architect, 142, Allerton-road, Allerton .....	—
Ulverston—Alterations to Shop, King-street .....	—	W. Y. Hobbias, Architect, 57, High-street, Southend-on-Sea .....	—
Wrexham—Central Stores, Bridge-street .....	—	E. R. Ridgway, Architect, Long Eaton .....	—
Keighley—Shop, &c., Cooke-lane .....	—	C. A. Todd, Clarence Villa Hotel, Coxhoe .....	—
Felixstowe—Presbyterian Church .....	—	The Architect, Co-operative Wholesale Society, Manchester ..	—
Wigton—Alterations and Additions to Westmorland House .....	—	Jas. Young and Co., Architects, 62, Market-street, Bradford .....	—
Great Harwood—Deveron Mill .....	—	J. Pickthorn, Market-street, Ashby-de-la-Zouch .....	—
Lurgan—Licensed Premises .....	—	Settle and Farmer, Architects, Ulverston .....	—
Elland—New Church .....	—	Morrison and Son, Architects, King-street, Wrexham .....	—
	—	Judson and Moore, York Chambers, Keighley .....	—
	—	G. W. Leighton, Architect, Princes-street, Ipswich .....	—
	—	Jos. Graham, Architect, Bank-street, Carlisle .....	—
	—	Clayton, Goodfellow, and Co., Limited, Atlas Foundry, Blackburn ..	—
	—	W. J. Moore, Architect, Whitehall Buildings, Belfast .....	—
	—	Geo. H. F. Prynn, F.R.I.B.A., 6, Queen Anne's-gate, Westminster ..	—

ENGINEERING.

Bristol—Pumping Engines, &c. ....	Waterworks Company .....	T. and C. Hawtley, Engineers, 30, Great George-street, S.W. ....	Mar. 25
Laurdockkirk—Cast-Iron Pipes (6 miles) .....	Sanitary Authority .....	Jenkins and Marr, Architects, 16, Bridge-street, Aberdeen .....	25
Berswick-upon-Tweed—Sluice-Valves for Watermains .....	Waterworks Committee .....	W. Weatherhead, Clerk, 7, Quay-walls, Berwick-upon-Tweed .....	25
Manchester—Two Sets of Steam Pumping Engines .....	Gas and Electricity Committee .....	The Secretary, Waterworks Office, Town Hall, Manchester .....	25
Sheepwash—Bridge over River Wansbeck .....	Thrapston Rural District Council ..	Northumberland County Engrs.' Office, Moot Hall, Newcastle-on-T. ..	25
Stockport—Arc Lamps .....	—	S. Maunier, Engineer, Stockport .....	25
Ringstead—Lattice Girder Bridges .....	—	G. Hunningham, Clerk, Thrapston .....	25
Norwich—Heating and Ventilation of Isolation Hospital, Bowthorpe-road ..	—	—	—
London, E.C.—Set of Three-throw Pumps, City-road Workhouse ..	Guardians of Holborn Union .....	Arthur E. Collins, City Engineer, Guildhall, Norwich .....	27
Dartford—Gas Mains .....	Joint Hospital Committee .....	John Buley, C.E., Suffolk House, Laurence Pountney Hill, E.C. ....	27
Pengam—Girder Highway Bridge over Rhymney River .....	Bedwellty Urban District Council ..	G. Hunter Tait, C.E., Dartford .....	27
Beckenham—Dust Destructor, Arthur-road .....	Urban District Council .....	J. H. Lewis, A.M.I.C.E., Blackwood, Mon .....	27
Shoeburyness—Gasworks .....	Shoeburyness-on-Sea Gas Company ..	John Angell, Engineer, Beckenham .....	27
Highgate, N.—Additions to Steam Laundry at Infirmary .....	Holborn Union Guardians .....	Henry J. Robus, Consulting Engineer, 20, Bucklersbury, E.C. ....	27
Barking—Electrical Plant .....	Urban District Council .....	J. Buley, Engineer, Suffolk House, Laurence Pountney Hill, E.C. ....	27
Edinburgh, Leith, and Newhaven—Extension Lines .....	Caledonian Railway Company .....	W. C. C. Hawtney, Consulting Engineer, 9, Queen-st. Place, E.C. ....	27
St. Stephen's-by-Saltash—Waterworks .....	St. Germans Rural District Council ..	G. Graham, C.E., Buchanan-street Station, Glasgow .....	27
Doncaster—Electrical Plant, &c. ....	Corporation .....	Fred. W. Cleverton, Clerk, 4 Buckland-terrace, Plymouth .....	28
Aberdeen—Electrical Plant for Equipping the George-street and Woodside Route ..	—	James N. Schoolbred, C.E., 47, Victoria-street, S.W. ....	28
Bishop Auckland—Water-Mains (93 yards of 3in. and 2in.) ..	Corporation .....	J. Alex. Bell, City Electrical Engineer, Town House, Aberdeen .....	29
Bideford—River Bank Improvement .....	Rural District Council .....	C. Johnston, Surveyor, 1, Cradock-street, Bishop Auckland .....	29
Dagenham—Bridge over Beam River .....	Urban District Council .....	H. Chowins, Borough Surveyor, Bideford .....	29
Derby—Overhead Hand Crane at Electric Station .....	Essex County Council .....	P. J. Sheldon, A.M.I.C.E., Surveyor, County Offices, Chelmsford .....	30
Sunderland—Cables, &c. ....	Electric Lighting Committee .....	T. P. Wilmhurst, Borough Electrical Engineer, Sowter-road, Derby ..	30
Cashe—Single-Lift Gasholders and Purifiers .....	Corporation .....	J. F. C. Snell, A.M.I.C.E., Dunning-street, Sunderland .....	30
Havering Ford—Bridge .....	Urban District Council .....	J. O'Leary, Town Clerk, Town Hall, Cashe .....	30
Dunkeld—Track Cutting for 5,000 yards of 3in. and 4in. Cast-Iron Pipes .....	Essex County Council .....	P. J. Sheldon, A.M.I.C.E., Surveyor, County Offices, Chelmsford .....	30
Leadbury—Covered Reservoir .....	Perthshire County Council .....	—	—
Bury, Lancs—Alterations to Gasworks .....	Urban District Council .....	Thomson and Wright, C.E., 22, Rutland-square, Edinburgh .....	April 8
Aberdeen—Boilers, &c. ....	Corporation .....	B. E. W. Berrington, Bank Buildings, Wolverhampton .....	8
Lanchester—Bridge over New House Burn .....	Corporation .....	John Haslam, Town Clerk, Bury .....	8
Briton Ferry—Removal of Partly-Constructed Ship Lock .....	North Harbour Commissioners .....	Alex. Bell, City Electrical Engineer, Town House, Aberdeen .....	8
Grove Park, S.E.—Sinking Well at New Workhouse .....	Greenwich Union Guardians .....	The Surveyor's Office, Lanchester, Durham .....	8
Burton-upon-Trent—Bridge Ironworks, Horninglow-street .....	Corporation .....	Gwyn Lewis, Harbour Superintendent, Briton Ferry, Glamorgan .....	10
Tynemouth—Electricity Works .....	Corporation .....	Thos. Dinwiddy, Architect, 12, Crooms Hill, Greenwich, S.E. ....	12
Peterborough—Electric Lighting Plant .....	Corporation .....	G. T. Lynam, Borough Engineer, Burton-upon-Trent .....	13
Shanghai—Electric Trolley Tramways (23 miles) .....	Municipal Council .....	Lacey, Clreghugh, and Sillar, 2, Queen Anne's-gate, Westminster ..	15
Southampton—Shafting, &c. ....	—	J. C. Gill, A.M.I.C.E., Municipal Offices, Peterborough .....	20
Civita Vecchia—Harbour Extensions, &c. ....	—	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....	June 30
	—	H. Cleaver, Consulting Engineer, 52, Bridge-road, Southampton .....	—
	—	The Italian Department of Public Works, Rome .....	—

FENCING AND WALLS.

London, E.C.—Fencing Materials, and Galvanised Eye-Bolts and Wire for Fencing .....	Burma Railways Co., Ltd. ....	The Company's Offices, 76, Gresham House, Old Broad-street, E.C. Mar. 27	27
Llangwyne—Concrete Wall at Landelp .....	North-Eastern Railway Company .....	H. Edgar Thomas, Clerk to the County Council, County Hall, Brecon April 5	5
Hull—Two River Walls (327ft. and 230ft.), St. Andrew's Dock ..	Watford Urban District Council ..	T. M. Newell, Engineer, Dock Office, Hull .....	6
Watford—Wrought-Iron Fencing (1,200 yards) .....	—	D. Waterhouse, 14, High-street, Watford, Herts .....	6
Hull—Four Pairs Iron Gates, and 77yds. of Wrought-Iron Fence for West Park .....	—	—	—
Midhurst—Oak Swing Gates (100) and Fittings .....	—	A. E. White, City Engineer, Town Hall, Hull .....	12
	—	W. Haslam, Cowdray Estate Office, Midhurst, Sussex .....	—

FURNITURE AND FITTINGS.

Glasgow—Furniture for 200 Nurses' Bedrooms, Rutchill Hospital ..	Corporation .....	J. Lindsay, Interim Clerk, City Chambers, Glasgow .....	Mar. 26
East Ham—Furniture, &c., New Central Park-road Schools .....	School Board .....	Robert L. Curtis, Architect, 20, London Wall, Moorgate-street, E.C. ....	27

PAINTING.

Smethwick—Free Library, Gas Office, and Police Court .....	Urban District Council .....	C. J. Fox Allan, Surveyor, Public Buildings, Smethwick .....	Mar. 25
Moss—Interior of Brake Wesleyan Chapel and Schoolroom .....	Corporation .....	J. A. Harrop, Moss, near Wrexham .....	25
York—Houses and Shops (Outside) in Parliament-street .....	St. Marylebone Guardians .....	A. Creer, City Engineer, Guildhall, York .....	26
Notting Hill, W.—Infirmary, Racket-street .....	School Board .....	The Steward, Infirmary, Racket-street, Notting Hill, W. ....	27
York—Fishgate, Park-grove, and Scarcroft Board Schools .....	Managers .....	Demaine and Briarly, 18, Lendal, York .....	27
Bromley, E.—External Painting and Pointing Brickwork at Asylum, Devons-road .....	Myrtle Lodge of Oddfellows .....	—	—
Bingley, Yorks—Eight Houses in Belgrave-road .....	Guardians of Sculcoates Union .....	J. and S. F. Clarkson, Archts., 136, High-street, Poplar, E. ....	28
Hessle—Cottage Homes .....	Guardians .....	W. Rhodes Nunns, Architect, Market-street, Bingley .....	28
Scarborough—Outside Wood and Ironwork of the Workhouse ..	School Board .....	T. Beecroft Atkinson, Architect, 11, Trinity House-lane, Hull .....	28
Halifax—Outside Painting Akroyd-place, Bradshaw, Mixenden and Portland-road Board Schools .....	—	W. O. Woodall, Clerk, 32, Queen-street, Scarborough .....	29
	—	W. H. Osler, Clerk, 24, Uni-n-street, Halifax .....	30



# THE BUILDING NEWS AND ENGINEERING JOURNAL.

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FRIDAY, MARCH 31, 1899.

## THE BUILDING TRADES.

THE report of the special sub-committee on the Building Trades, of which we recently gave a summary, is of considerable interest to all connected with building. We cannot here do more than refer to the recommendations. The sub-committee attach great importance to manual training and drawing and to theoretical classes. It has been shown, from inquiries instituted amongst great firms, that London employers are unwilling to take boys as apprentices, or to provide for them any means of instruction. Out of an enormous number of employés a very small percentage are apprentices and learners. The bulk of those who enter the trades are, in fact, recruited from the country. These youths are ill-fitted for the occupation in many instances, and they find it difficult to get into situations where they can learn anything. The masters want hands, and take raw youths who are willing to pick up what they can without trouble or expense to themselves. It is this kind of recruits which answers the speculative builder and many large building firms the best. Employers object to any responsibility with regard to instruction. Things are now a little changed. Building trade classes have sprung up; the polytechnics are fairly filled with students wishing to improve themselves, especially in trades like those of the carpenter and joiner, bricklayer and mason, and builders' clerk. The report observes there are over a thousand entries in building construction at the polytechnics alone, and the number of artisans attending classes in practical plane and solid geometry are on the increase. In addition, workshop classes in the several trades are opened at several centres, carpentry and joinery being the largest in number, plumbing coming next, followed by painters and decorators, bricklayers, &c. It is estimated that at least 1,500 youths and men engaged in the trades have been attending the classes during the present session, in addition to those attending the Science and Art Department classes. These figures are satisfactory; but, after all, they represent a very small percentage of the whole number of youths, apprentices, and journeymen in the trades. The class-goers will be found to be those of studious habits; but the great majority are beyond control. The Board has, we believe, appointed a sub-committee to inquire into the question, and to see if the provision of technical instruction in building is adequate, and how it can be improved. This latter object seems to be one requiring the best attention. We believe the practical work done by the students themselves is the most attractive part of the scheme of instruction in all trades. The elementary and advanced classes take the best amongst the more studious; but it has been found rather difficult, we understand, to interest the average student in elementary subjects, or even to get the apprentices, who prefer practical exercises, to attend the lectures or the classes in drawing, science construction, arithmetic, and subjects of this kind. The practical student in brick-cutting prefers to set out arches, gauged work, niches, mouldings, and to execute them in brick and putty, than to learn the theory or the drawing necessary; so the apprentice who just begins to master his tools is more inclined to practise his hands at making models of roofs and domes, of staircase winders, wreathed handrails, scroll steps, spiral stairs, or frame doors, &c., than

he is to master the elementary principles of carpentry, the mechanics of stresses. This preference may be noticed at most of the polytechnic institutions, such as at the Battersea Polytechnic. The ordinary student is impatient of theoretical training and principles, or even geometry and drawing; these subjects have little interest for him. This inclination for doing practical work, for turning out specimens of manual skill, ought to suggest to the teaching staff of these institutions, the need of teaching the theoretical through the practical; in other words, of persuading the students of each trade to prepare the detail drawings of the work they are about to execute. The plan adopted by some of the polytechnics, like the Northern, ought to be generally followed—namely, to get every student to set out or draw the details of his work. It is particularly necessary in trades like the bricklayer and cutter, carpenter and joiner, and mason; it also applies to other trades as well. The plasterer should, of course, be taught to model his work, and practical instruction in the plastering of walls and ceilings of ordinary materials, as well as on expanded metal and other iron construction and metal lathing, should be given. The co-operation of elementary knowledge with practical exercises seems to be not generally recognised; they are too often regarded as separate things, both by the instructor and the pupil. The scheme adopted in many instances is to encourage the students of practical work to attend the classes in geometry and drawing, and in most cases members of the practical classes are admitted to the lectures free. This is quite right, but the better course would be to attach to every elementary and drawing class a workshop or laboratory. The facts appear, at any rate, to point to the success of the special workshop classes. Of course, there will always be a technical and mechanical side and an artistic side to every craft, and while some will devote themselves to actual work, others will be disposed to follow the artistic part. The School of Arts and Crafts favours the latter side of the trades, and to it the trade schools must look for guiding principles. The practice of getting pupils and apprentices to design for themselves seems to be the most hopeful course to pursue. Set designs are useful at first, but the pupil who comes from a builder's workshop, and has any enthusiasm for his work, will be glad to show his ability. In the ornamental lead-work branch of plumbing this has been encouraged with good results.

The report goes on to refer to the difficulty that exists of securing for boys who desire to enter a building trade a suitable training. As we have pointed out in these pages, employers in the trades are not in favour of taking apprentices: they look out for men who are able to earn full wages, and can turn their labour to profit. It has been found from inquiry that "the great expenses connected with a building workshop in London necessitate that every branch should be employed in producing the most valuable output." These are serious obstacles to any system of instruction in London. In some cases, as in bricklaying, there are other difficulties in the way of an apprentice learning; he is not old enough to work on scaffolds, and the societies and trade unions put restrictions which are unfavourable to the system. The plumbers are better off in this respect, as the practice of sending a mate with a plumber opens the door for a clever and enterprising apprentice. The obstacles in the way of apprenticeship are indeed serious, and we do not see how the practical teaching of any trade can be effectually learned in any other way.

As the report shows, "the technical institutes do not afford an avenue by which a boy can enter a trade"; while they improve his condition when he is in the trade, and

tend to improve his technical skill, they fail to provide means by which the trade can be recruited. The conditions of London life and work are certainly most unfavourable to the system. London employers can import provincial workmen ready trained, and while they can do this it is not likely that they will produce workmen in London, where rents are dear and space is restricted. The evidence brought before the committee has established in fact that of the foremen and operatives who have come before them not one was born or trained in London. Such immigration to an overcrowded Metropolis is in many ways undesirable; thousands of building apprentices and young men are brought up yearly to the Metropolis, in many cases risking their own health, while they oust from the field other men who have more local knowledge but less training.

## ESTIMATES.—I.

ESTIMATING is an art that does not find much favour amongst architects as a rule, and for obvious reasons the making of estimates has been left to a class of specialists who devote themselves entirely to it. Consequently the cost of building does not always represent fairly the architect's requirements. Surveyors who prepare bills of quantities are not always within touch of the architect, and are sometimes obliged to interpret the plans and details or specification as best they can. The requirements of the contractor have also to be considered in their preparation. The important element of competition and the chance of winning must enter largely into the business, and the circumstances of builders are different. Profits vary much; for small works 40 to 50 per cent. may not be too much, but from 10 to 15 per cent. is regarded as a fair profit.

We propose in a few articles we commence to-day to take up the subject of estimating for architects, and treat it in a little more detailed manner than the usual approximate estimate. We shall take the usual items or headings as they occur in a bill of quantities for an ordinary house in the neighbourhood of the Metropolis. The prices we affix are those that may be considered moderate and safe for competitive tendering, they are given merely as a basis for estimating, and not as a safe guide in every case, as it is impossible to make the same estimate apply to a building in the extreme north as to one in the south, with differing conditions and soils. We do not believe in "cut-and-dried" estimates any more than we believe in cut-and-dried plans and elevations of buildings, and the man who publishes a list of prices now will find it quite unreliable in a few months hence or when applied to another locality. We shall, therefore, rather confine ourselves to illustrating the principles of estimating by taking a few prices that may be thought too low in some cases or beyond a competitive figure in others. It is always easy to add to, or deduct from, any item in any particular instance. There are prices at which work may be obtained, as well as prices at which a small profit may be made, and these can only be found in competition or from experience. Every builder soon finds out for himself in what position he usually stands amongst others of known repute, and the best test of the fairness of prices is only to be found in this way.

A few general rules may be stated here:—

1. Examine carefully the plans, elevations, details, and specifications of the intended building so that a fair idea may be realised of the work, read over carefully the specification with the aid of the drawings, and compare with the items of the bill. (This advice is, of course, intended for the builder; the architect's mind would be sufficiently imbued with his own work.)

2. Visit the site of the intended building,



to find out the nature of the soil, its removal if necessary, the facilities for the carriage of materials to and from, distance from brick-fields or quarries, the carriage of timber, if carts can be brought conveniently close to the building, so as to avoid unloading into barrows or other means of transit, as upon this very often a considerable difference of tendering is made. (This rule applies chiefly to the builder who is about to tender; but also to the architect who is often in ignorance of the soil and surroundings.)

3. Examine carefully the levels, and see if the allowances or depths for trenches for foundations, basements, drains, &c., given in the sections and quantities are correct; if insufficient, make a note of any discrepancy and query the items in the quantities. These items are often incorrect, as, when the site is sloping or uneven, the levels have been roughly assumed from a given datum line in preparing the drawings and quantities. The architect should observe this rule as well as the builder. The levels of the ground surface in their relation to a given datum or ground-floor level are important in determining excavations, and should be noted in the sections, and referred to a bench-mark near.

4. The subsoil is equally important. Sometimes, in digging, a very different soil reveals itself to that taken: there are sometimes loose sand, running water, rock, and other obstacles that have not been considered, and the price per yard for digging, removal of loose material, strutting sides of trenches, pumping, and cost of carting may make a considerable difference. The builder who knows the locality or site and the subsoil is, of course, in a better position than others who tender. On some sites sand may be found a few feet from the surface, and this may be valuable, and make a difference to the price; or it may be the sand has been screened and placed again on the site, and covered with loam, in which case the excavations will have to go down to the "virgin" soil.

5. The cost of materials should be obtained before estimating. The prices of stone, bricks, sand, lime, ballast, delivered on the site are all-important preliminaries to correct estimating. The prices of bricks, sand, lime, &c., vary very much in different localities. To take brickwork, several elements are necessary before a correct price can be affixed per rod, as, for example, the price of bricks in field, the carriage to works, if by barge or rail, the cost of loading, the freight, unloading, carting from wharf to works, the price per yard of sand delivered, and of lime, and cost of labour. If there is any terracotta or drain-pipes, the price delivered on the site should be obtained from the maker, and the same for any ironwork or other special material.

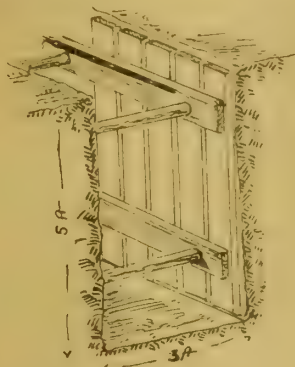
As all these elements are found to vary considerably, it is only possible to obtain an approximate price. The market prices of leading items in each trade ought to be known, and for this purpose trade lists and prices are necessary. The quotation of prices for particular items is important.

We do not propose to explain the method of measurement or taking out quantities, as these matters are dwelt on in ordinary textbooks, such as Leaning's "Quantity Surveying," Prof. Banister Fletcher's "Quantities," &c.; but we shall note every new material or invention and the price. Many of the items of a bill require to be shown by a sketch, and we shall illustrate them where necessary.

Under each trade we shall first give the item in each case, explain its meaning if necessary, or illustrate it, describe any new materials, &c., and afterwards resolve the item into its elements, or analyse and price it. "Dissect as much as possible" is the rule given and adopted by all skilful estimators, and for this purpose certain units of

labour are useful, as, for instance, how much a man can do in a day or an hour of any particular work. These units are often difficult to obtain, and they vary much, according to the heaviness or hardness of the material.

When labour and materials have to be estimated certain elements or factors have to be considered. Thus, for example, for brickwork we take the price and quantity of bricks in a rod, also the quantity of lime, of sand, labour and scaffolding, and profit required. So with a piece of carpenter's work, like a floor, or a roof, we value it by the cubic foot, the elements being the prime cost of a load of fir (or price per cubic foot); cartage, which depends on distance; sawing into scantlings, waste in converting, to which is added the price of labour, and the profit 10 to 20 per cent. But it is impossible to assess the labour element with any degree of precision.



Price books do not help us, therefore the only way we can add the labour item to a cube foot of work of a particular kind is to find out how much of the required work a carpenter could do in a day. If there were tables published giving constants for every kind of labour they would be a help.

#### EXCAVATOR.

Much uncertainty generally prevails in pricing this trade as to the kind of soil to be excavated, if the soil is carted or wheeled a long or short way, if the excavation is deeper than 6ft. (the height a man can work), if filled in, where deposited. This item is taken according to the labour involved. It may consist simply of digging and carting, as in the excavation over the site, or of digging, filling, and ramming, as in trenches for foundation. In the latter, however, both kinds of labour are required. Thus, the "digging and carting" represents that portion of the excavation which is occupied by the wall, and has to be removed, and the "filling, and ramming" applies to that portion of the earth which is filled in and rammed against the walls. Then it is necessary to keep such items separate, as, for example, the excavation to basements, and those only on the surface, as in removing the top soil and wheeling away not exceeding, say, 9in. or 12in. deep. In the deeper excavations in friable soils timbering is necessary, as walling and strutting the sides of trenches, &c.

In pricing items of excavation, the depth and width of trench, the nature of the soil, and the quantity of timber, if necessary, the latter measured per foot super. on each side, must be known. Digging in gravel or stiff clay costs twice as much as in loose earth. The disposal of the stuff should be made

clear. Thus, the part of the trench to receive concrete may be described as "excavation and carting away, or wheeling and spreading," the portion to receive the brickwork being described as "digging to trenches, part filled in and rammed, and remainder carted away." The earth may be dug and thrown out, wheeled or basketed out, or carted away to make up other ground. Depths of 6ft., 12ft., or 18ft. should be kept separate.

Wall trenches in width are regulated by the spread of the footings, usually twice the thickness of wall at base, and room enough for men to work in the trench on one or both sides, usually 6in. beyond bottom course of footings.

Pumping and baling-out water is a speculative item, and its cost can only be approximately put down.

Laxton estimates that in loose ground a man can throw up about 10 cubic yards of earth per day; but in hard gravelly or stiff clay five yards is considered a fair day's work. Every yard of concrete requires about three hours' labour to mix and throw into trench.

460 yards super.—Removing surface of site, not exceeding 12in. deep, average wheeling and depositing 1 run (20 yards).

Put 4d. for the first portion of this item, and for wheeling and depositing 3½d. or 7½d. per yard superficial. If the top surface is grass, add 4d. more, as the top has to be cut.

220 yards cube.—Digging to basement from last level to depth of 12ft. average, throwing out, wheeling to terrace 20 yards and depositing.

If the soil is stiff clay, which is generally the nature of subsoils near London, put 11d. or 1s. per yard for digging and throwing out not exceeding 6ft., and for remainder of depth add 6d., making, say, 1s. 3d. per yard cube in the average. For wheeling and depositing, add 3d. and 2d. for profit, making a total of 1s. 8d. per yard cube. If strutting is necessary, add 1d. In loam or sandy soils, 9d. or 10d. may be sufficient for digging and throwing out.

15 yards cube.—Excavate to basement trenches, part fill in and ram, and remainder wheel to terrace, 1 run.

This extra digging may be done at 6d. per yard cube; for wheeling, say 3d.; for filling and ramming, 3d.; total, 1s. per yard cube.

25 yards cube.—Excavate to surface trenches, wheeling, and depositing; part fill in and ram.

To price this and the previous item consider the quantity of soil wheeled away, and that which is filled in the trenches and rammed. This will depend on the proportion of trench left vacant after the brickwork is in. A section of the trench and footing will enable the quantity to be estimated. Let us suppose half the soil is returned and rammed. Then if we put the digging at 10d., and to this add half the cost per yard of filling and ramming, say 3d., and the remainder wheeling and depositing 3d., we get 1s. 4d. per cube yard.

We may here note that earth and clay increase one-fourth when dug, sand and gravel one-tenth, chalk one-third.

For large trenches and foundation work, when the earth is filled in and rammed, it is perhaps better to make a separate item, as "excavation and returning, filling, and



ramming," the quantity measured from outer face of brickwork, to side of trench by the depth to the footings, and deduct this from total excavation.

50 yards run excavation for drain-pipe, 6in. diameter.

If this is a trench about 2ft. by 1ft., 3d. per yard may be put down, including digging, filling, and ramming.

## ROYAL SOCIETY OF BRITISH ARTISTS.

THE Society opens with a fair average of interesting pictures, though few of them of any great merit. The most remarkable, as well as the most original, picture is F. Cayley Robinson's work, "The Close of Day" (7). Here we have a neatly furnished room of somewhat old-fashioned style; the daylight still enters through bright green curtains, while below the window on the end of a long table spread with a white cloth, are two lighted candlesticks, which shed their warm glow over the table. It has been laid for the last meal of the day with three plates and two glasses each. Seated in the foreground is a lady in light-colored muslin listening to one of Mendelssohn's "Songs without Words," which stands on the corner of table. Leaning over a book of devotion or a Psalter a young girl is also listening to the strains, while another contemplative sister stands near the end of table. There is a quaintness in the occupants and furniture of the room; but this time nothing Mediæval—rather a plain English country home of the "fifties." The three demure-faced women, or three sisters, are neat, everything is ordered, and there is a religious reverence in their demeanour. Over the table is a triptych representing a Scriptural subject. It is not everyone's picture; but the subject and technical minuteness of the scene interest, despite the almost formal stiffness or quaintness of the figures. The three girls are not prepossessing: there is almost a grotesque primness about the one standing against the wall; but the realistic study of details, the musical box, the double lighting, the inlaid end of the table, the tones and reflection of light are all extremely natural. There is undoubtedly a hidden meaning in the composition: it appeals with more directness than many of the conventional works of this class, and there is sincerity and earnestness in the painter's work. Montague Smyth's feelingly-painted landscape or common, "A Grey Evening" (2), is charming in its gradation of tone, light and shade, and the reflection of the grey sky in the pool by the deep-rutted roadside, by the side of which a shepherd and his sheep are passing. Near it, Stuart Hobkirk's very graceful study of a lady, seated by a small burl table with flowers, "A Hundred Years Ago," is refined in colour, and the rich brocaded dress and accessories painted with care. Hubert Coop, also, in No. 6, gives evidence of power and broad handling in his large coast view, "Near the Shelter of the Hill"; Val Davis is happy in his "Fen Village"; and Jas. E. Grace has not lost the charm of his delicate handling (14). "The Village Carnival" (17), by R. Gemmell-Hutchison, is an able work. It is a scene at a country fair, gipsy-caravans, roundabouts, travelling showmen, and booths surround a throng of rustic folk and children. Seated on a donkey is a little columbine, a clown beating a drum, and other preparations for a performance are going on. The painter has thrown into his work much enthusiasm and humour. His characters are well chosen in the crowd of villagers, and the colour is restrained—perhaps hardly strong enough. Martin Bruce is a disciple of the Glasgow school. His three or four works have a chromatic arrangement. "The Three Windmills" and "I saw Three Ships a-Sailing" (30) are im-

pressions of colour and archaic form, bright and crude. "In the Surrey Docks" (107) is another example. A vigorous Dutch riverscape is "Evening Gold" (23), by Alfred S. Edward, in tones of amber and purple. William Strutt's very fanciful and pretty composition "Spring" is delicate in its blossoms and frolicsome lambs. Over the fireplace a circular picture by Leonard Watts, "A Cup of Falernian" (45), shows a Greek or Roman maiden in blue drapery seated in a marble alcove by the sea, holding a cup of the celebrated Roman wine. Beyond the terrace is the rich pink blossom of an almond-tree. There is refinement in the composition and colour. Frank Spenslove-Spenlove's dark landscape, "A Soliloquy of Night" (57) is both poetic and powerful, the deep blue distance and the moonlight helping to cast a greater gloom over the landscape. F. A. W. Armstrong's strong landscape "Evensong," A. D. McCormick's "Gathering Beans" (55), and W. Manners' "Broken Weather" (56) are noteworthy. Amongst small studies, Philip H. Newman's "Le Dernier Prie" (39) is a pleasing and graceful figure study.

At the end of gallery is a large and imposing picture by the President, Sir Wyke Bayliss, "Interior of Amiens Cathedral" (90), a noble perspective of "long-drawn aisles," clustered shafts, and soaring vaults full of mystic light and colour, and a procession of robed priests, acolytes, and thurifers. The President has lost none of his fascinating power of idealising the architecture and accessories of the great cathedral. Sidney Muschamp's little piece of *genre*, "Her Ladyship," a little girl in white descending a scarlet-carpeted staircase with her attendant, is spoilt by the brightness of the red. "Reunited: the Shunamite's Son Restored," by G. Hillyard Swinstead (60), is dramatic and harmonious in colour. The large centre picture by John Martin, "For a Dream's Sake," a lady reading an old letter by lamplight and glancing at a photograph, is a subject that would have gained by the reduction of the canvas; the unilluminated portion of the room is unnecessarily large, and weakens the effect of the subject; the lamplight tones are successful. Reginald Smith's "Sheep Pastures by the Sea," J. W. Parson's large seascape (116), and Wright Barker's "Rustic Gallant," are works of pretension, if not very convincing. A very beautiful traceried portal with canopied niches, "The Bride's Door, St. Sebald's, Nuremberg," by the President, and Francis Black's powerfully-painted landscape, "The Spinney," are worth attention.

The end galleries contain a few works. R. Machell's "Parsifal" (164) is not so happy as a symbolical work as his former contributions. The two panels with carved frame, with a figure in low relief, gilded, holding the Holy Grail, are decorative and flat in treatment. Various hues are blended in illustration of the legend, which is given in the catalogue. One panel represents Klingsor hurling the stolen spear at Amfortas; in the next panel we see the wounded man, whose wound is healed by Parsifal, when the spear is restored to the Cup of the Grail. William Strutt's "Lady Godiva" represents the lady about to descend the steps to mount her trapped palfrey. The technical qualities surpass the composition. The modelling of the fair Godiva, the leopard-skin on the threshold of the castle, and the flowers strewn on the steps are scrupulously painted. The large landscape, a wooded hillside, "The Home of the Woodpigeon" (212) is too large, and there is a want of breadth and shadow; but the glimmering sunshine is well painted. In Terrick Williams's "Little Breton Church" and "Old Folkestone" are clever. The landscape by T. F. M. Sheard, "Golden Harvest," truly explains its character. Mr. Sheard is a master of sunlight effects, as we see in his

"Arab Mosque" and an "Arab Home," and his Oriental studies in which light and shade and heat are suggested. In this harvest scene we have a strong presentment of a hot late summer day. The labourers are seated together refreshing themselves in a shady spot. Upon them pour the fierce rays of the midday sun, the golden sheaves are steeped in light, and the distant uplands proclaim the intense heat. A large sunset effect by C. H. Eastlake (255); Thos. Ireland's "Haunt of Sweet Solitude," a woodland of browns and yellows; the masterly studies of "Fowls" by Horace Mann Livens (275); Adam E. Proctor's Cornish village scene, "The Old Fishwife" (302), are of interest. W. Lee Hankey has several water-colour studies. "Noon Day" (322) is charmingly simple in the figure of the fisher-girl with her net and the boats behind. The breadth of light and shade and colour are strong. "When Daylight Fails" (337), a study of a peasant girl in the dark twilight, with the glimmer of a cottage light, is strong and pathetic, and the same characteristics of simplicity and sincerity mark his girl seated in a graveyard, "We are Seven" (394) and "The Road to the Farm" (435).

In the Water-Colour Gallery we notice several other works by Leopold Rivers (315 and 327), a crisply drawn sketch of "Timber Ships," by W. T. M. Hawksworth; Chas. E. George's study of a cottage at "Bewdley" (318); H. K. Rooke's "Lonely Coast"; A. Tatton Winter's "Homeward" (333)—girls with bundles of bracken trudging along through a lonely common; the soft amber tones of evening make a rich harmony of colour, and the whole is feelingly treated. Several works by Jas. E. Grace (358, 359, and 400) are here. No. 387, "When Summer Leaves are Flown," by Albert Kinsley, and "The Golden Glow" (484) are dexterous in the brushwork, in the delicate handling of twigs and branches, and the colour harmonious. The President sends a charming drawing of "The Monastery of Fiesole," a fine Romanesque church. And we note clever sketches by Montague Smyth, Henry Stannard (367), and a broad view near St. Moritz, by Leopold Rivers (410); also Cecil Aldin's amusing canine study, "Charity" (423), Tom Browne's "Lonely Road," J. D. Ferguson's charming sunlight colour in "Flower Market, Paris" (437), Geo. C. Haites' "Promise of Spring" (442) and "After the Rain" (448). Brilliant sunlight effects and colour and great breadth are attainable by the vigorous crisp handling of Hans Hansen in his "Spanish Fishing Boats" (471). On the screen we notice a very clever architectural interior by W. Harding Smith, "The Dom Kirche, Halberstadt" (481), and in the vestibule are seen a collection of studies and sketches by W. H. J. Boot, vice-President of R.B.A., chiefly of views at Tunis, Bruges, Cairo, Venice, Florence, and other Continental places, and marked by breadth and strong colour.

## IRON CONSTRUCTION IN DRAINAGE WORK.—IX.

By T. E. COLEMAN, F.S.I.

WATER-CLOSET fittings are now made in a most bewildering variety of design to suit every imaginable situation or requirement. They are capable of being grouped into five or six distinct types according to the broad principles underlying their general construction. Of these, the most important are known as pan, valve, wash-out, wash-down, or siphonic-action closets. The leading characteristics of a few closet fittings will be briefly mentioned.

Fig. 136 is a section through an ordinary pedestal wash-down closet, the basin and trap consisting of one piece of glazed earthenware or fireclay. Manufacturers of closets of this description usually make them with both P and S



outlets, so that they may be obtained to suit different local conditions. The S, or "turn-down," outlet discharges the contents of the closet in a vertical direction; whilst that commonly known as the P outlet may vary from a nearly horizontal position to an angle approximating to the Q form shown in the sketch (Fig. 136),

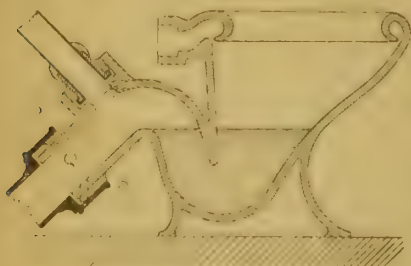


Fig. 136.

according to the particular design or make of closet selected.

In some cases the wash-down closets are so arranged that the space immediately under and around them is perfectly free and open, the fitment being either supported on brackets or built into the wall. Fig. 137 shows a closet manufactured by Messrs. Finch and Co., having the basin and trap formed in one piece of earthen-



Fig. 137.

ware, together with a stout lug or projection for securely pinning into the wall. The wooden seat can be readily removed for cleaning purposes when in a vertical position, the hinges or pivots being designed to work within suitable slots provided for this purpose. Closets of this description are more particularly adapted for hospitals and similar situations where it is of the greatest importance that no corners or resting-places will be formed



Fig. 138.

for the lodgment of dirt or other foreign matters, whilst every facility is given for the washing and cleansing of the floor.

The details relating to the connection of an earthenware closet with an iron soil-pipe and a lead anti-siphonage pipe are indicated in Fig. 136. The joint between the socket of the iron soil-pipe and the earthenware outlet is partly packed with yarn, and afterwards filled with neat Portland

cement as previously described; whilst that between the lead anti-siphonage pipe and earthenware socket is made by means of a brass or copper ferrule soldered to the lead pipe in the usual manner, the space between the ferrule and socket being filled with cement. Many ingenious expedients have been devised for obtaining a satisfactory connection between materials of dissimilar nature. Fig. 138 shows a section of the "Mansfield" patent connection for joining stoneware to lead, as in the case of an earthenware closet outlet and a lead soil-pipe. It consists of a fireclay ring partly covered with lead so as to carry out the principle of "like to like" (in this instance, lead to lead, earthenware to earthen-

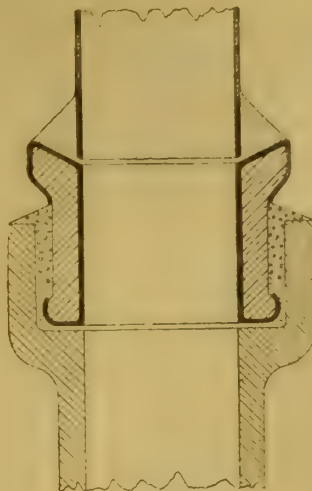


Fig. 139.

ware). A solder joint is made between the lead lining and lead pipe, whilst the space between the stoneware ring and spigot is run with neat cement. Another modification of this joint is seen in Fig. 139. The lead lining of the earthenware connecting ring is soldered to the lead pipe, whilst the annular space between the stoneware socket and ring is filled with cement.

Fig. 140 is an illustration of the patent O.B. closet, in which a novel arrangement of flushing apparatus has been introduced. The closet basin is fitted with the usual polished wood seat and cover, whilst a water retainer or waste preventer

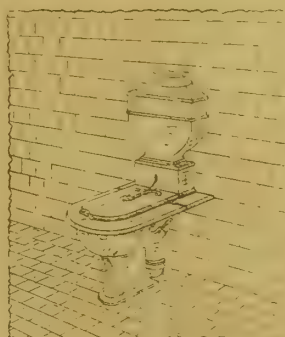


Fig. 140.

is fixed immediately behind and above the seat. The special departure consists in the regulation of the water supply in the waste preventer by means of a short lever attached to the closet-lid. When the fitment is not in use, the lid is turned down upon the seat, so that the basin and water-pool are hidden from view. At the same time, the attached waste-preventer is quite empty, nor can any water enter the flushing cistern whilst the lid is closed. On using the closet, the act of lifting the lid opens the water-supply valve, so that the waste-preventer fills in a few moments, and is ready for service. The basin is flushed by simply turning down the lid, when the water-supply is again cut off, the dead weight flushing valve being raised at the same time, and the waste-preventer rapidly emptied of its contents. The flushing cistern then remains empty until the lid is again raised, when the process of filling is repeated. By this means, it

is claimed that there is no risk of injury or disarrangement of the flushing apparatus by frost, as both the cistern and flushing pipe are quite

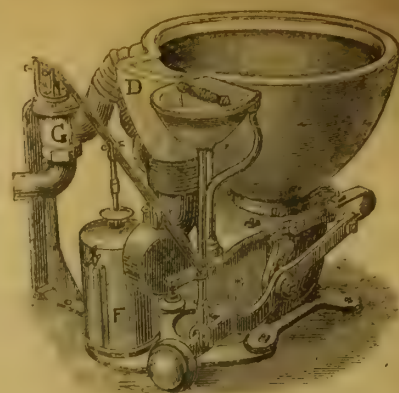


Fig. 141.

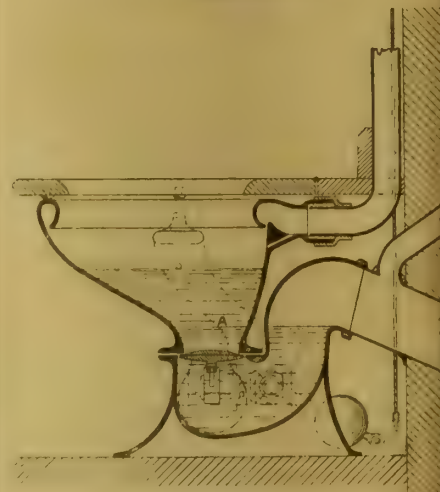


Fig. 142.

empty when not in use, whilst an unseen and quiet flush is also obtained.

The well-known "Optimus" patent valve closet is illustrated in Fig. 141. It consists of a

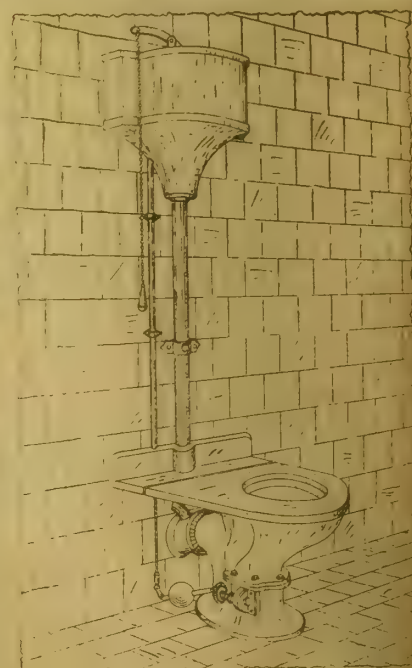


Fig. 143.

glazed porcelain basin with a hinged valve contained in an enamelled cast-iron valve-box immediately under the basin outlet. A lead trap is connected to the soil-pipe and to the valve-box. The basin overflow D is trapped and arranged to discharge into the air-pipe which is taken from



the valve-box, whilst the flushing-rim of the basin is carried round the top of the overflow (as indicated at D) so that the overflow pipe is well flushed and its trap or water-seal supplied with clean water every time the closet is used. To maintain the water in the basin at a uniform level in the event of a small leakage or defect in the water supply-valve, a small "regulation" hole is made through the side of the basin into the overflow arm. In this sketch (Fig. 141) the closet is shown provided with a supply-valve, G, and copper bellows regulator F, fitted with air-cock for controlling the quantity of water to be supplied for flushing purposes.

Fig. 142 is a section through the "Simplicitas" patent valve closet. It is a combination of the ordinary wash-down and valve types of closet. The basin and trap are constructed of glazed earthenware, and a valve is arranged near the basin outlet so as to provide a larger water pool than is found in the usual form of wash-down closet. The general appearance of the whole fitment when fixed complete is seen in Fig. 143. On pulling the handle of the waste-preventing cistern, the basin is flushed with water, and at the same time the closet-valve is opened and the contents of the basin discharged. When the valve closes, the basin fills with water to the overflow level. Should a leakage occur—owing to the valve not sitting tightly upon its seating—the

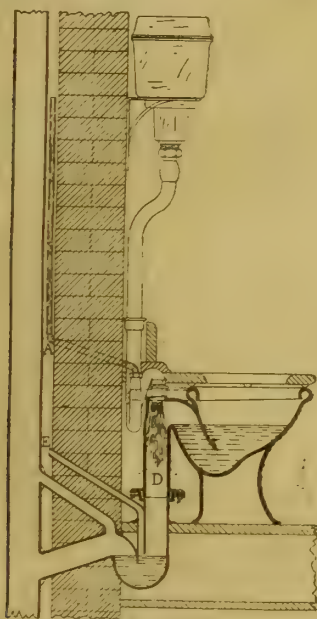


Fig. 144.

basin will still retain a water pool above the valve (as indicated at A, Fig. 142), similar to that ordinarily obtained in a closet of the wash-down pattern. Every portion of the closet is exposed to view.

Within comparatively recent years a type of closet has been introduced in which the contents of the closet basin are discharged by siphonic action, instead of being carried through the trap by the force of the water-flush alone. Fig. 144 is a sketch of Jennings's patent siphonic closet. In this illustration two traps are provided to the fitment, the connecting portion of the soil-pipe (D) between the two forming the long leg of the siphon, by the action of which the basin is emptied. An anti-siphonage pipe is fixed to the crown of the lower trap, whilst the space between the two traps is ventilated by the puff pipe (E). The service, or flushing-pipe from the waste-preventer has two connections with the closet, one to the flushing rim of the basin, and the other to the top of the long leg of the siphon-pipe (D). When the handle of the waste-preventing cistern is pulled, the water becomes divided into two streams, which simultaneously flush the basin and discharge into the siphon leg (D). This sudden rush of water causes the air contained within the siphon leg to be entirely expelled through the puff pipe (E); siphonic action is immediately set up, and the basin emptied of its contents. The basin is then refilled with clean water by means of an after-flush device in the waste-preventing cistern. To prevent siphonic action taking place when slops are emptied into the basin, the pipe (A) is fixed

so as to admit air to the siphon leg (D) when the flushing cistern is not being used. This closet is also supplied with a waste-preventing valve for fixing under the seat in lieu of a waste preventing cistern.

Fig. 145 shows the general arrangement of the

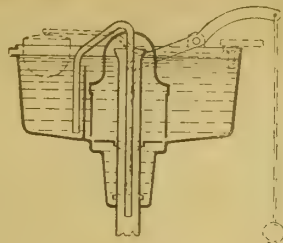


Fig. 145.

flushing cistern used in connection with the foregoing siphonic action closet. It is designed to give an after-flush immediately the flushing and siphonage of the contents of the basin have taken place, so as to insure that a proper quantity of water is retained within the closet basin. The cistern is unequally divided into two compartments, the larger of which contains the main

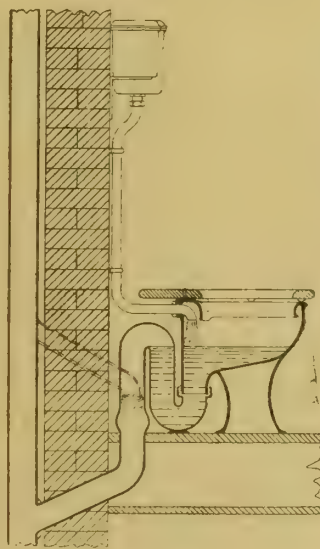


Fig. 146.

siphon. Within the smaller chamber is placed the short arm of a subsidiary siphon, the long arm being taken into the flushing pipe (or long arm of the main siphon). By pulling the handle the plunger working within the dome or short arm of the main siphon is correspondingly raised, and a quantity of water driven over the top of the

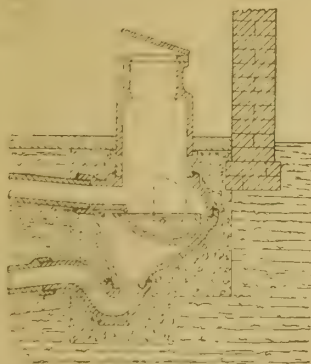


Fig. 147.

flushing pipe (or long arm of the main siphon), so that the contents of the large compartment are rapidly emptied. This discharge of water within the flushing pipe sets the subsidiary siphon in action, and at the conclusion of the main discharge, the water within the small compartment is passing down the flushing pipe, thus

providing an after-flush to the closet. The float of the water-supply valve is placed within the after-flush compartment, so that when the cistern is empty the valve remains fully opened during the whole of the time the main compartment is filling, and the float will not commence to rise until the water flows over the weir or division into the smaller chamber. This is a great advantage for situations where the closet is in constant requisition, as the cistern is rapidly filled in readiness for the next user.

A section through Shanks's "Barr-head" patent siphonic closet is shown in Fig. 146. The long arm of the siphon is arranged with a "swelling" or "bulge" near its lower end, so that by this means a solid plug of water is formed within the siphon, and the contents of the basin withdrawn by siphonic action. The basin is afterwards filled with clean water to the level shown. The closet may be arranged with an anti-siphonage pipe fixed at the side of the enlargement or bulge (as indicated by the dotted lines), so as to prevent siphonage when slops are poured into the basin, whilst allowing siphonic action to take place when the cistern is discharged.

In addition to the different classes of closets which have already been mentioned, all of which are flushed with clean water, there is another type of fitment made, in which slop or waste waters

Fig. 148.

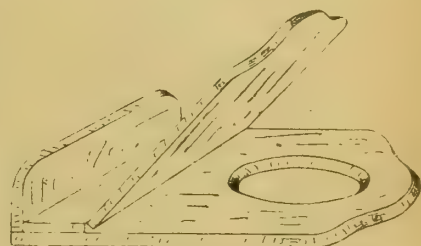
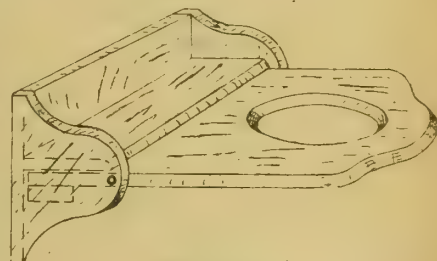


Fig. 149.



are used for flushing purposes. Fig. 147 is an illustration of the "Stafford" waste-water closet. The slop-waters from the scullery sink, together with the storm and waste-waters from the surfaces of areas, yards, &c., are collected within a pivoted vessel, or "tipper," which automatically discharges its contents when full, and carrying with it the deposited faeces. The tipper is so arranged that it can be taken out at any time for cleansing purposes, &c., by previously taking down the pedestal seat.

Slop and waste-water closets are cheap in construction, and require no special supply of water for their use other than the waste waters ordinarily resulting from the exigencies of domestic life. For these reasons they are used in some parts of the country as an outdoor closet in connection with houses of the poorer class. They are not suitable for fixing inside the dwelling-house. When necessarily adopted, waste water-closets are usually arranged so as to be placed in a detached outbuilding where an unrestricted circulation of air is available.

Fig. 148 is a sketch of a water-closet seat having a hinged cover. The cheaper varieties are made of deal, but polished mahogany or other hard wood is generally used. What is known as a "balance" seat is illustrated in Fig. 149. The portion of the seat which extends beyond the pivots is fitted with iron weights, so that in its normal condition the seat assumes a vertical position. The fitment may then be conveniently used as a urinal or slop-closet. The under-side of the seat is provided with small indiarubber buffers for the purpose of preventing any damage, should the seat be at any time violently turned down upon the top of the basin.

A closet seat formed of thin moulded steel plate



thickly coated on the surface with an impervious non-conducting composition has recently been introduced. Owing to the non-porous surface thus obtained, the impurities from slops and other liquids are not absorbed; whilst the non-conducting covering entirely prevents any feeling of coldness striking the surface of the body when in contact with the seat.

The water-supply to closets, urinals, &c., must be so arranged as to be quite disconnected from the water used for drinking, cooking, &c. This is generally effected by providing a small cistern or water-waste preventer holding from one to three gallons (according to the particular requirements of the case) immediately over each closet or other sanitary fitment, and which is used solely for flushing purposes. The waste-preventing cisterns are generally constructed of cast iron, either enamelled or painted; but they may also be obtained in glazed porcelain, or of wood lined with sheet lead or copper. The water-waste preventers are usually designed to discharge their contents by siphonic action, the siphon being set in motion either automatically or by simply pulling a handle.

The supply of water to waste-preventing cisterns is regulated by means of a "ball-valve" fixed above the normal water-level of the cistern,

exerts both an upward and downward hydrostatic pressure upon the exposed faces of the valve, thus tending to produce a condition of equilibrium within, and consequently rendering the valve more sensitive to any external force which may be brought to bear thereon by leverage from the arm of the floating copper ball.

Automatic siphonic action flushing-cisterns



FIG. 153.

should be furnished with what is known as a "reverse action ball-valve." When the ordinary ball-valve is used, it is sometimes found that the very small dribble of water is insufficient in volume to start the siphon, so that a waste of water takes place, and the required flush is not obtained. A reverse action ball-valve is so arranged that when the cistern is nearly full the valve is opened, a rapid influx of water takes place, the siphon becomes properly charged, and the requisite flush is insured. Valves of this description should admit of being regulated so that the flow of water may be accurately adjusted to the requirements of each particular case.

The flushing-pipe from the waste-preventing cistern to the closet is ordinarily exposed to view, and formed of 1½ in. diam. lead or wrought-iron pipe. For work of a superior class, polished copper, brass, or nickel-plated pipes are used and secured with clips of the same metal. Fig. 153 is a flushing-pipe of this description (7ft. long) arranged with all necessary bends, together with union for connecting to the outlet of cistern. It is fixed to the wall by means of the two clips shown.

Where safes or trays are provided under water-closets, baths, &c., the outer end of the waste-pipe should be fitted with a brass or copper hinged flap to prevent the passage of air currents from

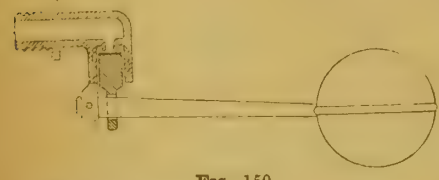


FIG. 150.

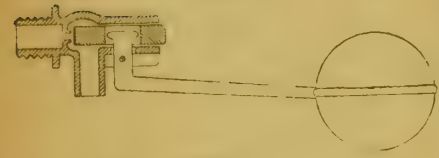


FIG. 151.

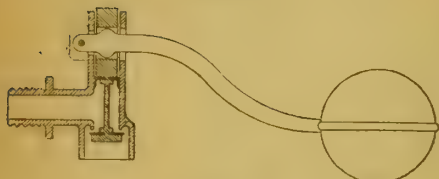


FIG. 152.

so that complete disconnection between the service pipe and the flushing cistern is obtained at this point. The ball-valve consists of a tap which is automatically opened and closed by means of a light hollow copper ball attached to a short lever. The extremely light specific gravity of the copper ball causes it to float on the surface of the water, and it accordingly rises and falls in unison with any corresponding variation of water-level.

Many different patterns of ball-valve are now obtainable from manufacturers of these appliances. Fig. 150 is a section through an ordinary form of ball-valve. The valve consists of a solid cylindrical brass plug working vertically within a small grooved chamber forming the nozzle of the tap. The upper end of the plug is fitted with an indiarubber or leather washer, in order to afford a suitable cushion for contact with the valve-seating. At the lower end a slot is provided, through which passes the pivoted end of the stem and ball. When the cistern is empty, the copper ball falls a short distance, carrying with it the solid plug; the water is then free to issue through the open valve and down the grooves at the side of the valve-chamber. As the water rises within the cistern, the floating ball is raised, and the attached stem or lever gradually forces the plug to return to its seating, so that the valve becomes closed.

Fig. 151 is a slight modification of the preceding arrangement, the plug or valve being designed to work in a horizontal direction.

The type of valve known as an "equilibrium" ball valve is illustrated in Fig. 152. In this case, the valve (which is faced with an indiarubber or leather washer) is connected to the brass working plug by a short spindle, the upper end of which is fitted with a cupped leather. The result is that the head or pressure of water in the pipe



FIG. 154A. FIG. 154.

the outside to the inside of the building. Fig. 154 illustrates a simple form of brass hinged flap for fixing to the waste, the end of the pipe being neatly cut and shaped to form a seating for the flap. Another form of brass flap-valve suitable for soldering to the end of a lead pipe is seen in Fig. 154A. Similar flap-valves provided with a screw-union for fixing to iron pipes are also manufactured.

#### THE SOCIETY OF ARCHITECTS.

THE monthly meeting of the Society of Architects was held at St. James's Hall, Piccadilly, on Thursday in last week, the chair being occupied by Lieut.-Col. F. Seymour Leslie, R.E., Vice-President. The following four gentlemen were elected as members:—F. G. M. Chancellor, Wiltshire House, Mattison-road, Harringay, N.; Walter Cook, Masonic Buildings, Bridgend, Glam.; R. F. Fulford, 16, Parkhurst-road, Holloway, N.; and G. P. Smedley, 110, St. Martin's-lane, W.C. Various donations to the library were announced by the secretary, Mr. C. McArthur Butler.

#### THE EXPERIENCES OF ARCHITECTS IN THEIR RELATIONS TO LOCAL AUTHORITIES.

A free discussion on this topic took place, introduced by Mr. ELLIS MARSLAND, Hon. Secretary,

in the course of which various members narrated hard cases and awkward incidents in reference to the non-approval or rejection of plans by urban and rural councils, the "i's" and "t's" being broadly dotted and crossed with regard to the conduct of surveyors, clerks, and members of local authorities. In opening the subject, Mr. MARSLAND remarked that the Council of the Society had frequently to consider letters from provincial members complaining of the difficulties put in the way of passing plans by local authorities, and thought they would arrange an evening at which grievances could be freely ventilated, and some attempt made to see if any remedy could be provided.

Mr. WILLIAM COOPER remarked that architects practising in Hastings had to deal with a corporation with an excellent code of by-laws, but within a radius of a couple of miles were one urban and two rural authorities, whose regulations were not always so clear nor so uniform in administration. A great blot on the more sparsely peopled districts was the miserable salary paid the local surveyor, often as low as £50 or £60 a year, who had few opportunities for increasing his earnings by private practice, except in surveying. This prevented the better class of man from coming forward as a candidate, and when men retired from other and dissimilar occupations were appointed as surveyors, it was evident that their recommendations as to the passing or rejection of plans were not always based on adequate grounds, with the result that building owners were sometimes put to great and absolutely needless delay and expense. As to the discrepancies in local by-laws, he quoted a ludicrous instance within his own knowledge where a house which was built on the boundary of two districts had to be differently constructed as to thickness of walls and amount of air space to suit the diverse requirements of the two authorities.

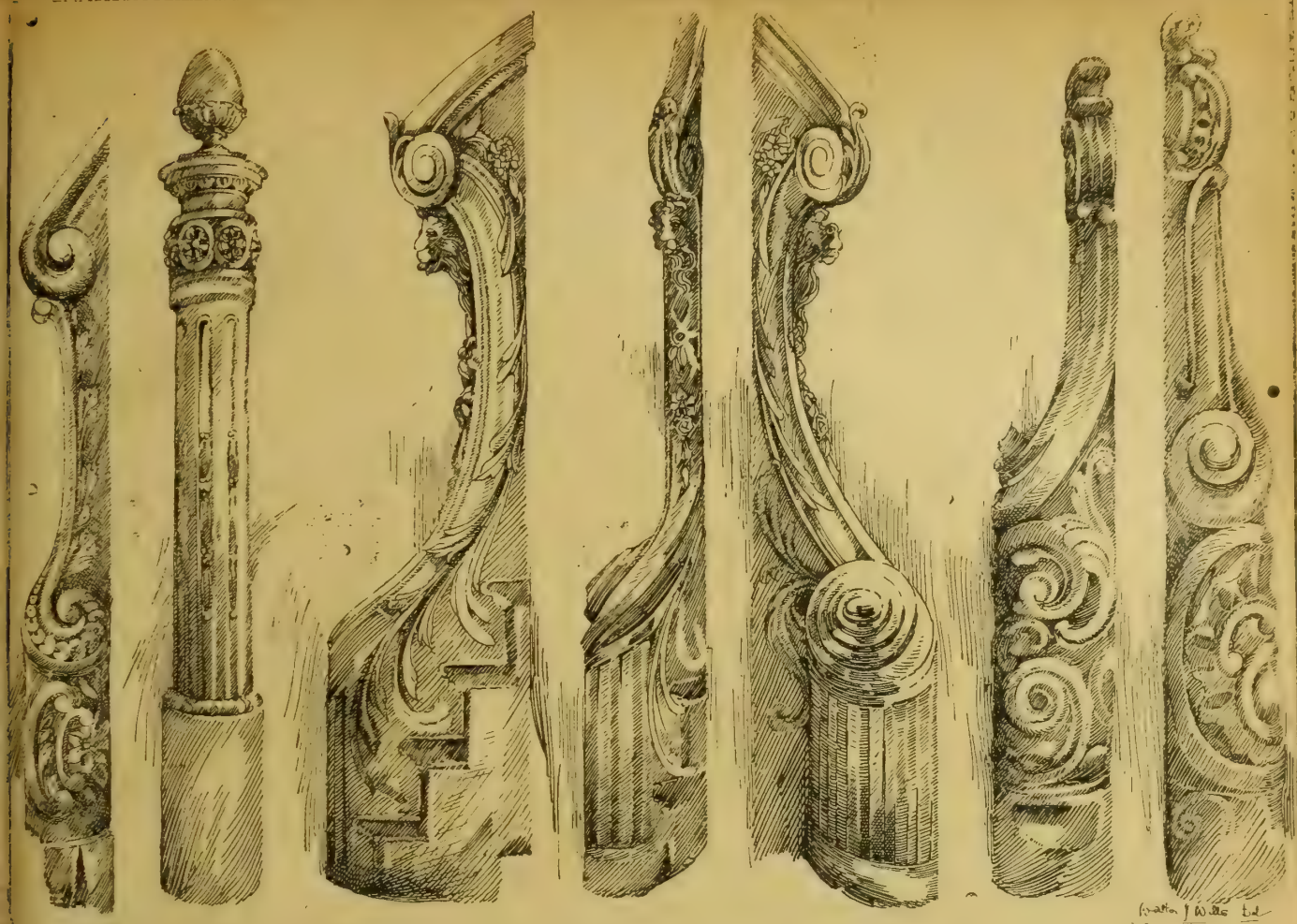
Mr. G. GARD PYE mentioned that some short time since he received instructions to prepare plans for a large institute in a country town, and naturally wrote at once to the borough surveyor for a copy of the local by-laws. To his surprise, he was informed there was no code of regulations, and on further inquiry it was said that the corporation used their own discretion in passing or rejecting plans. Having instanced difficulties which had arisen in other towns and in villages, as to the interpretation of building regulations, Mr. Gard Pye urged that it was desirable that steps should be taken to secure some uniformity of administration. It would be beneficial if one set of by-laws were promulgated applying to the larger towns, and another less stringent one to be enforced in rural districts.

Mr. J. R. MANNING thought that architects should not blame too freely the surveyors to district councils for delaying or refusing to pass plans, for too often officials were the scapegoats of building committees, some members of which bodies took a delight in sending back plans or in demanding tracings on linen and other expensive and useless luxuries. He had known members to secretly exercise their prejudices so far as to persistently reject the plans of one architect while passing without modification or objection those submitted by other men. The approvals or deviations from by-laws as to air space behind dwellings were often arbitrarily and unfairly given and withheld, especially in sparsely populated districts. If surveyors to local authorities would examine plans while yet in pencil, and then express their opinions and requirements, it would save time, trouble, and expense to architects and their clients. He gave instances of the incompetence of some surveyors who were unable to interpret their own regulations.

Mr. C. McARTHUR BUTLER, secretary, said he had seen adopted in a Northern town the method recommended by the last speaker. When depositing plans, architects were informed by the borough surveyor whether they were likely to be passed or not, and in the latter case the ground of disapproval. This course gave opportunities for correction, and it was a rare thing to hear of a plan being rejected when finally brought before the building committee. In some districts a set of working drawings executed on linen had to be deposited with the surveyor—a totally unnecessary proceeding. Architects would fare better with the committees if, wherever a plan was disapproved, they insisted on knowing the grounds of rejection, and the particular by-law transgressed.

Mr. T. R. RICHARDS pointed out that another grievance against provincial councils and their





NEWELS FROM SOUTH KENSINGTON MUSEUM.

surveyors was that they often kept plans in hand for a lengthened period without coming to a decision. He could not understand why it should be necessary to deposit plans with all county authorities when no such regulation existed in London. In the Metropolis, building owners and their architects were supposed to know the Building Act, and so long as its requirements were not transgressed district surveyors did not interfere.

Mr. W. C. WILLIAMS said, as a solicitor, he considered the remedy which went to the root of the whole matter would be to assimilate the building regulations throughout England into one Act. The drafting of the London Building Act of 1894 was certainly obscure; but it had gradually been interpreted and settled in the courts, and its requests were generally understood and complied with. Why should each little corporation and urban and even rural district council be allowed to form its own more or less perplexing regulations, in total disregard of what was enforced in the neighbouring districts? At the utmost two sets of building by-laws—one applicable to urban, the other to rural authorities—should be framed and enacted; building owners would not then be at the mercy of often incompetent committees, and the poorly-paid and the more or less intelligent surveyors in the interpretation of vague and varying regulations, but could study the general building law, and keep within its demands.

Mr. C. A. BASSETT-SMITH concurred in all Mr. Williams's remarks, and emphasised the desirability of reducing all building codes outside the Metropolitan area to two—urban and rural.

Mr. F. W. MACEY agreed with the last two speakers, but thought that the certain amount of discretion given in the Building Act to the County Council should be provided for country authorities, so as to allow difficult sites to be dealt upon, or exceptional buildings to be erected.

Mr. ELLIS MARSLAND pointed out that most corporate urban and rural authorities founded their by-laws on the model code framed by the

Local Government Board in 1877, with variations to suit their local requirements. The great distinction between building regulations in London and outside it was that in the Metropolitan area an owner could go on building, and provided he did not infringe the provisions of the London Building Act, the district surveyor would not interfere with him; but outside that area the person proposing to build had first to submit plans to the local authority and await their approval. This necessity to obtain the sanction of the authority inevitably caused delay and expense, and was a needless display of red tape. If a building owner outside the Metropolitan area thought approval was unjustly withheld or needlessly delayed and decided to proceed with the work, he would at once be pulled up short and charged with beginning to build without having first obtained the sanction of the authority, and the local bench of magistrates would have no option but to convict on this side issue. Even if the aggrieved building owner successively appealed to quarter sessions, a Divisional Court and the Court of Appeal it would be almost impracticable to enter into the real merits of the case, and progress of the building could thus be arbitrarily blocked by a building committee or their surveyor. There could be no valid objection to extending the London system throughout England. With all their punctiliousness, extra-Metropolitan bodies made no provision for various emergencies which in practice often arose. For example, except in London there was no machinery for dealing with alterations to party-walls, and hence in country houses, unless a building owner could make terms with his neighbour no power existed to compel an agreement between them. He thought the London regulations with reference to party-walls were fairly perfect.

After considerable further conversation and discussion, the CHAIRMAN summed up, remarking that personally he was in the happy position at the War Office of being above all by-laws, and therefore could look on the controversy impartially and dispassionately. It was obvious to him as an outsider that the present confused tangle of

separate building regulations for every petty authority was needlessly perplexing, and that a statute law, or, say, an urban and a rural code, defined by legislative enactment, would be infinitely preferable to a series of conflicting and variously interpreted by-laws. How was the uniformity all saw to be desirable, and indeed necessary, to be brought about? Obviously it would only be secured by a general Building Act, and to get such a measure passed through Parliament was, in the present pressure of public business, a very serious and formidable undertaking. He could only hope that the practical discussion that evening would do something to prepare minds of architects for such a movement.

#### NEWELS FROM SOUTH KENSINGTON MUSEUM.

THIS week we give further sketches of three interesting newels recently acquired by the museum authorities. They come from houses in Brussels lately demolished, and date about the 17th and 18th century. The posts are nearly all of oak, and are carved with the ornament usually seen on woodwork characteristic of that period—such as festoons, rosettes, and acanthus leaves. The newels appear to have been the ordinary form in use on staircases in Brussels.

#### BOOKS RECEIVED.

*Gloucester: the Cathedral and See* (London: George Bell and Sons). This handbook, dealing with the cathedral church of Gloucester, its fabric and episcopal see, has been written by Mr. H. J. L. J. MASSE, M.A., as the fifteenth of the now familiar uniform green cloth-coloured monographs in Bell's Cathedral Series, all of which, on publication, have been noticed in these columns. It is illustrated by an excellent plan of the minster, and by forty-nine reproductions of black-and-white drawings by Mr. E. J. Burrow, photographs, or engravings. The author expresses his obligations to Mr. F. S. Waller, F.R.I.B.A., the



cathedral architect, for allowing the use of his "Notes and Sketches of the Cathedral" (a book now out of print), and to Mr. W. H. St. John Hope for permission to quote from his "Notes on the Benedictine Abbey of St. Peter at Gloucester." Mr. Massé traces the history of the building so far as it is known from the records, and refers to the restorations successively carried out under Wyatt, Sir Gilbert Scott, and Mr. F. S. Waller. He points out that externally practically the whole fabric, as far as the author is concerned, remains as it was at the beginning of the 12th century. The arrangement of the group of buildings differs in one essential part from almost every other in the kingdom—the cloisters, instead of being on the south, are on the north side of the church. The cathedral is a storehouse of every period of Gothic from the Later Norman, with the exception of the Decorated, of which there are but scanty remains. The most striking external feature is the central tower, the work of Abbot Seabroke (1450-57); the west front, rebuilt by Seabroke's predecessor, John Morwent (1421-37), although simple, is admittedly inferior in effect to that of most other edifices of its class and proportions; the beauty and grandeur of the interiors of the nave, choir, and Lady-chapel are done full justice to by Mr. Massé.—Two other volumes in Bell's Series have also come to hand from the same publishers—*York and Beverley Minsters*. The little work on "York: its Cathedral and See," is written by Mr. A. Clutton Brock, M.A. He discusses at considerable length the early history of the city, pointing out that, unlike Ely and Lincoln, the houses did not grow up around the cathedral, for York is an immemorial, a prehistoric city, and was the headquarters of the Roman army in the north soon after the conquest of Britain. The see is traced from the somewhat shadowy days of Paulinus. Passing on to the Cathedral, Mr. Brock mentions that at the end of the twelfth century the minster was utterly unlike the present building; except in the crypt and in parts of the nave and tower, not visible to the casual observer, there are no vestiges of the work of the earlier builders. The oldest parts of the existing edifice are the south and north transepts, and the nave itself was rebuilt between 1298 and 1320, the west part being the latest work except the vault, and the chapter house was added after the latter date, the reconstruction of the choir being begun in 1361, and completed in 1400. The destructive fires of 1829 and 1840, and the restorations by Sir Robert and Sydney Smirke are treated upon, as well as the more recent and intelligent restoration of the south transept under the late G. E. Street. Mr. Brock remarks: "Other English cathedrals are more finely placed, several are richer in ornament, one or two have a more delicately varied outline, but none are so stately and magnificent as York, and there is hardly a church in Europe that appears so vast as the minster viewed from the north." The worst feature of the minster is the weakness of the western towers, which, says the author, closely approach to the ideals of "Churchwarden's Gothic" at the beginning of this century, and other grave defects are the flatness and thinness of the western front, which is overlaid with unnecessary details. The book contains 41 illustrations. "Beverley Minster," the companion work, is written by CHARLES HIATT, who is the author of the volume in this excellent series on "Chester Cathedral," and is also well illustrated. The author writes enthusiastically of the magnificence, stateliness, and grace of the great church, its fine proportions and wealth of carving, including that on the so-called "Percy Shrine," but which, Mr. Hiatt shows, really commemorates Eleanor FitzAlan, wife of Henry first Lord Percy of Alnwick, who died in 1328. A short chapter is devoted to the very fine cruciform church of St. Mary, at the other extremity of the otherwise uninteresting town, an edifice which is overshadowed by its sister structure, but which is a magnificent example of an East Riding parish church. Pugin added, in 1856, the huge flying buttresses to the front of the south transept, which was in danger of falling, and the whole building was restored by Sir Gilbert Scott seven or eight years later.—*The Essex Review* (Chelmsford: Edmund Durrant and Co.) contains an illustrated article on Francis Quarles, the emblemist, by E. J. Harry; another on "Troubles at Stisted in 1642," by Miss Bertha Potter; and others on "Famous Essex," "Parish Register Books," and "County Historians."

Much information of permanent value and more than local interest is embodied in the Notes and Queries, which form a feature of this well-edited quarterly.—*Landmarks in English Industrial History*, by GEORGE TOWNSEND WARNER, M.A. (London: Blackie and Son, Limited), is a fairly good summary of the salient features of England's industrial and commercial progress. Mr. Warner has not a very intelligent appreciation of the causes or aims of the Industrial Revolution, nor does he appear in the least to understand the great silent influence which is slowly but surely making for industrial co-operation, which, after all, "Trades Unions Congress faddists and agitators" can do very little to hasten or retard. He might, perhaps, have grasped this in some degree if he had familiarised himself with the fact that down to the days of the recognition of trade-unionism the prices of the necessities used by the workers have always increased in a considerably greater ratio than their wages. He will find the facts which prove this, and have been established by Gustaf Steffen and others, much more reliable than the conclusions of the authorities to whom he has mainly trusted.—*Whitaker's Titled Persons* for 1899 gives all the essentials hitherto confined to several expensive volumes, and, in a library binding, is published at half-a-crown.—*Laxton's Builder's Price Book for 1899* (London: Printed and published by Kelly's Directories, Ltd., High Holborn). The eighty-second edition of this well-known price-book of the building trades amply justifies the claim of this book to be considered the standard work on the subject, to which in disputed cases in the law-courts reference is made. In this edition several new features are noticed. Electric-lighting has a large section devoted to it. The rules issued by the Sun Insurance Office for electric installations, and those of the L.C.C. for the protection of public buildings from fire, are given. The agreement and schedule of conditions for building contracts, and issued by the Institute of British Architects, is printed in full. Other rules, by-laws, and regulations relating to procedure in cases to be brought before the Tribunal of Appeal under the London Building Act, and the by-laws of the L.C.C. under the various Acts are given in full. The working rules of the building trades of London agreed to between the London Builder's Association and the representatives of the workmen, the regulations in the City and the several district boards and vestries in the County of London, the Metropolis Water Act regulations and those of the L.C.C., the form of contract with builders issued by that Council, theatre regulations, &c., all find a place. The usual tables and data and classified building advertisements appear in this edition, and the whole is accompanied by a good index.—*Cabinet-Making for Amateurs* (London: L. Upcott Gill, Strand). This is a practical handbook on the making of various articles of furniture, by various authors, edited by Mr. John P. Arkwright. A very useful guide for amateur carpenters and cabinet-makers. The work comprises a large amount of general information on tools, benches, with hints about wood and glue. The amateur who wishes to make a five o'clock teatable, a bookcase, cupboard, a kitchen table, washstand, chest of drawers, overmantel, &c., will find the book serviceable. The various processes are described, and illustrated by diagrams, plans, and views. We do not say anything about the designs—some of the fancy articles are lacking in character and simplicity; but the work will be found full of the kind of information the amateur requires.—*The Municipal Parks, Gardens, and Open Spaces of London: their History and Associations*, by Lieut.-Col. SEXBY, V.D., Professional Associate of the Surveyors' Institute (London: Elliott Stock, 16s.). It is a well-executed attempt to give an account of the municipal parks and open spaces under the control of the London County Council. The story of the well-known Royal parks has been the subject of many volumes, and has been long ago dealt with in these pages; but hitherto no account has been given of these less familiar places, which, in many instances, possess quite as important and fascinating a history. A short description of each space is given, with an account of its distinguishing features, the steps which led to its acquisition, and its previous history, compiled from ancient and modern sources. The latter feature is very fully dealt with, and will be found to contain much valuable information for the historian and the antiquary. In addition to

the ordinary local and county topographies, the author has had the advantage of consulting many private and legal documents which have not been made public before, and which add considerable interest to the subject in hand. Its many illustrations constitute one of the most attractive features of the work. It contains some 185 pictures, including landscapes of the parks and open spaces, and a number of sketches of picturesque nooks and corners, many of which have been specially photographed for reproduction here. To these have been added many illustrations of historical places and scenes connected with or near to the parks, some of which have now vanished; there are also many facsimiles of old prints and drawings, as well as plans and maps of much local value. To make the history complete and to facilitate reference, a copious index is included. An extended introduction, tracing the growth of London's municipal parks and open spaces to their present large acreage precedes the book, and in an appendix is given the list of all the places in London available for public recreation, with particulars as to their size and the arrangements for their maintenance.—*English Country Cottages: their Condition, Cost, and Requirements*, by J. L. GREEN, F.S.S. (London: The Rural World Publishing Company, Ltd., 111, Strand).—This little book, illustrated by numerous plans and elevations of cottages, will be found of service to all promoters and projectors of labourers' dwellings. Mr. Green, the author, has had practical experience of the requirements of agricultural cottages, and has been assisted by many owners of property of this description, including the Dukes of Bedford, of Rutland, of Westminster, Lord Wantage, Earl of Coventry, Earl of Kimberley, Sir Walter Gilbey, and others, who have placed plans and data of cottages on their estates at his disposal. Excepting the cottages on the large estates of noblemen and others, accommodation of this class is very defective. Mr. Green also observes that the model by-laws of the Local Government Board are in most instances undesirable, and that if these dwellings are to pay even 2 per cent. gross on the capital outlay, rents would require to be much increased. The author treats of the subject under several heads. The system of letting cottages with the farms is very common. In Berkshire, Bucks, Cambridgeshire, Cornwall, Devon, Hertfordshire, Oxfordshire, and Shropshire the farm cottages are mainly in the hands of the farmers, who sub-let them—a very undesirable arrangement in the interests of the labourer, who thus has his "work and home bound up together." In many cases there is a condition in the letting that the tenure is to hold only so long as the labourer works for the farmer, and this is naturally resented by the labourer. As to the accommodation, the author says four rooms, two on each floor, is seldom exceeded; while three, and even two rooms are more common. A sad tale may be told of the moral depravity of living, or harding together, under these conditions, the want of drainage, and the means of removing the refuse, &c., the contamination of wells, and the spread of fevers. The overcrowded and insanitary country cottage is a potent cause of immorality, disease, and crime, and are, as the author says, a discredit to the nation. The remarks and suggestions on close and open villages, on rent, rates, and tenure, on cost, drainage, water supply, model by-laws, are valuable and suggestive, and several fairly good types of plans are given, with the dimensions and cost. We recommend Mr. Green's work to all landed proprietors about to build.

#### EDINBURGH: THE TALLA WATER SUPPLY.

AT the Talla Waterworks preparations are being made, says the *Scotsman*, for a vigorous summer campaign of labour at the great reservoir now in course of construction to provide an additional supply of water to Edinburgh. During the winter months the contractors, Messrs. James Young and Co., Ltd., have concentrated their energies on two important pieces of work—the one the completion of the great tunnel on the north side of the reservoir, and the other the construction of a new road up the north side of the valley, to take the place of the existing one on the south side, which, when the reservoir is made, will be submerged. The tunnel is now nearing completion. It is 400 yards in length, 15ft. in height by 13ft. 6in. in width, and its bell-mouth



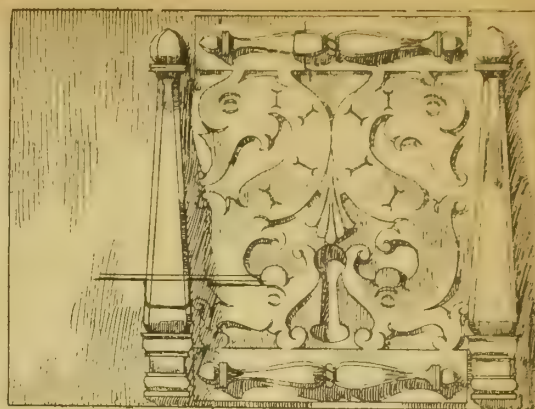
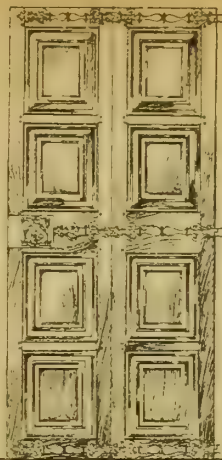
## OAK DOOR. FRENCH.

WITH ORNAMENTAL IRON HINGE  
BANDS. IN SOUTH KENSINGTON  
MUSEUM. PERIOD: EARLY 17<sup>TH</sup> CENT.

DELT<sup>D</sup> J. DOUGLAS TRAIL

Scale of feet

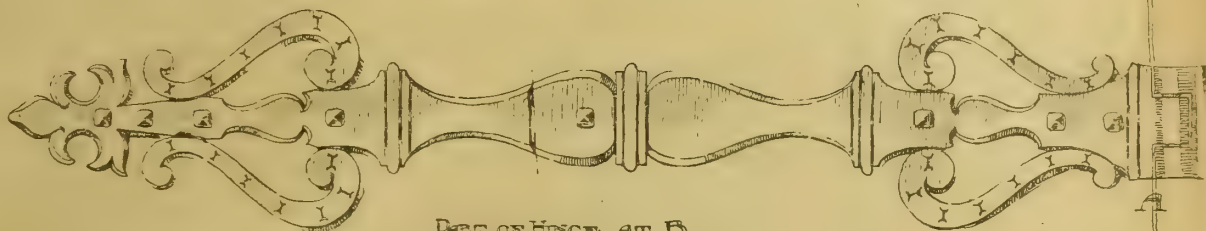
NOTE: DETAILS DRAWN FULL SIZE



SECTION

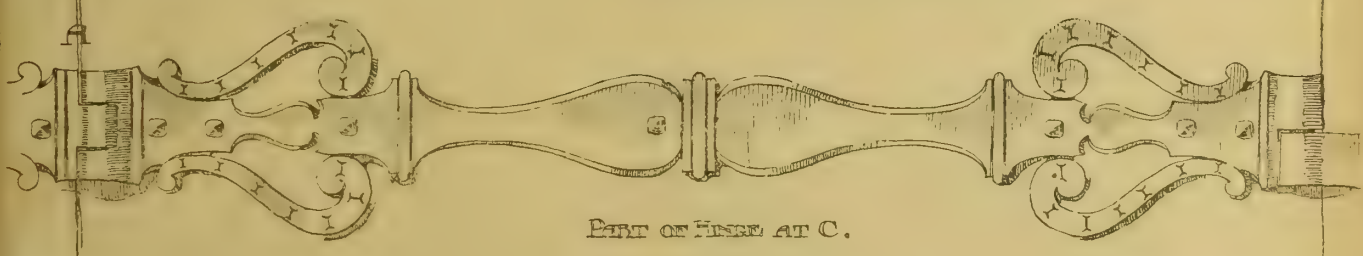
SKETCH

KEY PLATE



PART OF HINGE AT D.

NOTE: DOOR FOLDS IN CENTRE



PART OF HINGE AT C.

## FRENCH DOOR.

THE Door is of oak, in a very dark brown colour, almost black, divided in two portions, which are hinged together by the ornamental iron hinges. There are two mouldings which are very refined and delicate, and add not a little to the very fine proportion of this door. The iron hinges are quite flat, of about an eighth in thickness, having the edges bevelled, and incised lines on face. The key-plate is composed of two plates, the one being a background to the fret, while stuck on the face of this are four square spindles, which add considerably to the plate, the whole being a very fine composition of iron and oak.

J. DOUGLAS TRAIL.

The Cheadle board of guardians have adopted plans prepared by Messrs. Chapman and Snape, of Newcastle-under-Lyme, for new workhouse infirmary and alterations to the workhouse.

Mr. James Darlington, J.P., has erected at Char-nock Richard, Lancashire, a row of almshouses with carstaker's house, and a parochial room. The architect is Mr. A. E. Tansley.

A monument has been erected in Southampton cemetery to the memory of the late Alfred Jas. Dyer, J.P., by the Ancient Order of Foresters, of which he was the district secretary for 24 years. The monument is 8ft. in height. The plinth is 3ft. 6in. wide, is of grey Yorkshire stone, and from this rises a moulded base and pedestal of Portland stone, which bears an inscription. On a shaped block is a shield carved with the emblems of the order. The whole is surmounted by a canopy, supported by red Peterhead granite columns, having moulded bases and carved capitals. The work has been designed and executed by Messrs. Garrett and Haysom, Eastgate, Southampton.

in the hill side is faced with granite. The tunnel itself, which has been excavated out of the solid rock, is faced with blue Staffordshire brick. The inlet channel is 40ft. in breadth, and near the mouth of the tunnel are curving walls of red sandstone. The inlet channel begins at a point 100 yards or so above the embankment; the tunnel, with a circular sweep under the hill, passes the north end of the embankment, and debouches below, where the tail of the bank will end. There an outlet channel connects with the bed of the stream again. About April this tunnel will be completely finished, and the whole water of the Talla will be turned into it, leaving the area of the embankment to be dealt with by the workmen, unembarrassed by the running stream. The puddle trench, 40ft. in width, stretches right across the valley. Its excavation was finished last year, but the Talla in one of its floods broke into it. No damage was done, as the trench was excavated out of the solid rock, but it is at present full of water. Immediately the Talla is diverted into the tunnel the water in the trench will be pumped out. An examination of the trench will then be made by the engineers and by Mr. Hill, C.E., Manchester, the consulting engineer to the Trust, and the contractors will proceed to pack the trench with clay and form the embankment. After the reservoir is made, the tunnel will form the outlet for the city supply and the compensation water. Half up its height there are steel joists on which will be laid two rows of 3ft. pipes for the town's supply. The compensation water will run in the bottom of the tunnel, and shafts are being made at present to hold the requisite machinery for the control of both supplies. One of the new buildings is a hospital for eight beds, erected for the benefit of the men by the water trustees. The Talla scheme, it may

be recalled, received the Royal Assent on the May 30, 1895; the first sod for the construction of the railway was cut September 28, 1895, and the contract for the reservoir was signed March 12, 1897.

The plans and specifications for the scheme are by Mr. Wilson, the trustees' engineer, but, in view of the magnitude of the work the trustees employed Mr. Hill, C.E., Manchester, as consulting engineer. The drainage area of the Talla scheme extends to 6,180 acres, and the trustees have purchased the whole of the land from Sir Graham Montgomery and the Earl of Wemyss at a cost of £36,000. Rock has been found at the depth at which it was estimated it would be got—viz., 30ft. to 40ft.—and the trench is carried well into it. The rock is hard and of good quality, and appears to be altogether suitable for a foundation for the puddle-trench. As the outlet will be by the tunnel already referred to, this will permit the embankment to be made in one solid mass, unpierced by pipe or culvert. The estimated capacity of the Talla Reservoir is 2,750,000,000 gallons. The area it will cover will be 297 acres, and the height of the water at the bank of the reservoir will be 950ft. above sea-level. The scheme when completed will give 8,000,000 gallons of water per day for town's supply and four million gallons for compensation. When more water is needed provision is made for diverting the Menzion into the reservoir. The distance from the Talla Reservoir to Fairmile, where the service reservoir will be, is 35 miles, and the contracts for connecting-tunnels and aqueducts are well forward, and should nothing unforeseen occur the scheme will be completed in three years from this date. The estimated cost was £750,000, and although two-thirds of the contracts are let, the estimate has not been exceeded.





BALDWIN STREET, BRISTOL. (FOR THE CITY CORPORATION.)

## REFRONTING 47, BALDWIN-STREET, BRISTOL.

**T**HIS Georgian front, recently erected for a small block of offices in Baldwin-street, Bristol, for the Bristol Corporation, was designed in the drawing office of the city engineer, Mr. T. H. Yabbicom, M.I.C.E. The elevation is in Bath stone to cornice-line, first-floor level, above this to transom of window to third-floor level brick facings with Bath stone dressings, the top portion of the building being in Bath stone. The whole of the external woodwork is painted pale Brunswick green. The work has been carried out by Mr. William Church, contractor, of Bristol, Mr. J. Long acting as clerk of works.

The city council of Leeds have appointed a sub-committee to consider the desirability of building new law courts for the borough.

## OBITUARY.

MR. RHYS DAVIES, J.P., the borough surveyor of Brecon—a post he has occupied since 1873—died on Saturday last, aged 54 years. He possessed great gifts as an organiser, being secretary to the Breconshire Chamber of Agriculture, the Agricultural Society, the Horticultural Society, and the County Rifle Association; and also for the local committee of the Eisteddfod. He also found time to effectively discharge the duties of agent for the estates of Earl Ashburnham and Col. John Morgan, the present Mayor of Brecon. As a bard and humorous author, he was widely known as Llew Llywel.

MR. GEORGE ROBINSON, of Lichfield, the surveyor to the Conduit Lands Trust, from which the water supply of that city is derived, died on Sunday week from a paralytic seizure. Mr. Robinson, who was 55 years of age, was the son

of an architect and surveyor at Enville. Upon the construction of the waterworks at Lichfield he was appointed surveyor to the Conduit Lands Trust. During the quarter of a century he had held office the trustees were only once called upon to engage the services of a consulting engineer, and the gentleman so employed expressed his entire approval of the works which Mr. Robinson had carried out. Recently the deceased had been engaged in sinking a new shaft and heading on the Walsall-road, thereby securing for the city an additional water supply of about 400,000 gallons per day, and raising the full supply to about 700,000 gallons per day. His services were recognised by the trustees at a meeting on the 13th inst. by a gratuity of £100, and by an increase of £50 per year in his salary.

MR. BENJAMIN JENKINS, of Brecon, who owned the largest building business in the county, died last week at the early age of 44 years, after a brief illness from influenza followed by pneumonia. Mr. Jenkins was the youngest but one of the seven children of the late Mr. Benjamin Jenkins, of Danywaring, Llangeler, Carmarthenshire. He was born in 1855, and, having been educated at the National School of his native village, was apprenticed at an early age to the carpentry and joinery. When comparatively young he left home, and worked as a journeyman in most of the principal cities and towns of the United Kingdom. In 1877, he commenced business as a builder and contractor in Llanelly. Three years later he secured contracts in Brecon, and then took up his residence there, building large and well-equipped joinery works in the Watton of that town. He employed recently about 120 men, and had carried out many important works, including several church restorations, the erection of many Baptist, Congregational, and Methodist chapels, schools, a convalescent home, and many business premises, vicarages, and houses in various parts of South Wales and the border counties. He rendered good service to Brecon as a member of the town council. He leaves a wife and young family.

## CHIPS.

At a meeting of the Edinburgh Association of Science and Arts, held in the Scottish National Portrait Gallery on Monday night—Mr. George Somerville, the president, in the chair—Mr. John Kennedy read a paper on "House Sanitation."

The new Imperial Theatre, Bordesley, will be ready for opening on Monday, October 2nd. The plans have been prepared by Messrs. Owen and Ward, of Birmingham. The building has two frontages, one to High-street of 104ft., and the other to Clyde-street of 134ft. The circle and gallery are supported on steel cantilevers, thus avoiding any obstruction by iron columns. The auditorium is 69ft. by 65ft., and the stage is 69ft. by 40ft.

Mr. R. A. Rogers, of Newton Abbot, has been elected surveyor and sanitary inspector to the Newton Abbot board of guardians, and architect to the same authority, sitting as a board of guardians, at a joint salary of £200 a year.

The new adult school building at Barton Hill, Bristol, has been opened. Messrs. Cotterell and Thorpe were the architects, and the building has been constructed by Mr. Wm. Church. It consists of a large hall, which can be used as a gymnasium, and three smaller rooms, to be used as laboratory, reading, and refreshment rooms. The hall will hold about 450 people, and the entire building will accommodate about 1,000 people.

At a meeting of Temperance workers held at Dudley, on Saturday, it was decided to pull down the existing Temperance hall, and erect on its site a new institute, from plans by Messrs. Wood and Kendrick.

The town council of Lowestoft are about to improve the North Parade, and continue the marine drive to Gunton Cliff, at a cost of £2,100, and have raised the salary of the borough surveyor from £310 to £350 a year.

New business premises, at the corner of Wine-street and the Pithay, Bristol, were opened on Monday. The buildings are three stories in height, and are faced with local bricks, Bath stone being employed for dressings and cornice. The architect is Mr. Henry J. Williams, and the builder Mr. George Humphreys, both of Bristol. On the opposite corner, the Pithay, a double block of like height has been built, the whole of the frontages being of plate glass separated by freestone piers, so as to provide a maximum of showroom space. For this building Messrs. Gingell and Bond, of Corn-street, Bristol, are the architects, and Messrs. Neale Brothers, of Redcliffe, the contractors.



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## ILLUSTRATIONS.

NEW GOVERNMENT BUILDINGS AT WESTMINSTER.—NEW BANK AT DOUGLAS. —“HOUGH END” HALL, NEAR MANCHESTER.—NEWSALS AT SOUTH KENSINGTON MUSEUM. —XLVII. BALDWIN STREET, BRISTOL.—OAK DOOR, FRENCH.

## Our Illustrations.

NEW WAR OFFICE AND GOVERNMENT BUILDINGS, WHITEHALL AND WESTMINSTER.

LAST week we described the salient points which distinguish the plans and architectural design of both these important National undertakings, and to-day we publish double-page views and plans of both buildings. Mr. J. M. Brydon is the architect for the larger block of offices situate in Great George-street, overlooking Parliament-square, and having a main return frontage in Parliament-street. Mr. William Young is the architect of the new War Office in Whitehall. Next week we shall give some reproductions of the geometrical drawings.

## NEW BANK AT DOUGLAS.

A NEW head office for the Isle of Man Banking Co., Ltd., is about to be erected at Douglas. The site is at the junction of the two principal streets in Douglas—Prospect Hill and Athol-street. The external walls are to be of granite of light-grey colour, from Aberdeen, finely dressed. The interior of the vestibule of polished granite of various colours, and the interior of the public office of Pavonazza marble and mahogany. The floors and partitions are to be of fireproof construction. The strongroom is to be steel-lined on walls, floor, and ceiling. The ground floor and basement are to be devoted to the bank's own requirements, and the upper floors are to be leased to others as offices. The cost of the building, exclusive of site, is estimated at £13,000. The architect is Mr. A. Marshall Mackenzie, A.R.S.A., F.R.I.B.A., Aberdeen.

## “HOUGH END” HALL.

CALLED “Hough's End,” but pronounced “Ouse End,” situate at Chorlton-cum-Hardy, near Manchester, was for several generations the seat of the Moseley family. The first Hough Hall was built about 1465 by Jenkyn Moseley, probably in the timber-and-plaster style of the period. Three generations later Nicholas Moseley erected the present hall on the site of the former, and entered business in Manchester goods, which he soon extended, and started a branch office in London to superintend the exportation of goods, and was eventually elected to the high position of Lord Mayor of London in 1599, being knighted by Queen Elizabeth during his term of office. The present hall was erected in the latter part of Queen Elizabeth's reign, and, though of modest proportions, may be considered a fair example of the style of the period. The building is entirely of brick, and stone dressings, comprising a centre portion, with a bay at each end, the walls of which are a little advanced from the main structure. The latter is of three stories, lighted with square-headed windows, divided into lights by substantial stone mullions. The upper structure

is gabled and ornamented with the usual ball ornament of the period. The centre is of two stories only, similar in character, and surmounted by a parapet forming a triple gable. The entrance appears to have been originally by a gabled porch at the east end of the building; but this has since been built up, and its place supplied by a doorway on the south front.

C. HENZELL ASCROFT.

## CHIPS.

Fault has been found with the quantity of water at the disposal of the inhabitants of Honiton. Mr. Middleton, C.E., has reported on this phase of the question, estimating the cost of the extension at £2,193 4s. The urban district council are considering his report, and will seek advice from another expert before proceeding further.

Mr. Clarson, C.E., of Scarborough, has been appointed surveyor to the Filey Urban District Council at the munificent salary of £75 per annum.

The parks committee of the corporation of Manchester have recommended that body to purchase the Brookdale estate, which comprises 45 acres, and is situated in Manchester, with the exception of eight acres in Failsworth, it having been offered at £26,500.

The Bristol and Gloucestershire Archæological Society decided, on Saturday, to make some excavations at Llanthony Priory, which is about to be absorbed by the Great Western Railway, to verify the foundations, &c., and it was also agreed to excavate for a like purpose at Hayles Abbey.

The Baptist chapel at Orpington, Kent, was reopened on Thursday in last week after extensive alterations and repairs, at a cost of nearly £1,700.

The ceremony of opening the Unitarian church which has just been built in Hunter-street, Kirkcaldy, was performed on Saturday. The building, which has been erected at a cost of £1,105, including site, is seated for 200.

Chancellor Fergusson, at the Carlisle Consistory Court, on Friday, granted an application for the confirmation of the sale by the vicar and churchwardens of Bewcastle to the Carlisle Museum of a Roman altar, which had been found in Bewcastle Churchyard. The altar had been dedicated to Cocidius, by Petrasius Maximus, who was the Tribune at Bewcastle. It was the fourth which had been found at Bewcastle with a similar dedication. Roman altars belonging to a church cannot be alienated without a faculty.

At Playden, Kent, the parish church has just been reopened after having been restored, at an outlay of £900.

The Wadham transept in Ilminster parish church is being restored from plans by Mr. T. G. Jackson, R.A., and in removing the plaster of one of the walls, close to the tomb of Sir William Wadham, an elaborate piscina was disclosed, richly ornamented with the four-leaved flower pattern and other enrichments of the Early Perpendicular style.

Mr. R. H. Picknell, inspector of the Local Government Board, held at inquiry at Dover last week, respecting the town council's applications for permission to borrow £850 for public conveniences, £700 in connection with water supplies, £450 for the extension of the museum, and £7,000 for wood paving.

The general purposes committee of the London County Council recommend that the salary of Mr. Andrew Young, valuer to the Council, shall be raised from £1,250 to £1,500, and that of the statistical officer, Mr. Gomme, be raised from £800 to £900, afterwards rising by two annual instalments to £1,000 a year.

The formal opening of the latest extension of the North Cornwall Railway Company's line took place on Friday. This extension commences at Wade-bridge, has a length of 5½ miles, and ends at Padstow town. Its course from Wade-bridge is along the western side of the river Camel, and the only noteworthy engineering difficulty encountered was at Little Petherick, in connection with the foundations for a viaduct over an estuarial arm. The construction of the line has occupied about two years, and its cost, inclusive of land and equipment, amounts to about £90,000. Mr. E. Andrews was the chief engineer, and Mr. E. P. Wentworth Shields the resident engineer. Messrs. Curry, Reeves, and Co. were the contractors.

Mr. H. Glynn Warne, of Newton Abbot, at present road surveyor to the Newton Abbot Rural District Council, has been appointed under the Chelmsford Rural District Council at a salary of £200 a year. Mr. Warne is a son of the surveyor of the urban district council at Sidmouth.

New board schools are approaching completion in Barnsole-road, Gillingham, Kent. The architect is Mr. Smith, and the contractor Mr. Woollard.

## PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The members visited on Saturday afternoon four houses now in course of completion at Mortonhall-road. The plasterwork of these houses is exceptionally interesting. The leader, Mr. Harold Tarbolton, architect, who modelled the decorative plasterwork, referred to the difficulty experienced by architects in securing good modellers, and urged the Edinburgh plasterers to assist architects in this matter, as the ability to carry out good work would create a demand for it. The party then visited Grange House.

NORTHERN ARCHITECTURAL ASSOCIATION.—Mr. W. Glover, the newly elected president of this association, has generously offered a sum of 150 guineas towards furthering the objects of the Association. Towards a building to be its home he will give 100 guineas if members will raise 900; for the formation of a library he promises 25 guineas if members will contribute 75; and for a students' prize fund he will give 25 guineas if members will give 75. He further offers to double his donations if members will double their help. This would raise 2,000 guineas for the building, 200 guineas for the library, and 200 guineas for a students' fund, the interest of the latter to be devoted to prizes. Mr. Glover a few months ago presented the Association with a new presidential badge.

At Hooton Park, in the Hundred of Wirral, a new racecourse is being laid out, and the old hall, which has been unoccupied for 30 years, is being converted into a clubhouse. The works are being carried out under the direction of Messrs. Mangnall and Littlewoods, of Manchester, the contractors, who have 130 men daily at work on the grounds and mansion, being Messrs. William Brown and Sons.

Mr. J. Worthington, surveyor to the urban district council of Biddulph, Staffs, died very suddenly last week.

A chapel is being added to the Roman Catholic College at Blairs, N.B., at a cost of £12,000, borne by Monsigneur Teunon, of Liverpool. It will consist of nave and aisles, transepts, and apsidal chancel, and tower and pinnacled spire rising to a height of 150ft. The style is Perpendicular, and the facing material Aberdeen grey granite. Mr. A. Curran, of Warrington, is the architect. Other buildings are being added to the college at a further cost of £28,000. The architect for these was Mr. R. G. Wilson.

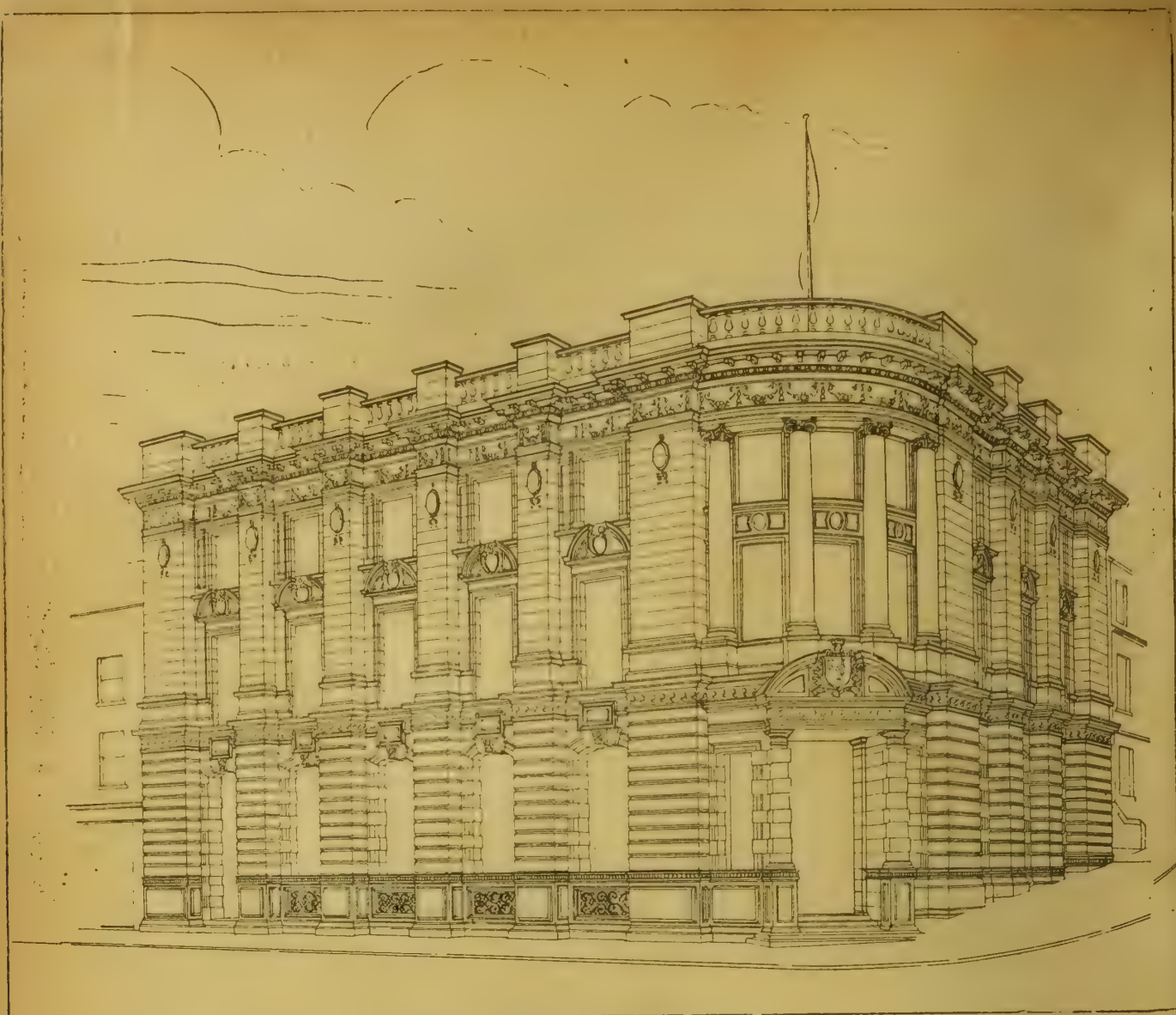
For the first time in the history of Southampton, a section of its public streets was lighted last week by electricity, the illuminant having been generated at the station, now the property of the ratepayers. The corporation purchased in 1896, for £21,000, the electric-lighting works from a private company, and the works have been transformed and enlarged by Messrs. Kincaid, Waller, and Manville, the additional buildings being erected by Messrs. Playfair and Toole, builders, of Southampton, under the supervision of Mr. W. G. B. Bennett, the borough engineer. The alterations were commenced from plans by Mr. J. H. Lee, the chief electrical engineer to the corporation, and have been completed under his successor, Mr. F. H. Chaplin.

On Saturday, the Feast of the Annunciation, the Archbishop of York unveiled in Hovingham Church an east window, reredos, and brass tablet in memory of the late Sir William Cayley Worsley. It was designed by Mr. C. Hodgson Fowler, F.S.A., of Durham. The Archbishop and Dean of York then proceeded to the village green, where a cross has likewise been erected in Sir William Worsley's memory.

The Museum of Science and Art at Edinburgh has been presented by Major-General Sir R. Murdoch Smith with several fragments recovered from the Palace of King Darius Hystaspes, at Persepolis. The relics consist of detached portions in sculptured limestone, taken from the debris at the site of the ancient structure; they are portions of a frieze, sculptured in relief, with the leg and cloven foot of a bull, having a band of rosettes underneath.

Mr. Percy Brown, A.R.C.A., an assistant teacher in the Birmingham Municipal School of Art, has been appointed as principal of the Mayo School of Art, Lahore. This is the second occasion on which an ex-student of the Birmingham School of Art has received a high appointment in the Education Department of the Indian Civil Service. Mr. John Lockwood Kipling, C.I.E.—father of Rudyard Kipling—held, for nineteen years, the post to which Mr. Brown has been appointed. All the students of the Mayo School are natives. There are 300 students at Lahore, and 200 at each of the three branch schools at Amritsar, Ludhiana, and Delhi.





NEW BANK AT DOUGLAS.

## EARLY ARCHITECTURE IN WARWICKSHIRE.

MR. J. A. COSSINS, in a paper read before the Archaeological Section of the Birmingham Midland Institute last week on "Early Architecture in Warwickshire," said: Though it cannot be called a work of architecture, the great monolith called the king's stone at Long Compton is the oldest erection by man in stone remaining in the county. Of Roman buildings we have nothing or next to nothing. The oldest fragments of building remaining are very probably some fragments of masonry in the wing wall which crosses the moat at Tamworth Castle and the ground and second stories of the central tower of Wooton Wawen Church. These are of the kind generally called Saxon; but although the well-known arches of the tower at Wooton Wawen have all the most prominent characteristics of that style, it is very probable the church was not built by the great and influential Wagen, from whom the place derives its name, but by Robert de Toner, to whom the Conqueror granted the place very soon after the Conquest, certainly not later than the eleventh century. There are some fragments of wall here and there in some of our oldest churches which may be of a date earlier than 1066, but it is by no means certain that they are so old. There can be but little doubt that for a century or more before the year A.D. 1000 very little building that was not of a slight and temporary nature had been done, for it was very generally believed that the world would come to an end in that year, and in anticipation of the dissolution of all worldly interests many wealthy men had made over their lands and money to the Church. After

the year had passed, with a reasonable allowance for errors in computation, it is not surprising, considering how long church building had been neglected, and how full the coffers of the Church had become, that building in stone began to be general, and that it was carried on with feverish haste. After the establishment of the Norman power, and during the reigns of the first three kings, cathedrals, monasteries, and churches were built in amazing numbers; but the wealth and energy of the nation during the time of Stephen were bestowed chiefly on building castles. During his reign there were founded, and either wholly or partially built, at least 1,500 castles, of which 1,150, it is said, were destroyed by Henry III. How all this building was accomplished in about eighty years, if the population was as small as it is generally supposed to have been, must for ever remain a mystery. There is very little doubt that the Saxons, when they built in stone, made rude copies from the already rude architectural fragments of Roman works, which must have been then very plentiful. But our earliest real Norman work was either done or superintended by masons brought over from the Continent. It was at first rude and simple, with very thick mortar joints, but very soon improved, and very noble and grand works of extraordinary richness were produced. In Warwickshire we have in Bickenhill Church arcade an example of the ruder kind; in Polesworth an arcade as simple, but better executed; and in Beaudesert and Stoneleigh works of extreme elaboration. Of the 288, or thereabout, churches in the county, about eighty-five have remains of Norman work, but there are many more that are of early foundation of which no remains exist that can be recognised

as Norman or earlier; about thirty-five are mentioned in Domesday-book as being then in existence, and it is probable that those belonging to monasteries were not included.

## CHIPS.

A group of cottage houses in course of erection for the Rochdale Board of Guardians, at Middlewood, is approaching completion. Mr. Dryland, of Rochdale, is the contractor.

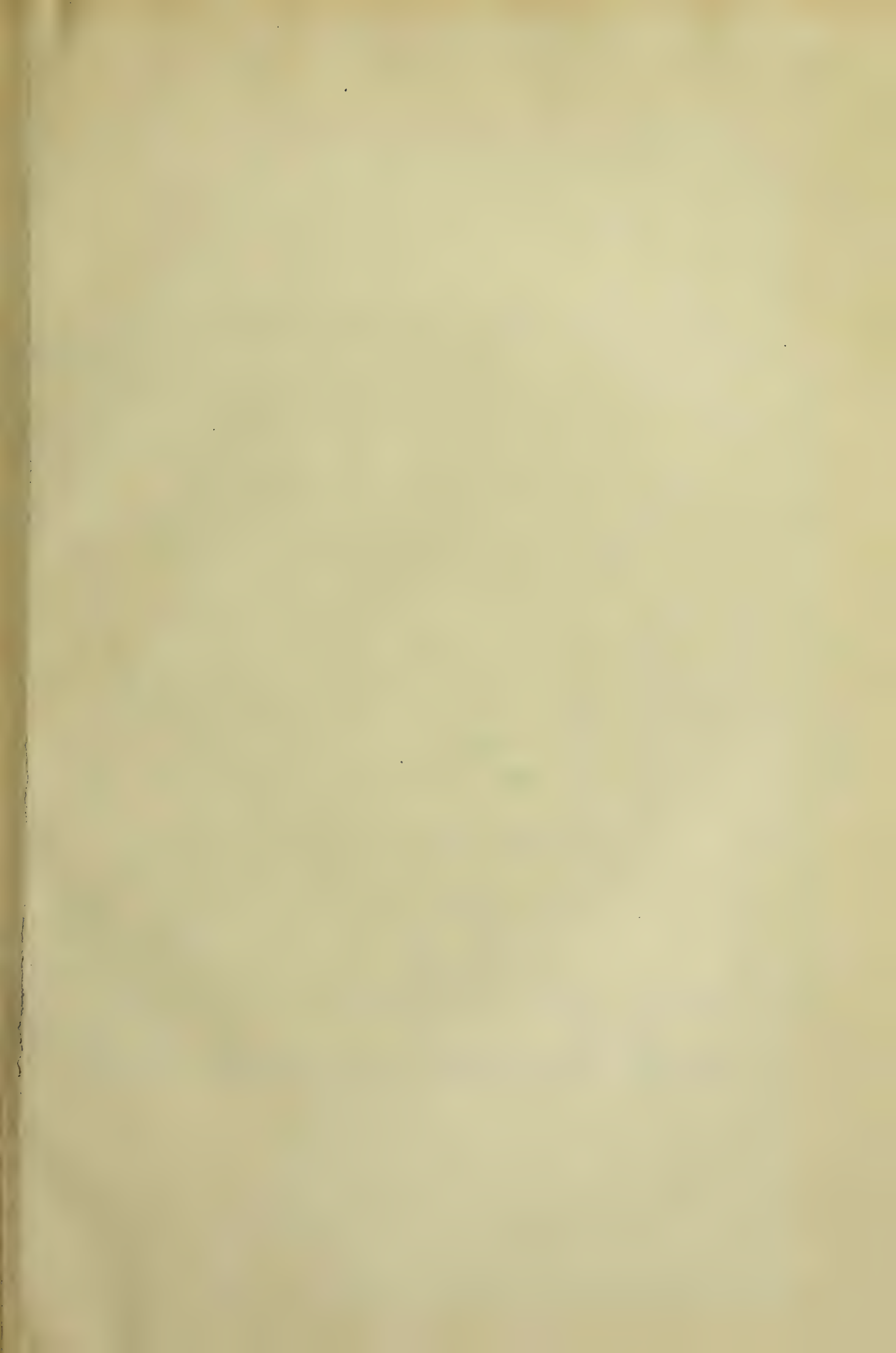
The London and North-Western Railway Company have let the contract for extensions, making practically a new station at Castle Station, Lancaster, to Messrs. Neale and Sons, Manchester, the amount of the contract being £51,000. The chief feature will be a large island platform, with waiting and dining-rooms, and a new approach, with lifts and other modern conveniences.

The Emperor of Austria has conferred the large gold medal of Art and Science on the Society of Austrian Engineers and Architects in Vienna, which celebrated its Jubilee on Saturday.

At the London Sheriff's Court last week, the case of the Trustees of the Bishopsgate Foundation v. the Receiver of the Metropolitan Police came up for the assessment of compensation. The claim was for £54,893, the value put by the plaintiffs upon a plot of land in the City-road, adjacent to the Eagle Tavern, which had been acquired for the erection of a new police-station. After evidence had been called on both sides, the jury assessed the compensation at £33,166, for which judgment was given.

The new schools, Arlecdon, Cumberland, are being warmed and ventilated by means of Shorland's patent Manchester grates, patent exhaust roof ventilators and inlet tubes, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

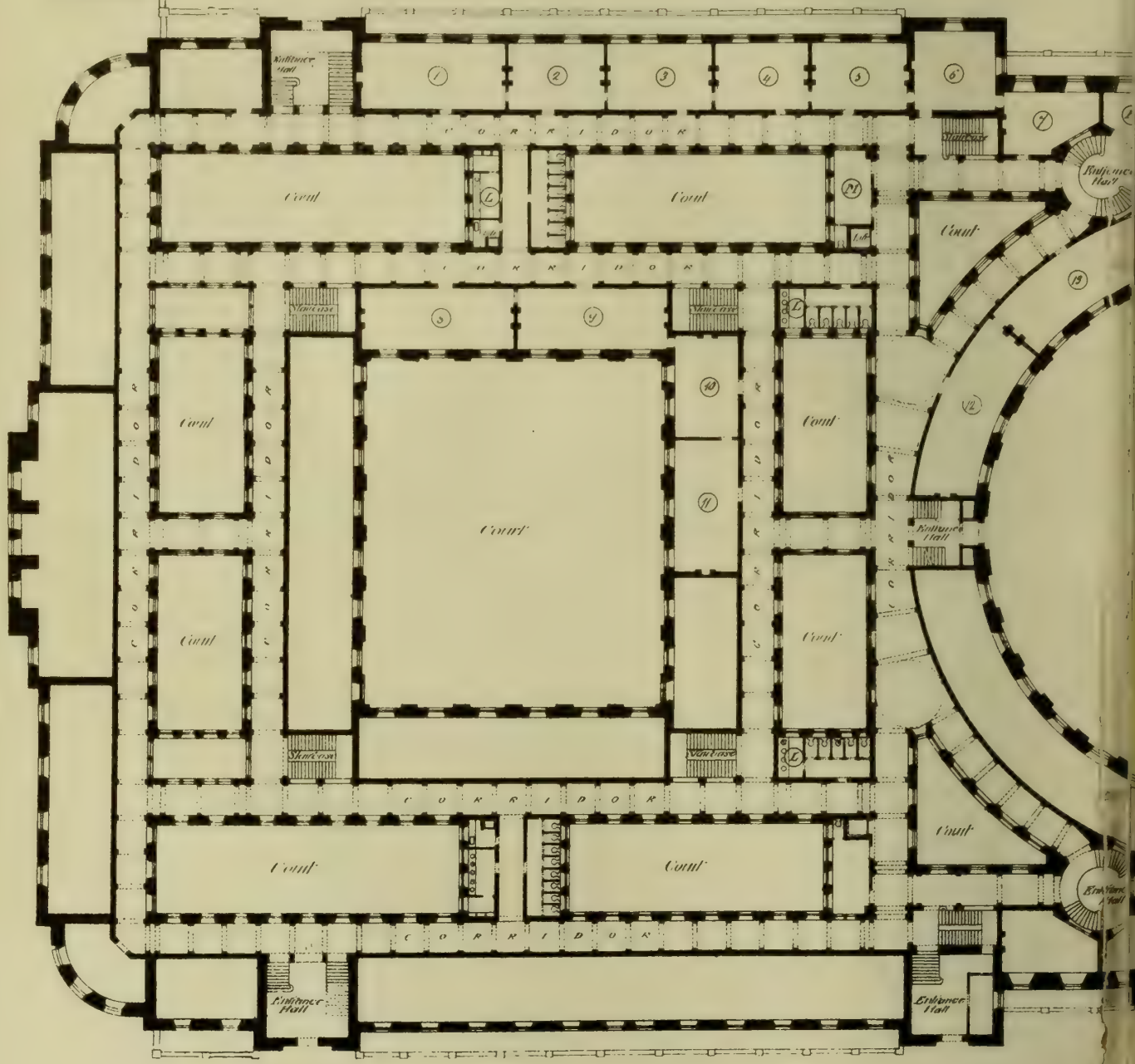




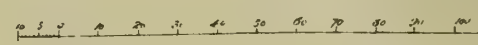


Public Offices Westminster.

C H A R L E S



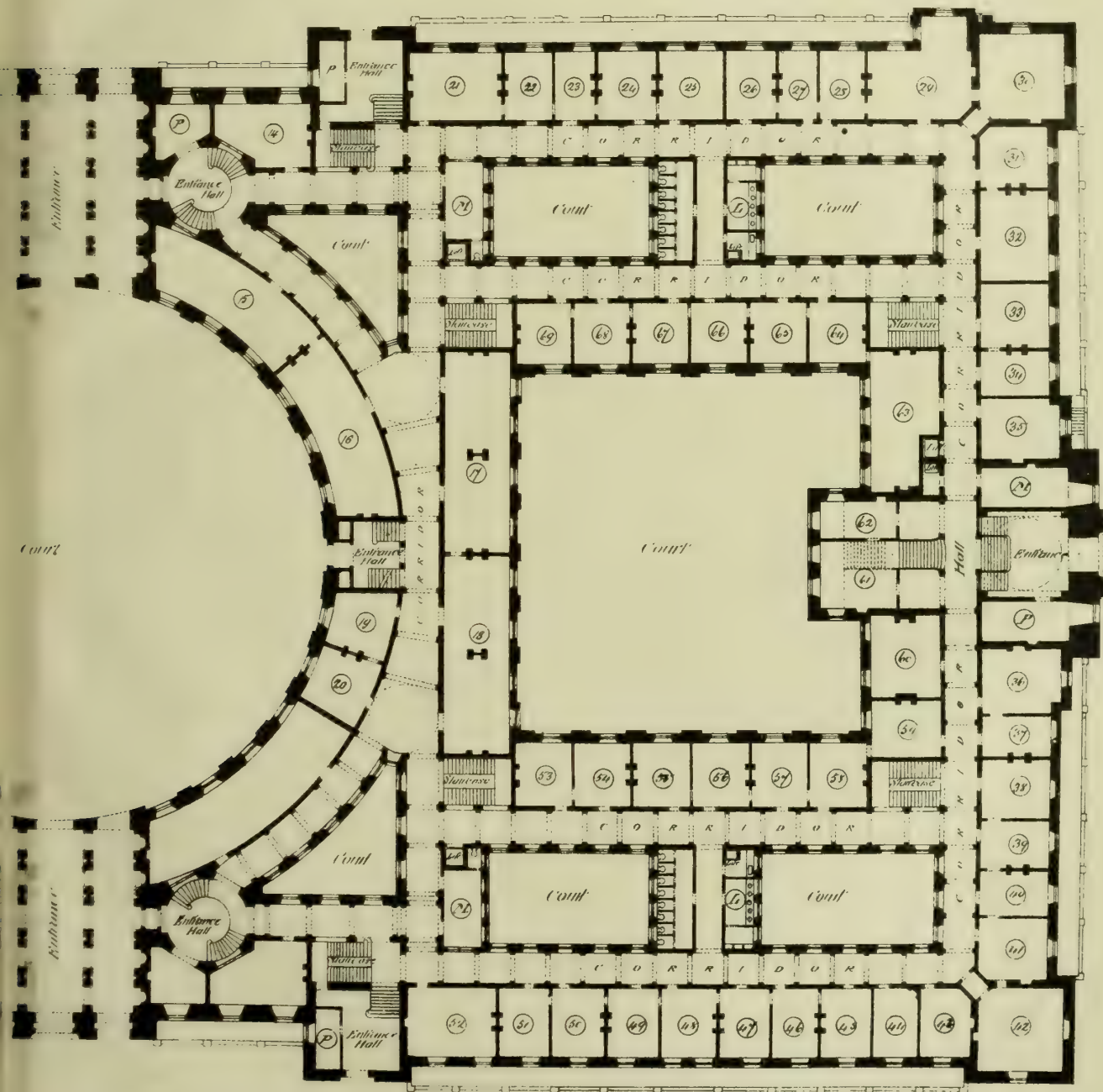
G R E I T





Nº 2

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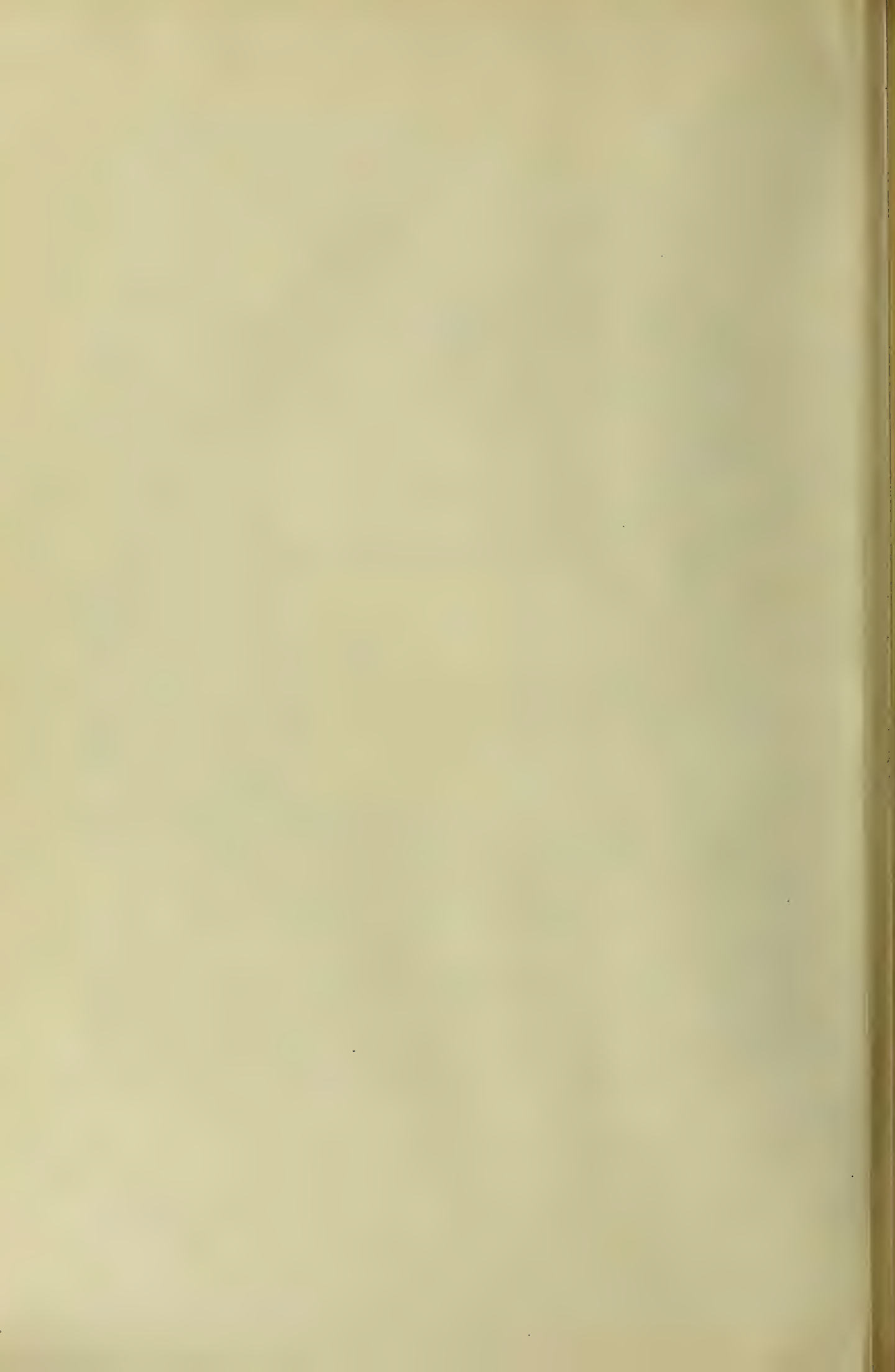


Ground Floor:

*O R G E N S T R E R T*

*J. M. Byrson. Decr  
17 Newman Street W.  
Decr 1898.*









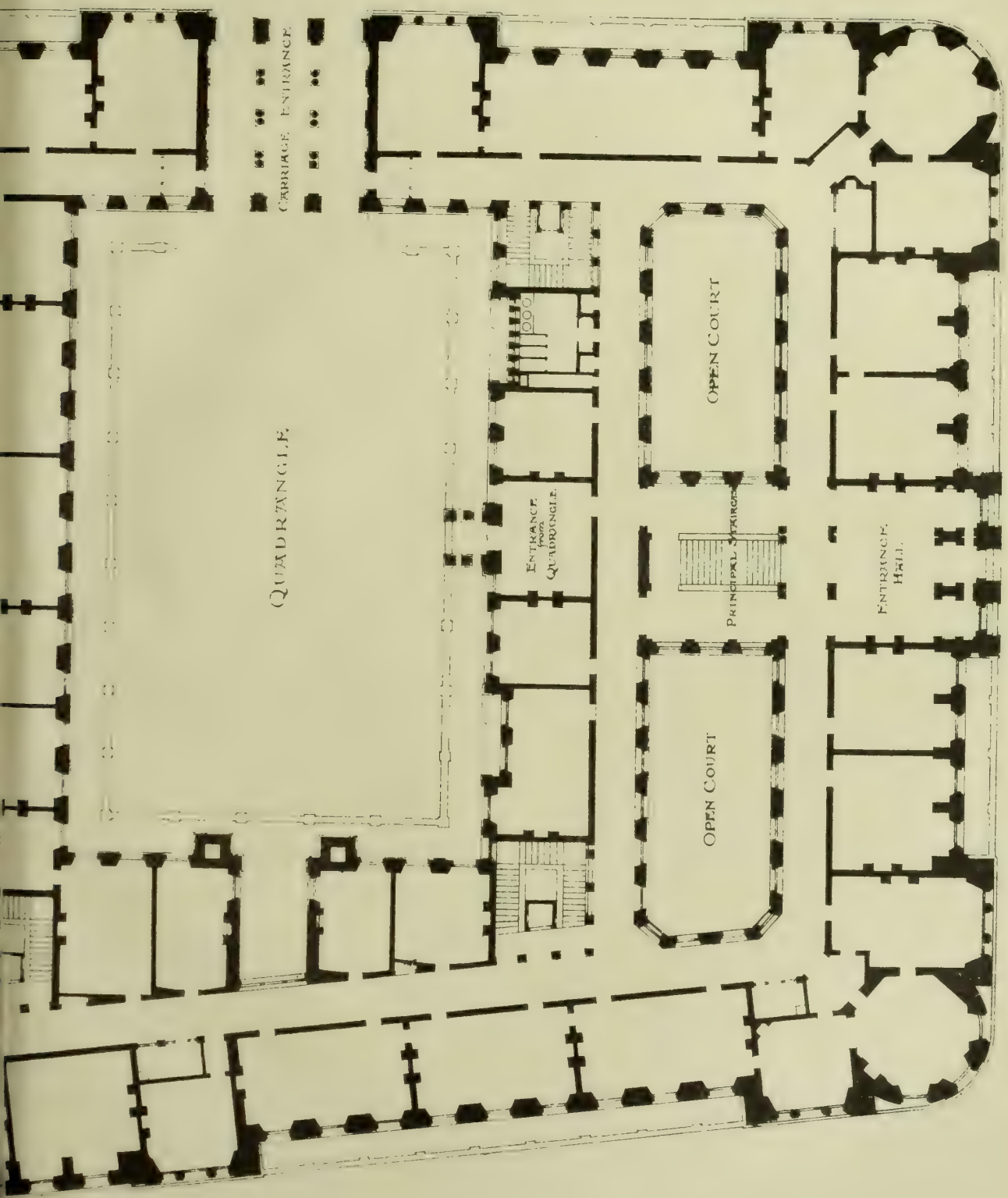


# WAR OFFICE WHITEHALL





WHITEHALL

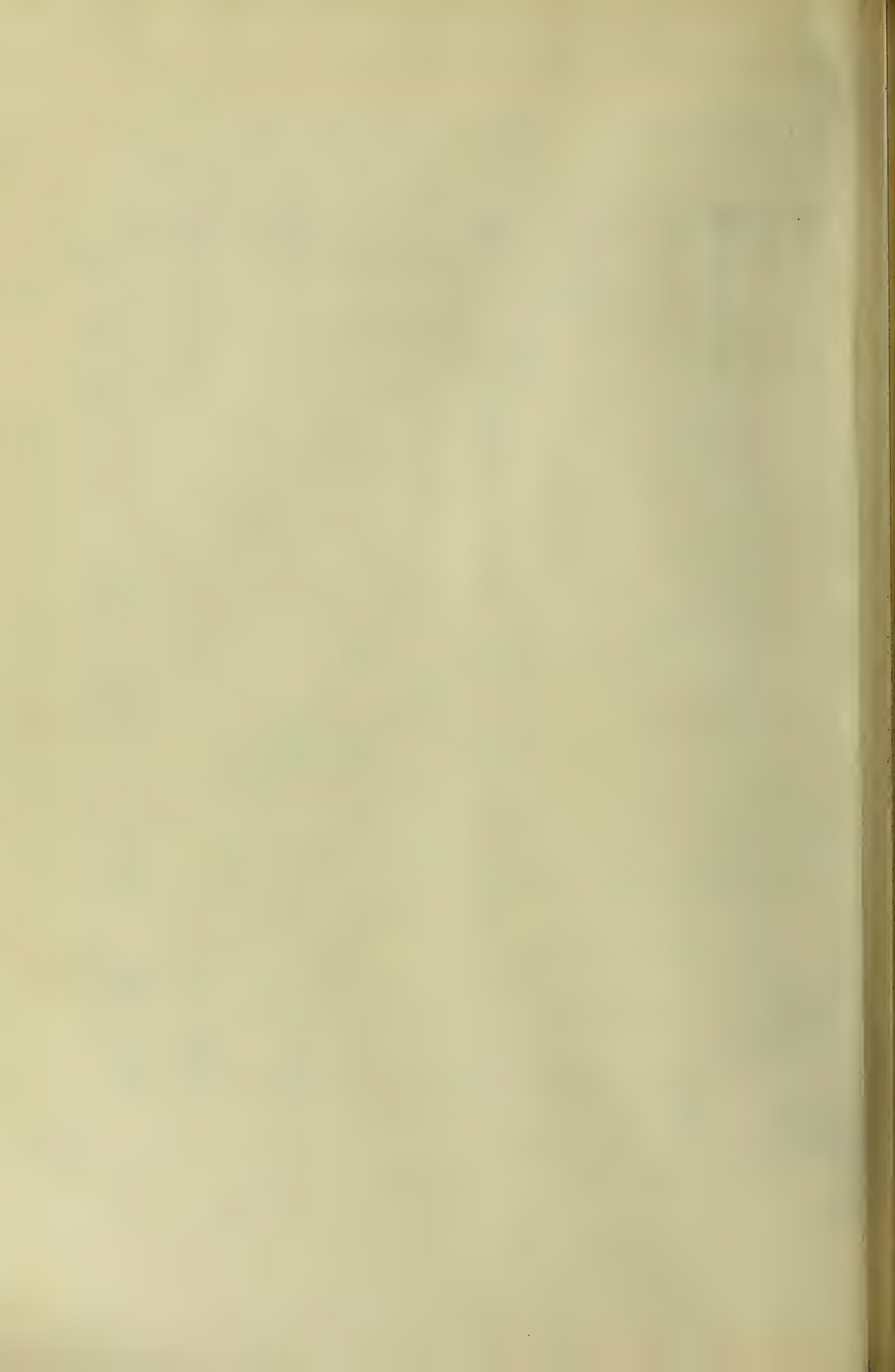


MORSE GUARDS AVENUE

WHITEHALL.  
GROUND FLOOR PLAN

*Wm. May - Architect*















MAR 31, 1899.



WILLIAM Y. LANE, 1899

PHOTO-TINT, by Wm. Y. Lane, Architect, Queen Square, London, W.

CE, WHITEHALL.

A, ARCHITECT













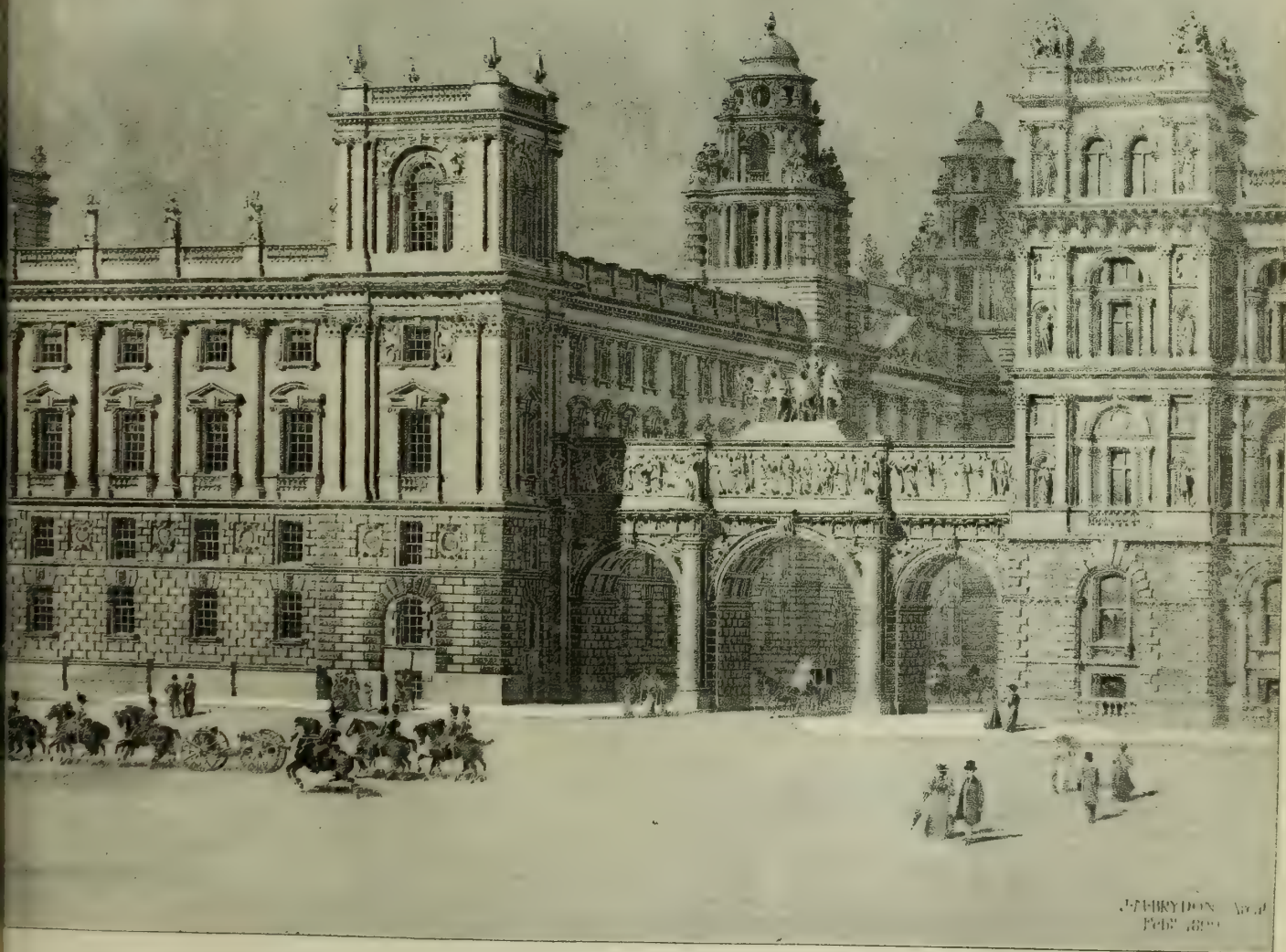
NEW GOVERNMENT

PARLIAMENT

J. M. BRYDON



78 MAR 31, 1899.



J. F. BRYDON. W.C.P.  
1899

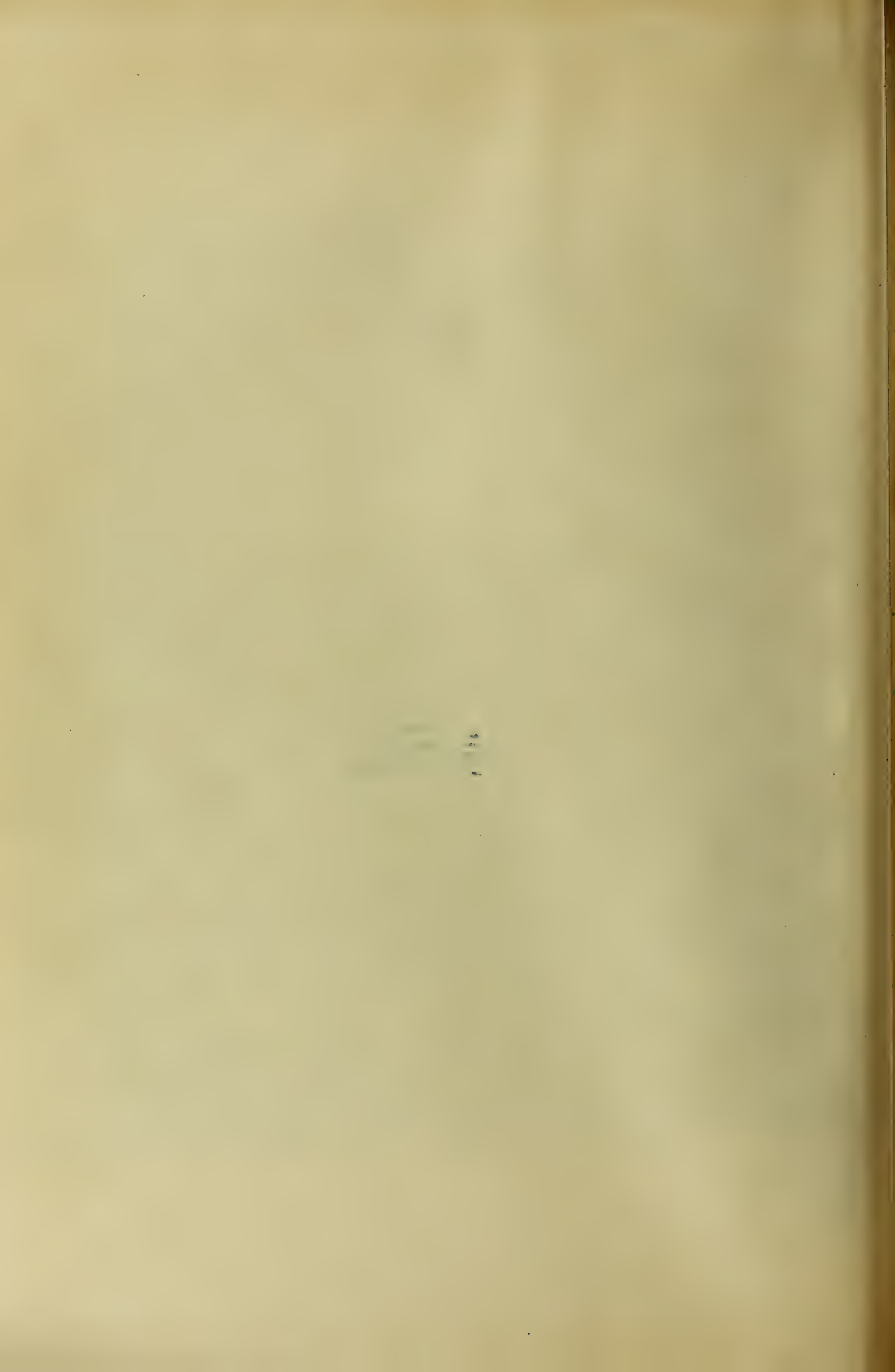
"PHOTO TINT" BY HENRI AKERMAN. Queen's House, London, W.C.

ICES, WESTMINSTER.

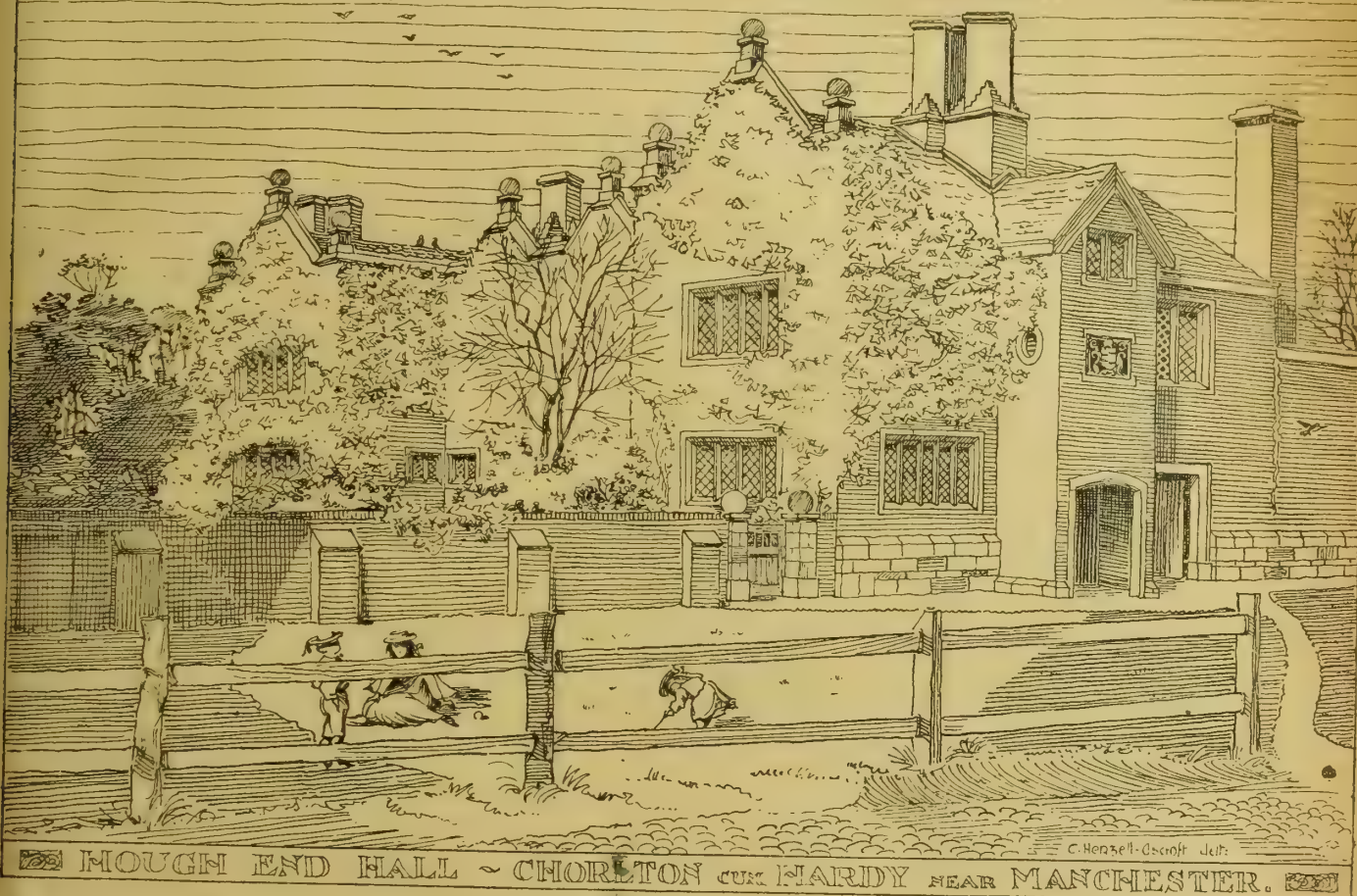
REET FRONT.

B.A. ARCHITECT.









MOUGH END HALL - CHORLTON CUM HARDY NEAR MANCHESTER.

### THE TEMPLE OF MUT IN ASHER.\*

SUCH is the title of a well-printed and illustrated volume by two amateurs, Margaret Benson and Janet Gourlay, giving an account of unexpected discoveries made in the excavation of the temple, which throws interesting light on the history of Egypt, and the religious ideas of the people. Prompted by a desire to clear a picturesque site, these ladies found encouragement and help in various discoveries and friends as their labour of love proceeded. These discoveries belong to an epoch which begins with the 12th dynasty. The authors have availed themselves for the historical part of their subject of Professor W. M. F. Petrie's "History of Egypt," Professor Wiedemann's and M. Naville's works, and for the account of religious theories of Professor Petrie's "Religion and Conscience in Ancient Egypt." The photographs are very fine examples of the art, and were done by various friends of the explorers, and the most important were taken by Brugsch Bey.

The Temple of Mut lies between Luxor and Karnak, and its situation is one of the most charming temple sites in Egypt, and a monument on which illustrious Pharaohs have left their record naturally attracted attention, to say nothing of the statues of the goddess which it enshrined. A plan of the temple is given, and the numerous plates of photographs help us to realise the importance, value, and interest of the discoveries. Of course, a great deal of the narrative is taken up with a descriptive account of the excavations in 1895, 1896, and 1897. The plan of the Temple of Mut consists of an outer court, a colonnaded court, and a hypostyle hall, as in other Egyptian

temples. In the excavations of this temple, the second court was found to be of later date than the outer, rows of hollow pots were found, and a magnificent lion's head in black granite. The head measures 3ft. 11in. from top of disk to chin, and if the other parts were equally proportioned, the whole sitting statue would be about 14ft. to 16ft. high. The chapter on "The Religion of Egypt" is interesting. The authors show the difficulties of the subject on account of the immense number of deities, whose spheres of action are often indistinct. The lion-headed statues, as found in this temple were dedicated to Sékhet—one of the sun goddesses. Inscriptions on the votive statues name this goddess "Lady of the Sacred Lake" and "Lady of Asher." The special emblem of Mut is the vulture; indeed, her name, which means mother, is written in hieroglyphics with the vulture. The number of statues in the Mut Temple is described as unrivalled; fragments of 150 statues of the goddess exist round the courts and corridors. A long chapter is devoted to the immaterial entity known as the "Ka." Ideally the Ka body is represented as a statue, and on the stela are sculptured food and prayers in which the Ka takes pleasure. But we leave the reader to pursue these mythical descriptions of Ka and Ba, as ghost and soul, and the scheme of immortality they were typical of. The other chapters deal with the different dynasties and the inscriptions found on the temple. The admirable photographic plates, numbering 30, add much interest to the work, which is well printed.

At a recent Tynwald Court, the town council of Douglas was granted leave to borrow £16,000 to acquire St. Matthews's Old Church and land adjoining, and erect thereon new public market buildings.

### CHIPS.

A group of shops and dwelling-houses is about to be built in Crow-road, Partick, near Glasgow, at a cost of £32,000. Mr. Andrew Duncan, of Dunard-street, Maryhill, is the builder.

Mr. John Hutchison, R.S.A., has just finished in the clay a bust of the late Professor Rutherford, which was commissioned by his students as a memorial for the classroom of the Institutes of Medicine in the Edinburgh University. The sculptor will now proceed to have the bust carved in marble.

A gift by the late Mr. James Backhouse, of Hurworth, has just come to hand at Darlington Hospital, in the form of a copy executed in Rome from the original statue by Signor J. Lombardi, the well-known sculptor, the finding of Moses by Pharaoh's daughter. The group is richly mounted on a base of Sicilian marble, and stands about 5ft. high. It will be placed near the main entrance to the hospital.

The Victoria Hall Company, Aston, have decided to increase the accommodation at the hall by building upon the land in the rear, adjoining Witton-road. Plans have been drawn by Mr. A. Edwards, of Bennett's Hill, Birmingham, for the erection of a large hall, 47ft. by 46ft., cloak-rooms, refreshment-room, small dining-hall, and suite of Masonic rooms. The total cost of the additions is estimated at £3,000.

The Bishop of Rochester unveiled and dedicated last week, in the chapel of St. Thomas's Hospital, a reredos as a memorial of the late Sir Henry Doulton, a governor and almoner of the hospital from 1876 to 1897. The reredos, presented by the children of the late Sir Henry Doulton, has been designed and executed in terracotta by Mr. George Tinworth. The centre panel represents the Ascension of our Lord, the buildings of the village of Bethany being shown in the distance. The subject of the panel on the right-hand side is taken from St. John xx. 17, and the third panel is taken from St. John xx. 24-28. Underneath is a brass plate bearing an inscription.

\* The Temple of Mut, in Asher. By MARGARET BENSON and CHARLOTTE GOURLAY, &c. London: John Murray.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

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The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING for TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLVI., XLIX., LI., LII., LIV., LV., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

RECEIVED.—H. W. F.—G. M. S. (Salford).—L. N. G. Co.—S. F. B. (Belfast).—D. R. and Son.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Rook," "Vik," "Philomel," "Dalma Lynn," "Niche," "Tudor Rose," "Astragal," "Dachs," "Delia," "Swan," "Nothe," "Casual," "Antony," "Tokio," "Black Heart," "First Attempt," "Arc."

## Correspondence.

## MILLBANK COMPETITION.

To the Editor of the BUILDING NEWS.

SIR,—The inclosed, from the Clerk L.C.C., will, I think, interest the competitors in the above. Kindly publish if you think proper, and may I ask you to state that Mr. Dobb does not agree with me as to the interpretation of the money clause? Thanking you for your assistance in this matter.—I am, &c., ROBERT WILLIAMS.

SIR,—Referring to your letters of the 14th, 17th, and 18th instant on the subject of the Millbank Competition, I have to inform you that the points you raise in connection therewith have been considered by the Housing of the Working Classes Committee of the Council, and I am to say that the Committee are unable to agree with your interpretation of the condition of competition with regard to the division of £330.

With regard to the other points raised by you, I am to add that the competitive designs will be on view to competitors at the County Hall, Spring Gardens, S.W., on Friday, the 7th proximo, from 10 a.m. to 4.30 p.m. An opportunity will at the same time be afforded for a perusal of the assessor's award.—I am, Sir, Your Obedient Servant, C. J. STEWART, Clerk of the Council.

R. Williams, Esq., F.R.I.B.A.,  
20, Northbrook-road, Lee, S.E.

Brown Oak House, Accrington, the well-known mansion formerly belonging to Col. John Hargreaves, has been purchased by Mr. George Macalpine, who intends to entirely reconstruct it from plans by Mr. Ross, of Accrington.

## Intercommunication.

## QUESTIONS.

[12216].—Thickness of Walls of Churches.—Can someone who knows the rules of the church building societies say what is the least thickness for the aisle and clerestory walls of a church of five bays in length, and of proportionate height, if a grant is required? The walls to be of coarse rubble.—A. G.

[12217].—Sashes and Frames.—In measuring sashes and frames, how are the dimensions taken? Is there not an allowance to be made in the height, and, if so, what is usual? Will anyone tell me whether 1s. 6d. is a fair price per foot for a 2in. double-hung sash window of the usual kind, with oak sunk sill, and with 12 lights, best lines, and pulleys?—LONDON BUILDER.

[12218].—Architect's Powers.—Can an architect demand the removal of what he considers inferior bricks in a wall, and the substitution of other joists for what he calls sappy timber, the same having been built into the work? Is a contractor liable to the extra cost of taking out and renewal? I see nothing in the contract that requires me to obey. A reply will oblige.—THOMAS.

[12219].—Strong-Room.—I propose to construct a strong-room of granite in large blocks. Is this a suitable material for the purpose, and what are its fire-resisting properties?—C. B.

[12220].—Cottages.—Is there any work published giving plans and estimates of cottages for rural districts? On some estates substantially built cottages of five rooms have been built for £250 or £300 per pair, and these are let as low as £2 10s. to £3 10s. per annum. I should like to know the materials of these cottages, when built, size of rooms, kind of flooring—whether of brick, stone, or wood, garden and outhouse accommodation?—AGENT.

[12221].—Arches on the Circle.—Where can I obtain simple rules for setting out an archway of stone in a circular tower, which will give me the bevels of the joints and the size of stones required for arch, and how to prepare the templates, &c.?—A LEARNER.

[12222].—Ferro-Prussiate and B.W. Photographic Processes.—Would some of your readers kindly oblige me by letting me know how are drawings or copies taken from the originals by above process, or if special ink and specially prepared paper are used? I have a drawing of which I require a large number of copies, and I do not like to have to trace them all. Information on above matter will much oblige.—O'NEILLO.

## REPLIES.

[12210].—Scraping Stonework and Marble.—No doubt the surface or "skin" of stone is removed by any process of scraping or dragging, and is therefore best left alone. Sometimes a wash or two of lime-water may be employed after the surface is cleaned down, and applied to the stonework with a clean brush. The lime should be stirred up well and allowed to slake and settle, and any impurities on surface removed. But I should be inclined to clean down the stone in the usual way, and then treat it with a coating or two of "Fluate," made by the Bath Stone Firms, which will fill up the pores of the stone and form a weather-proof skin. Unless a preservative solution be applied, I should much prefer to leave the stone as it is, with the skin and dirt upon it. The scraping of our stone buildings and memorials has done more to destroy them than anything else. Imagine anything more destructive to a richly-carved building like the Houses of Parliament, a cathedral west front covered with carved work, or an Eleanor Cross—removing not only the "skin," but the precision and tooling of the artist.—G. H. G.

[12215].—Right to Pull Down and Rebuild Wall Dividing Two Properties.—A. had better approach B. in a conciliatory manner, and try to get his consent. A., under the circumstances, might agree to undertake all risk and repair damage sustained by B. or his lessee. In this case, the wall belongs entirely to A., but is subject to an easement by which B. can claim to have it maintained as a dividing wall. A. has power to rebuild the wall, if necessary, and his responsibilities would be to make good any damage or injury that might happen to B.'s premises. It has been held that the dominant owner, A., is responsible for any injury that may befall the servant owner, B., through neglect to repair. Also, that if the party-wall is common to both, either is entitled, if necessary, to pull down and rebuild; but when it belongs to one party and the other only has an easement over it, the owner of the dominant tenement must repair, and he can enter on the land of the servant tenement for the purpose. The rights of building and adjoining owners in London are expressly stated in the London Building Act.—LEX NON SCRIPTA.

The old Disruption Free Church of Dunscore, N.B., has been reopened after alterations and reconstruction, effected at a cost of over £900.

At the Methodist New Connexion Chapel, Truro, a stained-glass window of two lights was dedicated on Friday. The subjects are full-length figures of Faith and Patience, and the work has been carried out by Messrs. Fouracre and Sons, of Plymouth.

The Rochdale Corporation are at present trying another experiment in sewage purification at their farm at Brimrod. The system which is being experimented with is one of the new bacterial systems. The sewage is distributed over a bed of bacteria, in this case 500 square yards in area, and is there subjected to the action of microbes. The cost is declared to be very reasonable. The area of the bed which is being used at the farm during the experiment is sufficient to deal with a substantial quantity of the sewage of the town.

## PARLIAMENTARY NOTES.

THE DECORATION OF ST. PAUL'S CATHEDRAL.—On Friday night Mr. Paulton asked the First Lord of the Treasury whether he was aware that, in the process of decorating St. Paul's Cathedral with Byzantine mosaics, black lettering, and stencilling in red paint, the original stonework had been cut away to make room for the mosaics; and whether, having regard to the importance of preserving intact the architectural and artistic features of this great national monument, he would use his influence to assist in having inquiry made into the subject of the injury alleged to be caused in these respects by carrying out the present scheme of decoration. Mr. Balfour replied that the Government had no power either of control or advice in the matter to which he referred in his question, but he felt certain that the great artistic authorities who were concerned in the work of decorating St. Paul's Cathedral, would feel, as everybody must feel, the great importance of preserving the historic structure unimpaired.

THE METROPOLITAN WATER BILL.—This measure, introduced by the Government for the purpose of requiring the Metropolitan water companies to supply each other with water in cases of emergency, was considered on Monday by a hybrid committee of the House of Commons. After hearing counsel and witnesses on behalf of the London County Council, who urged that it should be made clear that the Bill should have no permanent effect in the event of there not being purchase of the undertakings of the water companies, the clauses were considered and amended, and the Bill was ordered to be reported to the House.

## CHIPS.

Although the supply of property at the Mart, Tokenhouse-yard, showed last week a slight diminution, the amount obtained for that which was successfully dealt with—viz., £193,634, compared favourably with the figures of the corresponding week of last year, which were £165,987. Rather more withdrawals than are customary were declared in property of the Metropolitan order, but ground-rents found a ready market.

At the Radford Fields Estate, Coventry, a motor-car factory is about to be erected at an estimated cost of £10,000, from plans by Messrs. Harrison and Hattrell, of Coventry.

At the Norwich Consistory Court, a faculty has been granted permitting the sale for £700 to the Ipswich Corporation of a portion of the churchyard of St. Mary-le-Quay Church in that town, in order to carry out a street improvement, by widening a sharp and dangerous corner in Key-street. The purchase money will be devoted to the restoration of the fine Perpendicular church, now in a miserably dilapidated state. Mr. E. Fernley Bishopp, of Ipswich, is the architect for both works.

The Mayor and Corporation of Carlisle have given instructions to Messrs. W. Potts and Sons, clock manufacturers, of Leeds and Newcastle-on-Tyne, to make and fix a new illuminated dial and clock at the town-hall, fix new illuminated dial and clock at Christ Church, restore Trinity Church clock, and clean the free library and markets clocks, Carlisle. The above work is now in hand.

A Roman Catholic Church of St. Benedict is in course of erection in Castlebar-road, Ealing, W., from the designs of Mr. Frederick Walters. The style adopted is Late English Perpendicular, the building is of stone from the quarries of Bere and Ham Hill, with flint dressings in the plinth and parapet. The great feature of the church will be its nave, 33ft. in breadth.

The parish church of Eastleigh, Hants, is about to be greatly enlarged by additions on the south side, the present building being converted into a north aisle to the reconstructed plans. The plans have been prepared by Sir A. W. Blomfield, A.R.A.; the accommodation will be increased from 270 to 895 sittings, and the proposed outlay is £4,000.

The special sub-committee appointed by the Batley Corporation to bring before the town council a scheme for a new town-hall have considered plans prepared by Messrs. Walter Hanstock and Son, of that town, in which accommodation is shown for a public assembly-hall, a minor hall, council-chamber, mayor's parlour, school board offices, police-court, magistrates' rooms, and police-cells. The architects were instructed to prepare a statement of details giving an estimate of the cost of the erection of the building.

As a temporary measure, a new council-chamber is being built for the corporation of Bristol in Broad-street. It is severely plain in character, is situated on the first floor above new municipal offices, and measures 60ft. by 30ft. Should a more suitable town-hall ever be erected, the committee report that it would be easy to let off the block now in course of erection as suites of offices.



## Building Intelligence.

**BATH.**—At a meeting of the Housing of the Working Classes Committee, held at the Bath Guildhall last week, under the presidency of Mr. T. B. Silcock, the city surveyor, Mr. C. R. Fortune, presented an amended scheme in reference to the proposed forty labourers' dwellings to be erected in the Dolemeads. As a result of the inquiry held by an inspector from the Local Government Board, the rooms in these houses will have to be 8ft. 6in. high instead of 8ft. Some alterations in the drainage system will also be required, this latter making a difference of nearly £300. The increased height of rooms will mean an increase in outlay of £720, and the total cost, according to these amended estimates, will be £9,530. Adding 10 per cent. for contingencies, it was agreed to recommend to the corporation that application be made to the Local Government Board for the loan of £10,500, repayable at the longest possible period. A great improvement will be effected by the erection of these houses, which are estimated to produce a rental of £420 per annum.

**BOSTON, LINCOLNSHIRE.**—A meeting of the free library committee was held the other night to further consider the scheme for erecting a suitable building on the land recently purchased in West-street to commemorate the Diamond Jubilee of the Queen. Two plans of proposed buildings, drawn by Mr. J. Rowell, F.I.A.S., architect and surveyor, were presented. One provided for a one-story building, containing reading-room, library, recreation room, and lavatories, and the cost was estimated at about £1,000. The second plan, which was on a more elaborate scale, was on a three-story building with offices, reading-room, library, recreation room, with a lecture-room on the first floor, and accommodation for the technical classes of the school of art on the second floor. The cost was estimated at about £3,000, apart from the furnishing. The second plan met with unanimous approval, and, with a view to its ultimate adoption, it was decided to appeal to the public for further subscriptions. When the building is completed it is the intention of the committee to ask the corporation to take it over and to adopt the Free Libraries Act.

**CHEDDLETON, STAFFS.**—At the meeting of the Staffordshire County Council last week, a committee reported that they had seen Messrs. Gough and Trollope, of the firm of Messrs. Giles, Gough, and Trollope, of London, the architects for the new county asylum at Cheddleton. Mr. T. M. Rickman, the quantity surveyor, and Mr. Bolton, the electrical engineer, as to the excess of £35,000 on the estimated cost (£164,115) of the buildings, now being erected under contract by Messrs. Brown and Sons, of Salford. They explained that part of the cost, £2,500, was due to providing an adequate water supply, £1,000 for wall-tiling, about £2,000 for extra foundations, and a further large sum for roads, while another £2,000 was due to extra electric-lighting plants, due to the increase in accommodation from 600 to 800 beds, all ordered by a sub-committee. Eventually the report was adopted, and it was decided to borrow an additional £35,000 for the asylum, which will be opened on June 30.

**CHURCH RESTORATION IN SOUTH-EAST LANCA-SHIRE.**—At a sitting of the Manchester Consistory Court held on Friday, Faculties were granted in respect of applications from the rector and wardens of Christ Church, Moss Side, for leave to take down the old nave, rebuild it, and attach to it a chancel already rebuilt; from the vicar and wardens of St. Peter's Church, Bury, to take down the existing church and utilise the materials in the erection of a new church; from the vicar and warden of Samlesbury Church, to erect a tower with clock and bells, put two outside porches at the doors of the church, and make other alterations, including the re-roofing of the church with oak ceiling; also to take out plain glass from a window in the south transept and replace the same with stained glass in the church at Walmesley; to make a number of structural changes in the church at Longridge; to put stained glass in a window on the north side of the church at Pilling; to make various structural alterations in Woodplumpton Church amounting to a restoration, including the substitution of open benches of oak for the present high-backed pews; to make sundry alterations in St. John's

Church, Blackburn; to erect a reredos of oak in St. James's Church, Briercliffe. The Chancellor also decreed a citation in reference to an application for permission to put a new stained-glass window in the church at Walton-le-Dale.

**DAGENHAM, ESSEX.**—The county borough of West Ham, having acquired the Rookery Farm at Dagenham, Essex, 116 acres in extent, have isolated a space of 3½ acres, on which they have erected a smallpox hospital from designs prepared by Mr. Lewis Angell, the borough engineer and architect. The hospital has the following accommodation: an entrance lodge and offices; an administration block, including the medical officers' and matron's rooms, twenty-eight bedrooms for nurses and attendants, messrooms, dispensary, kitchen, laundry, and other offices; two pavilions containing four wards, each ward 60ft. long by 26ft. wide, also a receiving-room, bath-rooms, nurses' duty-rooms, and sanitary annexes; isolation block for four beds and offices; discharging block, laundry, disinfecting chamber, and mortuary. The hospital will accommodate 44 patients and necessary staff. The materials used are stock bricks, with Portland stone and red brick dressings. The buildings have cost about £17,000, exclusive of site. Messrs. Gregar and Sons, of Stratford, were the contractors.

**EDINBURGH.**—A new theatre is being built at the junction of Iona and Buchanan streets. The auditorium will have two tiers, circle, and gallery, and there will be two special exits to each part of the house. The pit and gallery pay-hatch, both ordinary and early doors, as well as the circle pay-box, all open into, and have communication with, one general pay-office. From the entrance-hall, the floor of which will be laid with mosaic, the grand marble stair will lead up to a foyer at the back of the circle. There will be saloons to the pit, circle, stalls, and gallery. That to the circle will be an octagonal-shaped room with an island bar. A coffee-room is also provided, entered from the circle. The building is to accommodate 3,000 people, and the dimensions are, from curtain-line to back of pit, 70ft.; width of pit, 62ft. The stage will be 40ft. from curtain-line to back wall and 62ft. wide, and arranged to take the largest pieces. The height from the stage to the gridiron will be 53ft.; height from stage to flies, 22ft.; and the distance between the flies 48ft. Externally the building is designed in a Free Renaissance style of the Scotch type, and internally the decoration will be carried out in a similar style. Messrs. W. Hope and J. C. Maxwell, of Newcastle-on-Tyne, are the architects.

**EXETER.**—The Governors of the Devon and Exeter Hospital have received the report of the committee appointed to consider whether certain charges of mismanagement were true, and to consider whether there had been unnecessary or extravagant expenditure on the buildings. With regard to the building operations, the committee find that in 1895 a scheme was presented for a new wing, and also for additions to the main building for nurses, &c., and for putting the sanitary appliances into thorough working order. The total cost was estimated at £10,247. Further estimates were made amounting to £4,924. The Governors authorised the Hospital Committee to spend a sum not exceeding £7,000 out of the capital funds of the hospital. The Governors further voted various sums to be expended, bringing up the total authorised to £16,487. But contracts were entered into amounting to £20,367. The committee further state that the building account from November, 1894, to December, 1898, shows that payments were made on account of these works of £24,737. The ex-secretary estimated the unpaid bills—irrespective of the outlay for underpinning the tower—at £5,000, but the committee think that it would be safer to place the amount at £6,000. It was evident, the committee report, that the cost of and incidental to the work done and in hand exceeded the contracts by £10,370, and also the total authorisation of the governors by £14,249. Not having had the assistance of an expert, the committee could not express an opinion as to whether the expenditure had been extravagant. It was also pointed out that by the expenditure the bed accommodation had not been increased, but the Victoria wing was no doubt a valuable addition to the hospital, and other improvements made had brought it into accord with modern requirements.

**KILBARCHAN, N.B.**—The joint committee for the erecting of a new church have accepted tenders. The architect is Mr. W. H. Howie,

I.A., 131, West Regent-street, Glasgow. The church, which will consist of nave, transept, and apse, will cost upwards of £6,000. The present church was erected in 1724. On that occasion the sole contractor was one James Baird, Govan, who took down all the ruinous church except Craighends aisle, and re-erected it at a contract price of about £1,500 Scots.

**PATRICROFT.**—In compliance with the demands of the Local Government Board, the Barton Board of Guardians are erecting a large infirmary at Patricroft, and memorial-stones were laid on the 15th inst. The complete scheme will entail an expenditure of £30,000, but at present the guardians are only erecting hospital accommodation to provide 200 beds, 100 each for males and females, and the necessary administration buildings at a total cost of close upon £20,000. The infirmary is to be built on the pavilion system, and the two blocks and the administration block will be connected by corridors, while the further extensions, imbecile wards, nurses' homes, &c., will be erected on the opposite side to the administration block. Messrs. Worthington and Son, of Manchester, are the architects, and Messrs. J. Gerrard and Sons, of Swinton, the contractors.

**SHOREDITCH.**—The public baths and wash-houses for the parish of St. Leonard, Shoreditch, erected by the vestry in Pitfield-street, Hoxton, were opened on Saturday afternoon by Mr. James Stuart, M.P. The vestry have built on the site which extends to Coronet-street and Bowling Green-walk a dust destructor, electric-light plant, a free library, and the baths and washhouses just opened. The dust is destroyed, and the heat thus obtained is used to drive the electrical machinery and for the purposes of the baths and washhouses. The first-class swimming-bath is 100ft. long by 40ft. wide, and the second 75ft. by 35ft. There are private slipper-baths for 50 persons, and the main bath provides in a balcony and gallery seating accommodation for 600 persons, the dressing-boxes being collapsible, so that when an entertainment is going on they form a panelling for the walls. The smaller bath is fitted for use as a gymnasium in the winter. The architect is Mr. Henry T. Hare, F.R.I.B.A., whose design, when submitted in competition and selected by the assessor, Mr. Rowland Plumble, was illustrated by us in our issue of Dec. 13, 1895.

**SOUTHAMPTON.**—The new buildings for Taunton's Trade School in New-road and Trinity-road were recently opened. The buildings are of red bricks. The dining-room is 20ft. by 14ft., has a wood-block floor, and is capable of accommodating 40 boys at dinner. To the left is the technical instruction room, which also has a floor of wood blocks, and measures 26ft. 10in. by 26ft., with working space for 30 boys. A wide staircase leads to the first floor, providing hat and cloak lobbies and assembly-room; this room is 44ft. by 26ft., and is lighted by four windows on the north side. On the side opposite the windows is a bay with raised platform, which can be reached by a separate entrance from the cloak-room; another flight of steps leads to the second floor, containing three classrooms. The wood-work throughout the interior of the building is stained oak. The old offices have been pulled down, and new offices, with automatic flushing, erected on the south-east of the triangular plot on which the building stands. The cost is estimated at £2,300 (exclusive of site), which works out at £10 per head. The builders are Messrs. Brinton and Bone, of Southampton; and the architects, Messrs. Mitchell, Son, and Gutteridge, of the same town.

**WINCHESTER.**—The great Late Perpendicular altar screen or reredos of Winchester Cathedral, has been completed by the munificence of Canon Valpy, as a memorial to his wife, Jessie Margaret, at a cost of £2,000. The reredos was mutilated in 1538, and one of Elizabeth's Prelates (Thorne) further injured it by cutting away the rich work and pulling down the images. For a long time it remained in this state. Then in the last century came the Classic incongruities of Grecian urns in the niches, the erection of a great gaudy baldacchino, with, in 1781, West's enormous picture of the raising of Lazarus. The urns and baldacchino were removed many years ago; the picture remained in Dean Kitchen's time. The restoration of the screen, its niches, exquisite cresting, and statues of historic personages, Saxon Kings and Bishops, and even post-Reformation worthies, were restored and niched, partly as a memorial of Archdeacon Jacob, and also as a general scheme of decoration on the



ancient lines. There remained but the great central subject, the crucified Christ, and this is now in position, a fine work by Mr. G. F. Bodley, A.R.A. The reredos is now in harmony with the shrine-like coffers of the Saxon Kings, the tombs of Norman and Danish monarchs, and the magnificent shrines of the Bishops. West's picture is replaced by a group of the Holy Family and six statues of female saints. The whole of the carving has been executed by Messrs. Farmer and Brindley. The Queen, who gave a figure of Edward the Confessor, is represented by a statuette in the reredos.

**WARRINGTON.**—The inaugural ceremony in connection with the new works of Messrs. Fletcher, Russell, and Co., in Wilderspool-road, took place last week. The premises cover an area of 12½ acres, and have been erected at a cost of £50,000, including the purchase of the site. The buildings consist of moulding and passing shops, pressing shop, machine pressing shop, smiths' fitting and machine shops, large warehouse, lowering shop, engine and furnace houses, gas-testing department, grinding shop, boiler-house fitted with economisers, offices, store and showrooms. The works have been fitted with the electric light, and amongst the articles manufactured are gas ranges, gas fires, laboratory appliances, mantels, registered grates, interiors, kerbs, and kitchen ranges. Mr. Alexander Neil, vice-chairman of the directors, designed the works, with the assistance as architect of the Mayor of Warrington (Mr. J. E. Wright). Mr. Devonport was the builder, and Mr. Broadhurst the clerk of works.

### LEGAL INTELLIGENCE.

**APPEAL UNDER THE WORKMEN'S COMPENSATION ACT, 1897.**—**HODDINOTT V. NEWTON, CHAMBERS, AND CO., LIMITED.**—Judgment was given on Saturday in the Court of Appeal by Lords Justices A. L. Smith, Collins, and Romer in this appeal from the decision of Mr. Lushington, Q.C., the judge of the Wandsworth County-court, in an application for compensation under the Workmen's Compensation Act, 1897. As stated in our last issue, p. 408, the claimant was the widow of a deceased workman, who was at the time of his death in the employment of the appellants, who were builders. A stable had been built for the London General Omnibus Company about six months before the time of the accident by another firm of builders, and was occupied by the company. After it was occupied the company's engineer considered that it was requisite to strengthen the structure by putting in iron stays to prevent vibration. The appellants were employed by the company to put in the stays fastening together the columns and girders of the stable. For that purpose three planks were placed on two trestles about 8ft. from the ground, and the workmen stood on the planks while at work. At the time of the accident the deceased man was standing on the planks engaged in assisting to raise up one of the iron stays, when he overbalanced himself and fell off, and was killed. Two questions were raised—(1) whether the building was over 30ft. in height, and (2) whether it was being "constructed or repaired by means of a scaffolding" within section 7, subsection 1, of the Workmen's Compensation Act, 1897. The height from the ground to the parapet of the building was 28ft., and from the ground to the top of the roof the height was 36ft. The contention on behalf of the employers was that, inasmuch as nothing was being done to the roof, the height of the building must be taken, as in section 5 of the London Building Act, 1894, from the ground to the top of the parapet. It was also contended on their behalf that the building, if over 30ft. in height, was not being "constructed or repaired by means of a scaffolding," the work consisting of alterations to the building, and not repairs, and the arrangement of planks and trestles not being a "scaffolding." The County-court Judge decided both the questions in favour of the claimant, and awarded her £245 14s. as compensation. It appeared that the claimant had brought an action under the Employers' Liability Act, 1880, to recover damages, alleging that the planks and trestles were defective; but the County-court Judge gave judgment for the employers in this action, and then, upon the application of the claimant, the Judge proceeded, under section 1, subsection 4, of the Act of 1897, to settle the question of compensation under that Act. The Judge, as above stated, awarded the claimant £245 14s. as compensation, but deducted from this sum the costs of the witnesses called by the employers in the action under the Employers' Liability Act, 1880. The employers appealed. Lord Justice A. L. Smith, in giving judgment, said the workman claimed compensation for injury he received while engaged fixing some "stiffening" irons inside a stable that had just been finished by another firm of contractors, which the General Omnibus Company, for whom the stables

were built, considered vibrated too much. The defendants pleaded in the Court below, and also on their appeal, that the workman was not engaged on a building 30ft. high being either "constructed or repaired" by the undertaker, and also that the erection he was working on was not a "scaffold." In his opinion, the masters' contention was well founded, and their appeal, therefore, would be allowed. The other Lords Justices concurred.

**BURNS V. MASON AND CO.—A CLAIM FOR DAMAGES.**—This action, which occupied Mr. Justice Grantham and a special jury for three days, was brought to recover damages for injury alleged to have been done to certain goods belonging to the plaintiff's firm, owing to the negligence of the defendants' servants. The plaintiff, Henry Baines, in partnership with George Charles de Wilde and John Burns, carried on a business as vendors of wood pulp for electrical insulation, under the trade name of "John Burns," at 15, Long-lane, Aldersgate-street, and the defendants, Messrs. Mason and Co., were builders and contractors. In August last the plaintiff's firm were in occupation of the ground floor and basement, where a large stock of wood-pulp sheeting, a substance manufactured in America, was stored. According to the plaintiff's case, the defendants' workmen were employed in repairing the upper stories of the premises, and it was alleged that they left a tap running on one of the upper floors, and that the water found its way down to the ground floor and basement, and damaged the stock of wood pulp and rendered it useless. The plaintiff's firm alleged that over 20,000lb. of wood-pulp sheeting was thus rendered valueless. The claim made for the value of the goods so destroyed amounted to £507. The defendants' case was that this claim was a fraudulent one. It was contended not only that it was impossible for any water that had escaped to have done anything like the damage claimed for, but that the plaintiff's firm were asking to be compensated for damage done to stock during a fire in the previous April, and for which they had already been compensated by an insurance company. Mr. Henry Baines, the principal partner in the business in Long-lane, said that at the time of the fire in April there were on the premises 100,000lb. of stock, and it was all damaged by the water used to put out the fire. New stock of the weight of 28,000lb. was then ordered to replace the damaged goods. Cross-examined, he admitted that the wood-pulp sheeting which had been damaged by water might be partly restored by drying. A circular was published with regard to this wood pulp, which represented that it suffered no damage from water. There was a stop-tap on the witness's part of the premises, by turning off which he could have cut off the water supply altogether. It was quite a false suggestion that water had been fraudulently poured over any of the goods. A number of other witnesses were called for the plaintiff's firm. Mr. Jelf having opened the defendants' case, evidence was given that the water supply was only turned on to the premises in question during the hours between 6.15 a.m. and 10 a.m., and the pipe which conveyed the water was of very small diameter. Evidence was given that the ball-cock had been safely tied up the night before the alleged flooding occurred, and the amount of water that did actually escape was very small. After the workmen had gone someone had gone upstairs and pulled down the ballcock. It was also stated that the goods were weighed, and it was found that they were 3,800lb. less than the weight claimed for. The jury found a verdict for the plaintiffs for £50 with costs. Judgment accordingly.

**IS PAINTING FROM LADDERS "REPAIRS BY SCAFFOLDING" UNDER THE WORKMEN'S COMPENSATION ACT?**—**WOOD V. W. WALSH AND SONS.**—This appeal, in which judgment was given last week in the Supreme Court of Appeal, by Lords Justices A. L. Smith, Collins, and Romer, raised the important question—whether the Workmen's Compensation Act, 1897, applies to painters engaged in painting the outside of a house by means of ladders—that is to say, whether the employment is on, in, or about a building which is being "repaired" by means of a "scaffolding" within the meaning of section 7, subsection 1, of the Act. The appeal was from the decision of Judge Greenhow, sitting at the Leeds County-court, upon a case stated by an arbitrator appointed to settle a claim for compensation under the Workmen's Compensation Act, 1897. The claim was by the widow of a workman, killed while in the employment of the appellants, Messrs. Walsh and Sons, painters and decorators, Leeds. The deceased was at the time of the accident employed with other men in cleaning and painting the outside of a house over 30ft. in height at Leeds. The work was being done by means of five or six long ladders. Nothing was going on except preparation for painting and the actual painting. The deceased was standing upon the rung of a ladder, which was resting against the wall, engaged in putting and painting, when the rung broke, and he fell to the ground and was killed. One of the workmen at work had placed a plank with one end resting upon and tied to the rung of one of the ladders, and with the other end resting upon a

window-sill, and stood upon this plank to work, but the deceased man had not used this plank. The claim for compensation was referred to a barrister as arbitrator, under Clause 2 of Schedule II. of the Act, who held that the building was not being "repaired" within the meaning of section 7, subsection 1, of the Act, and that neither the ladders nor the arrangement of the plank resting on the ladder and the window-sill were "scaffolding" within the meaning of that section. He accordingly held that the deceased was not killed while engaged in any employment within the Act, and made his award in favour of the employers, but submitted two questions of law for the decision of the County-court judge—(1) whether the building was being "repaired" within the meaning of the Act; and (2) if so, whether it was being repaired by means of a "scaffolding" within the meaning of the Act. The County-court judge reversed the decision of the arbitrator upon both points, and awarded the claimant an agreed sum of £237 18s. The employers appealed. By section 7, subsection 1, of the Workmen's Compensation Act, 1897:—"This Act shall apply only to employment . . . on, in, or about any building which exceeds 30ft. in height, and is either being constructed or repaired by means of a scaffolding, or being demolished. . . ." Mr. C. A. Russell, Q.C., and Mr. Clarke Hall, for the appellants, contended that this was not a building which was "being constructed or repaired by means of a scaffolding" within the meaning of section 7, subsection 1, of the Act of 1897. In so far as these were questions of fact, the arbitrator had decided them in favour of the appellants, and an appeal only lay from him on a question of law. First, this was not "repair." The Act spoke of repair by means of a scaffolding. That was an indication of the kind of repair intended—namely, repair of a structural character and not mere decorative work. It could not be said that merely whitewashing or painting a house was doing repairs to it within the meaning of this Act. Secondly, the repairs, if any, were not being done by means of a "scaffolding." The ladders were clearly not "scaffolding." Nor was the arrangement of the ladder and the plank "scaffolding." The arbitrator found as a fact that it was not. If it were, a plank resting on two ladders, which painters frequently used for whitewashing the ceiling of a room, would be a "scaffolding." Even, however, if this arrangement of plank and ladder could be called a scaffolding, it did not follow that the building was "being repaired by means of a scaffolding," only a small part of the work being done by means of the scaffolding. Because one workman chose to put a plank from the ladder to the window-sill, for his own convenience, that did not bring every workman engaged on the building within the Act. Supposing there was a scaffolding at the back of the house used by bricklayers for repairing that part of the house, and painters were employed by the same master in painting the front of the house, the latter would not be employed in repairing the house by means of a scaffolding. They submitted that the decision of the County-court judge was wrong. Mr. Robert Wallace, Q.C., and Mr. Horace Marshall, for the claimant, contended that the work the deceased man was engaged on was "repair" within the meaning of section 7 subsection 1: "Repair" meant the restoration of the building to its proper condition as fit for use and occupation. There might, perhaps, be painting of such a purely decorative character as to be outside any meaning of the word "repair." But here there was making good the wood and stone-work, and painting the outside to keep it from decaying. There was a restoration of the fabric of the house. The ordinary covenant to repair and keep in repair would include work such as this, so as to keep the woodwork in proper condition. Therefore the building was being "repaired" within the meaning of the Act. Secondly, the ladders used in the work constituted a "scaffolding" within the meaning of the Act. The word scaffolding was used in this Act in its popular sense, and included anything used outside the building for the purpose of repairing it. The suitability of the thing for the purpose was the test. Again, if the ladders were not "scaffolding," the arrangement of plank and ladder was. A small platform hoisted up the front of a house by means of ropes and pulleys, which painters frequently used for painting the outside of a house, would come within the term "scaffolding" in the Act. So also would the arrangement of the plank resting on the ladder and the window-sill. The decision of the County-court judge was therefore right. If this kind of employment was not within the Act, the effect would be to shut out a large class of workmen from the benefits of the Act. The Court allowed the appeal. Lord Justice A. L. Smith said that it was clear that every workman was not brought within the Act, but only certain classes of workmen, and the rest were left outside. The question was whether this case came within the Act. The deceased man was engaged in painting the outside of a house. Ladders were used for the purpose. On one ladder there was a plank with one end tied to the rung of the ladder, and with the other end resting on a window-



## Our Office Table.

sill. The deceased man was not working on that plank. He was on a rung of one of the ladders, when the rung broke, and he fell and was killed. There could be no doubt that the Legislature, when they passed the Act, knew well what was conveyed by the terms "ladder" and "scaffolding." There could also be no doubt that they knew what was conveyed by the terms "painting" and "repairing." Though in some respects section 7 might be a most difficult section to construe, in the present case he (the Lord Justice) did not see the difficulty. Was this house "being constructed or repaired by means of a scaffolding" within the meaning of section 7 subsection 1? First of all, was it being "constructed or repaired?" It clearly was not being "constructed." Was it being "repaired?" The word "repaired" did not, in his opinion, include the mere painting of the outside of the house. The arbitrator had found as a fact that nothing was being done to the building except preparation for painting and the actual painting. Ordinary painting was not repairing. If the Legislature had intended to include it they would have said so in plain language. On the contrary, they had used language which was plain and clear—"constructed or repaired"—and those words did not include painting. Next, as regards the meaning of the word "scaffolding." Was the ladder a "scaffolding" within the meaning of the Act? Who, in his senses, would speak of repairs done by means of a ladder, as repairs done by means of a scaffolding? Here, again, if the Legislature had intended it, they would have said so. They had confined the case to repairs by means of a scaffolding. A ladder did not come within that term. It was then said that the arrangement of the plank and the ladder converted the thing into a scaffolding. That seemed to him to be a question of fact, and the arbitrator had found that it was not a scaffolding. He was not going to attempt to define what was or was not a scaffolding, as he could see that they would have many appeals brought before them raising the question what was or was not a scaffolding. The deceased man was therefore not employed on, in, or about a building which was being constructed or repaired by means of a scaffolding within the meaning of section 7 subsection 1 of the Act, and therefore the claimant was not entitled to compensation under the Act. Lord Justice Collins and Lord Justice Romer agreed.

**THE VALUE OF GROUND-RENTS IN THE STRAND.**—Mr. Troutbeck and a special jury at Westminster, heard, recently, the case of "Hawkins v. the London County Council," a claim for compensation in respect of the compulsory sale of a freehold ground-rent of £150 per annum secured on premises, No. 282, Strand, which form part of the block to be swept away by the Holywell-street improvement. The jury awarded the claimant 31 years' purchase, £4,650, plus 10 per cent. for compulsory sale, £465, a total of £5,115.

**THE END OF THE ABBEY MANSIONS CASE.**—At Westminster Police-court, on Tuesday, Mr. Marsham delivered a judgment on the London County Council summonses against the builder, Mr. W. E. Rickards, in the Abbey Mansions, Orchard-street, case. The magistrate held that a limitation of time stopped the County Council from taking proceedings for the reduction of the height of the building. All the dangerous structure summonses which the County Council had taken out were withdrawn, but as they succeeded in the arbitration under this head, he allowed them 60 guineas costs. Mr. Marsham said that the buildings were no doubt all right now, but they were not at all satisfactory at first.

**AN ABERDEEN ARBITRATION.**—Colonel Bailey, R.E., Edinburgh, arbitrator under the Aberdeen Improvement Scheme Provisional Order, who recently held an inquiry to ascertain the value of a house belonging to Mr. Mortimer, chemist, which is required for the Exchequer-row improvement, has intimated his decision to the town clerk. He fixes the sum of £1,350, which was tendered by the town council, as the value of the property, and Mr. Mortimer claimed £2,218.

**ARBITRATION AWARD AT MARGATE.**—Mr. W. H. Elwell, F.S.I., of the Great Northern Railway and Parliament-street, has awarded £7,400 in the case of "Hatfield v. London, Chatham, and Dover Railway Company," in December and January, a claim by Mr. Charles Taddy Hatfield, of Hartdown, Margate, for compensation in respect of the acquisition of two pieces of land near Margate Railway Station for the purpose of an approach road. Mr. James Green, F.S.I., F.A.I. (Messrs. Weatherall and Green, 22, Chancery-lane, W.C.) was arbitrator for the claimant. Mr. Robert Vigers, P.S.I. (Messrs. Vigers and Co., 4, Frederick's-court, Old Jewry, E.C.), was arbitrator for the company.

In the case of Edwin Fairchild, of St. Mary's-road, Harlesden, N.W., surveyor, the order of discharge from bankruptcy has been suspended for two years ending Feb. 9, 1901.

MR. ASTON WEBB, F.S.A., well deserves the honour of the Associateship of the Royal Academy, to which he was elected last week, from the refined character of his work as an architect. Born just fifty years ago, the son of the late Edward Webb, an engraver and water-colour painter of considerable repute, Aston Webb was articled, when seventeen years of age, to Messrs. Banks and Barry, and seven years later commenced independent practice. In the same year, 1873, he gained the Pugin Studentship of the Institute, annually awarded, it will be remembered, for drawings and studies of Mediaeval buildings in the United Kingdom. Mr. Webb has taken an active part in the work and development of the Architectural Association, of which he has been a member for two-and-thirty years, and having served its members on the committee, and as honorary secretary and vice-president, he was elected President in 1881-2. He has rendered valuable service of a similar character to the Royal Institute of British Architects, for some years as honorary secretary, and then from 1893 until 1897 as one of the vice-presidents; at present he is a member of Council, and is also on its Prizes and Studentships Committee.

At this particular juncture, when it is understood that the Institute Council are deliberating between two other almost equally eligible members to fill the Presidential chair in succession to Professor Aitchison, they could hardly do better than postpone decision between the claims of Vice-President and Hon. Secretary and nominate Mr. Aston Webb. Among his principal works as an architect are the restoration of the tower of the Augustinian Church of St. Bartholomew the Great, Smithfield, the French Protestant Church, Soho, the Royal Naval College about to be built at Dartmouth, and the selected design for the completion of South Kensington Museum. In conjunction with Mr. E. Ingress Bell, he was the architect of the Victoria Courts, Birmingham, the Royal United Service Institution in Whitehall, and the new schools for Christ's Hospital now in course of erection near Horsham. Most of these important and interesting designs have been illustrated in our pages, and we gave Mr. Aston Webb's portrait in our issue for January 3, 1890.

WRITING on "The Law of Fences" in the *Land Magazine*, Judge Steavenson shows that it is altogether unsatisfactory, pointing out that the owner of a fence cannot be compelled to keep it in repair, unless he is bound to do so by a specific agreement, every person being bound to keep his own live stock from straying on to his neighbour's land. This, however, is not satisfactory; for it might imply the necessity of double fences where properties join, each owner finding it necessary to fence in his own stock. Judge Steavenson says that the law can be altered in two ways: first by making a fence between two properties a party fence, and, secondly, by compelling the owner of the fence to keep it in repair. He prefers the former reform, which would bring the law into harmony with the Code Napoleon, and the laws of America, Scotland, and Ireland, he says. By the Code Napoleon every owner adjoining a wall has the power of making it wholly or in part a party-wall by paying to the existing owner of the wall half its value. He would adopt the Code Napoleon in relation to walls and fences, and add a clause from the law of the United States, enabling either party, after a month's notice to his neighbour, to make or repair a fence between their properties, and to recover half the cost from the other party. But the necessity of paying half the value of the fence—of course, including the value of the land which it covers—would require a heavy outlay in some cases, and it seems more convenient to require the existing owner to keep the fence in proper repair.

A WIDELY representative conference in regard to a draft bill for the National Registration of Plumbers was held at the Institution of Mechanical Engineers in London on Friday, under the auspices of the National Association for the Promotion of Technical and Secondary Education. Sir Henry Roscoe, the hon. secretary of the Association, presided, and twenty-three bodies were represented. A draft Plumbers' Registration Bill was considered by the conference clause by clause, and was ultimately adopted with certain amendments, but without prejudice

to the question as to whether any bill was desirable or not. Before the conference terminated the question as to whether such a bill is desirable or not was, however, discussed, and the following resolution was eventually passed by a large majority:—"That, having regard to the division of view manifested at this meeting in reference to the desirability of a Bill for the national registration of plumbers, no further steps be taken in the prosecution of such a measure."

ON Wednesday in last week, at the Society of Arts Mr. Philip Dawson read a paper on "Electric Traction and its Application to Suburban and Metropolitan Railways." He said the problem of greatest importance in which electric traction would be a principal factor was the rapid transportation of large crowds to and from their businesses in our cities, and his purpose was to demonstrate the special adaptability of electricity to this service. England was the first to introduce electric traction on railways, both underground and overhead, as instanced by the City and South London and the Liverpool Overhead Electric Railways; but to prove commercially that very much heavier traffic could be handled and much greater distances traversed, and to develop the necessary machinery, was left to America. From a comparison of actual results obtained on the Chicago electric railways and the Metropolitan and District lines in London, it appeared that, whereas the maximum speed of 25 miles an hour was obtained in ten seconds with electric traction, it took 33 seconds to do it with steam locomotives, and that, whilst the electrically propelled train could do the distance of 1,880ft. in 66 seconds, with steam it would take 93 seconds. From the economical standpoint of generating power electricity was, he argued, a cheaper method of operation than steam locomotives, and to that end he quoted a large number of figures giving results.

MR. HENRY PETT, F.S.A., writes from Mount Pleasant, Liverpool, protesting against the decision of the Finance Committee of the corporation of that city to destroy the tower and spire of St. George's Church, "the only piece of tower architecture in Liverpool not absolutely devoid of merit." He urges the corporation to reject the recommendation of its committee, pointing out that the tower and spire can be acquired without any expense to the ratepayers, the church trustees having offered to present it to the town gratuitously; and that it is a prominent and familiar landmark; that in any view of Liverpool from the river it is the principal object which arrests attention, while in itself it is a pleasing architectural relic and a good specimen of the style of building in vogue during the early years of the present century. The architect to the Ecclesiastical Commissioners and other experts have strongly condemned the idea of its destruction as an act of vandalism, and he further shows that detached steeples, such as the Carfax Tower at Oxford, the tower of St. Jacques in Paris, and many others, are examples which may safely be followed. St. George's spire was erected at a cost of £10,000, and the stonework is still in an excellent state of preservation. Its restoration will cause no interference with street traffic, but will greatly add to the ornamentation of this part of the city, and would form, Mr. Pett suggests, a splendid background for a statue of colossal size, should one be erected on the site.

THE architects of Missouri propose to follow the excellent example set by their brethren in the sister state of Illinois, and seek legislative powers for the regulation of the practice of architects. A Bill on the subject has been prepared by the St. Louis Chapter of the A.I.A. The measure provides for the appointment by the governor of a board of five members, one of whom shall be a member of the faculty of the State University, and the other four architects of at least ten years' standing. This board is to hold meetings twice a year or oftener and examine all persons who desire to follow the profession. An examination fee of 15dol. is to be charged and 25dol. for a license. The secretary of the board is to receive a salary of 1,500dol. a year and each of the members 10dol. a day for what time they devote to the business of the board. The salary and fees are to be derived from the persons who stand examinations and obtain licenses. All are required to obtain a license and pay 25dol. for the same; but those now engaged in practice and who can satisfy the board of the same need not be examined. Architects who obtain licenses will



be expected to provide themselves with seals and stamp their plans with the same. Any person practising architecture without a license will be subject to fine ranging from 50dol. to 500dol.

THE city of Lyons has been experimenting with glass street pavements as a substitute for stone, asphalt, cement, wood, or macadam. Since last November the Rue de la République has been paved with devitrified glass. This new product is obtained from broken glass heated to a temperature of 1,250°, and compressed in matrices by hydraulic force. The glass pavement is laid in the form of blocks, 8in. square, each block being cross-hatched into the form of sixteen chequers. These blocks are so closely fitted together that water cannot pass between them, and the whole pavement looks like one gigantic draught-board. As a pavement it is said to have greater resistance than stone, it is a poor conductor of cold, and ice will not form on it readily, dirt does not accumulate upon it as easily as upon stone, and it will not retain microbes. It is alleged to be more durable than stone, and just as cheap.

THE Board of Trade have received information from her Majesty's Consul at Riga that, in consequence of the frequent litigation which has lately attended the shipping of lathwood from that port, a meeting of Riga exporters was held on the 3rd inst. for the purpose of discussing a scheme designed to check the claims for short measurement which are continually being sent in by English buyers. A resolution was adopted by all the firms represented at the discussion embodying the following regulations:—(1) A measurer will be appointed, whose duty it will be to control the measurement of the lathwood to be shipped, to see that the said measurement is correct, and to hold himself responsible to the shipper for correct shipment. (2) The measurer will issue a certificate for each parcel of lathwood shipped, stating the exact measure in fathoms; and this certificate will be attested by the British Consul. (3) The exporters bind themselves to buy only from those dealers who allow the shipments to be made under the control and certificate of the sworn measurer. (4) The exporters bind themselves to sell lathwood to Great Britain only on condition that the buyers accept Riga measurement. (5) The exporters bind themselves not to make any shipment of lathwood save under the control of the sworn measurer and the attestation of the British Consul.

"MACHINERY in Use in Modern Road-Stone Quarries" was the subject of a lecture delivered by Mr. C. H. Darbishire, J.P., at a meeting of the Liverpool Engineering Society held on Friday evening in the Royal Institution, Colquitt-street, Liverpool. He mentioned that as hand-drilling of stone required much labour, many attempts were made to utilise mechanical drills, but so far none had proved so economical as those driven by steam or compressed air, the pneumatic drill being the best suited for the purpose. No machinery had been designed to dress satisfactorily granite into square sets, curbs, or channels. Hands and hammer had still to do this work, but in breaking and riddling macadam machinery could be efficiently employed.

At Plymouth a street improvement is on the eve of completion by the re-erection of the business premises at Pomeroy's-corner, where the frontages have been set back. Mr. H. S. Snell, of Plymouth, is the architect, and Mr. Jenkin, of Devonport, the contractor.

The city council of Canterbury have decided to give notice to the owners to put St. Mary's Bredman's Church, which was reported to be in a ruinous and dangerous state, in repair, and, in the event of this not being done, to pull the church down.

A combination has been arranged between Messrs. Georges Hartog and Co., of Paris, one of the first firms of varnish manufacturers in France, and the French branch of Robert Ingham Clark and Co., Ltd., of London and St. Denis. The company is formed under the French Limited Liability Acts with a capital of 3,750,000 francs in Preference and Ordinary Shares, all of which are privately subscribed for. Monsieur Hartog will be president, Mr. Robert Ingham Clark vice-president, and Monsieur Allard du Chollet and Mr. F. W. F. Clark managing directors. Messrs. Robert Ingham Clark and Co., Ltd., reserve the exclusive control and direction of the manufacture of their Britannia brand of varnishes, which will, so far as France and her colonies are concerned, in future be sold by the French house.

## MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Liverpool Architectural Society. "The New Royal Insurance Buildings," by J. F. Doyle. 8 p.m.

TUESDAY.—Perth Architectural Association. "Ecclesiastical Architecture of the Middle Ages," by Charles J. Menart. 8 p.m.

WEDNESDAY.—Royal Archeological Institute. "Ritualistic Ecclesiology of North-East Somerset," by J. Lewis André, F.S.A.; and "Influence of Eastern Art on Western Architecture in the 11th Century," by J. P. Harrison, M.A. 4 p.m.  
Edinburgh Architectural Association. "Plaster Work," by H. O. Tarbolton. 8 p.m.

## Trade News.

### WAGES MOVEMENTS.

ASHFORD, EAST KENT.—A settlement has been arrived at between the local builders and the bricklayers and carpenters respecting the wages question. A year ago the builders were asked to grant an increase of 1d. per hour in the wages. Half this amount was accepted by the employes on the understanding that, if trade warranted, another ½d. increase would be granted this year. Application was recently made for the fulfilment of this promise, and the workmen have accepted ½d. increase from June 1, with a similar rise on June 1, 1900.

CHESTER.—The employers of bricklayers, joiners, and plumbers in Chester have notified their men that they cannot concede their demands for an increase of wages, and a strike is regarded as inevitable. About 800 men are affected.

PERTH.—On the 15th inst. the Perth operative painters sent a request to the master painters asking an increase on the present rate of wages of ½d. per hour on town's work and 1s. per week on country work. The present rate of wages is 7½d. per hour for town, while 4s. a week extra is at present allowed for men working in the country. The men asked that the increase should come into force to-morrow, the 1st April, and replies were asked to be returned by Saturday last. A meeting of the operatives was held on Saturday to consider the replies from the masters, but it was intimated that no replies had been received, and it was agreed to adhere to the demands made.

THE PLASTERERS' LOCK-OUT.—Mr. M. Deller, the general secretary of the Plasterers' Union, has issued this week a circular addressed to the trades unionists of the United Kingdom appealing for financial assistance to help the union to carry on the struggle with the National Master Builders' Association.

### CHIPS.

Another discovery has been made of the elm-tree water-pipes by which London was supplied with water some two centuries since. The latest find was unearthed by the electric-lighting company that is opening Great Marylebone-street to lay down electric cables. The bored trunks of elm were in excellent preservation.

Messrs. E. H. Shorland and Brother, of Manchester, have just supplied some more of their patent Manchester grates to the Girls' Intermediate Schools, Cardiff.

The new theatre just completing in Station-road, Doncaster, was opened on Monday night by Mr. F. W. Fison, M.P. The theatre has been erected from plans by Mr. J. W. Chapman, managing director. It is constructed to accommodate 1,500 persons.

Mr. Dixon, of Ramsgate, has been elected surveyor to the Walmer Urban District Council at a salary of £150 a year.

The Safety Tread Syndicate, Ltd., have just secured the contract for the supply of their treads throughout all the stations on the Central London Railway.

New board schools are being erected in New Kent-road, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

In Ockbrook parish church, Derbyshire, on Saturday last, a stained-glass window was unveiled to the memory of the Ven. Melville Horn Scott, Arch-deacon of Stafford.

Mr. Birket Foster, the well-known water-colour artist, died on Monday night at his residence at Weybridge, in his 74th year.

The mosaics in two of the quarter-domes at St. Paul's Cathedral are now complete, and the scaffolding has been entirely removed. The subject in the north-east quarter-dome was "The Crucifixion," and in the corresponding dome at the south-east angle "The Resurrection."

## LATEST PRICES.

### IRON, &c.

	Per ton.	Per ton.
Rolled-Steel Joists, Belgian.....	£8 0 0	to £8 10 0
Rolled-Steel Joists, English.....	6 10 0	to 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	to 6 10 0
Bar Iron, good Staffs.....	7 5 0	to 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	to 17 5 0
Do., Welsh.....	5 15 0	to 5 17 6
Boiler Plates, Iron—		
South Staffs.....	7 17 6	to 8 5 0
Best Sneydhill.....	10 0 0	to 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £8 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

ft. to 8ft. long, inclusive	No. 18 to 20.	No. 22 to 24.
gauge	Per ton.	Per ton.
Best ditto.....	£10 15 0	to £11 0 0
	11 6 0	to 11 10 0
	Per ton.	Per ton.
Cast-Iron Columns.....	£8 5 0	to £8 15 0
Cast-Iron Stanchions.....	6 5 0	to 8 15 0
Rolled-Iron Fencing Wire.....	7 5 0	to 8 5 0
Rolled-Steel Fencing Wire.....	7 5 0	to 7 15 0
" " Galvanised.....	10 10 0	to 11 10 0
Cast-Iron Sash Weights.....	4 2 6	to 4 6 0
Cut Clasp Nails, 3in. to 6in.....	9 0 0	to 10 0 0
Cut Floor Brads.....	8 15 0	to 9 15 0
Wire Nails (Points de Paris)—		
0 to 7 8 9 10 11 12 13 14 15 16 17 18 19 20		B.W.G.
9/6 10/- 10/8 11/3 12/- 13/- 14/- 15/9 17/9		per cwt.
Cast-Iron Socket Pipes—		
8in. diameter.....	£6 2 6	to £6 7 6
4in. to 6in.....	5 17 6	to 6 2 6
7in. to 24in. (all sizes).....	5 7 6	to 5 12 6
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]		

Fig Iron—	Per ton.
Cold Blast, Lilleshall.....	106s. to 110s.
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard	
Lists f.o.b.:—	
Gas-Tubes.....	75p. 0.
Water-Tubes.....	70
Steam-Tubes.....	62½
Galvanised Gas-Tubes.....	60
Galvanised Water-Tubes.....	56
Galvanised Steam-Tubes.....	45

	10cwt. casks.	5cwt. casks.
	Per ton.	Per ton.
Zinc, English.....	£80 10 0	to £81 10 0
Do., Vieille Montagne.....	81 10 0	to 82 15 0
Sheet Lead, 3lb. per sq. ft. super.....	15 15 0	to 16 15 0
Pig Lead, in 1cwt. pigs.....	15 7 6	to 16 7 6
Lead Shot, in 28lb. bags.....	19 0 0	to 20 0 0
Copper Sheets, sheathing and rods.....	82 0 0	to 83 0 0
Copper, British Cast and Ingots.....	71 10 0	to 72 0 0
Tin, Straits.....	110 0 0	to 110 0 0
Do., English Ingots.....	114 0 0	to 115 0 0
Spelter, Silesian.....	27 0 0	to 27 1 3

### TIMBER.

	per load	£13 0 0	to £15 10 0
Teak, Burmah.....			
" Bangkok.....	10 10 0	to 11 10 0	
Quebec, Pine, yellow.....	4 7 6	to 5 5 0	
" Pitch.....	8 10 0	to 8 15 0	
" Oak.....	4 0 0	to 6 0 0	
" Birch.....	3 0 0	to 5 0 0	
" Elm.....	4 12 6	to 5 15 0	
" Ash.....	3 17 6	to 5 5 0	
Danish and Memel Oak.....	3 5 0	to 3 15 0	
Pir.....	1 10 0	to 3 10 0	
Wainscot, Riga p. log.....	3 15 0	to 6 5 0	
Lath, Danish, p.f. log.....	4 0 0	to 5 10 0	
St. Petersburg.....	4 0 0	to 6 10 0	
Greenheart.....	8 0 0	to 8 5 0	
Box.....	4 0 0	to 15 0 0	
Sequoia, U.S.A. ... per cube foot	0 1 9	to 0 2 0	

Mahogany, Cuba, per super foot	lin. thick	0 0 5½	to 0 0 7
" Honduras.....		0 0 3½	to 0 0 4
" Mexican.....		0 0 3½	to 0 0 4
Cedar, Cuba.....		0 0 4	to 0 0 4½
" Honduras.....		0 0 3½	to 0 0 4
Satinwood.....		0 0 9	to 0 1 9
Walnut, Italian.....		0 0 8	to 0 0 7

Deals, per St. Petersburg Standard, 120—12½. by 1½in.	by 1½in.:—		
Quebec, Pine, 1st.....	£13 15 0	to £25 5 0	
" 2nd.....	12 15 0	to 17 0 0	
" 3rd.....	6 15 0	to 10 0 0	
Canada Spruce, 1st.....	8 5 0	to 10 5 0	
" 2nd and 3rd.....	7 0 0	to 8 15 0	
New Brunswick.....	7 0 0	to 7 15 0	
Riga.....	8 5 0	to 10 5 0	
St. Petersburg.....	11 15 0	to 14 5 0	
Swedish.....	9 15 0	to 16 15 0	
Finland.....	9 15 0	to 10 5 0	
White Sea.....	10 15 0	to 18 0 0	
Battens, all sorts.....	5 0 0	to 16 0 0	

Flooring Boards, per square of lin.:—		
1st prepared.....	£0 9 0	to £0 15 8
2nd ditto.....	0 7 0	to 0 12 3
Other qualities.....	0 5 3	to 0 6 6

Staves, per standard M.:—		
Quebec pipe.....	—	—
U.S. ditto.....	£35 0 0	to £42 10 0
Memel, cr. pipe.....	210 0 0	to 220 0 0
Memel, brick.....	180 0 0	to 190 0 0

### OILS.

Linseed.....	per ton.	£18 0 0	to £18 10 0
Rapeseed, English pale.....		22 10 0	to 22 15 0
Do., brown.....		21 0 0	to 21 10 0
Cottonseed, refined.....		16 14 0	to 17 0 0
Olive, Spanish.....		30 0 0	to 32 0 0
Seal, pale.....		21 0 0	to 21 5 0
Cocoonut, Cochin.....		29 5 0	to 29 10 0
Do., Ceylon.....		25 10 0	to 25 15 0
Palm, Lagos.....		24 10 0	to 24 15 0
Oleins.....		18 15 0	to 19 15 0
Lubricating U.S.....	per gal.	0 6 8	to 0 7 6
Petroleum, refined.....		0 0 6	to 0 0 6½
Tar, Stockholm.....	per barrel	1 0 0	to 1 5 0
Do., Archangel.....		0 15 0	to 0 18 0
Turpentine, American.....	per ton	28 15 0	to 29 0 0



## THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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## LOCAL AUTHORITIES AND BUILDING.

**D**IFFICULTIES and delays are encountered by all provincial practitioners who have to submit their plans to local authorities and to conform to building by-laws. These experiences are every now and then "trotted" out for review, and last week the Society of Architects usefully spent an evening in discussing the experiences of architects in their relations with local authorities—a subject introduced by Mr. Ellis Marsland. Many grievances and hardships were detailed by the speakers, who represented various urban and rural districts. These arise from differences of administration as well as those of the by-laws themselves. The discussion represented various forms of grievance, and they may be put under several heads. (1) Non-approval and rejection of plans; (2) incompetence of local authorities or their surveyors to interpret their own by-laws; (3) discrepancies existing between the regulations of urban and rural authorities; (4) want of a code of by-laws and consequent vexatious objections of the authorities; (5) want of a uniformity of administration; (6) prejudices of committeemen—favouritism. If we analyse these several heads, we find the difficulties resolve themselves into the want of a uniform code of by-laws; want of agreement between urban and rural district councils; their incompetence to interpret by-laws; want of a uniform system of administration.

In the first place, it would be impracticable and undesirable to expect every country town and village to be subject to the same unvarying code of building regulations. It would be, for instance, impossible to require the same stringency in respect of building in small rural districts or villages, scattered and open, that would be necessary in towns like Brighton or Hastings. Such matters as thickness of walls, the use of exposed half-timber framing, regulations as to the setting back of woodwork, window frames, chimney construction, and especially with regard to air space behind dwellings, cannot be settled on a uniform basis. Can we imagine anything more unreasonable as to enforce a rigid rule against open-timber work in a villa or cottage in a rural or seaside resort; or to compel a builder to use solid brickwork when concrete or cavity walls are absolutely desirable, and really may be introduced with more economy and effect, because these things are without the scope of by-laws? And yet we know that at one, at least, rising Kentish sea-coast resort, designs with these features have been rejected, and the architect had, we believe, to abandon his first design. The local material of the district, whether sandstone or limestone, or a brick manufacturing locality, must also be considered in the framing of local by-laws. But although uniformity in all these things cannot be expected or desired, and a large limit of variation or tolerance is called for, certain principles of construction can be adhered to. For example, for walls of brick the same schedule of thicknesses can be enforced for dwellings of certain height and size, the same regulation as to bond or wall ties in cavity walls or open-timber work, the composition of concrete may be the same; the height of rooms, the size of windows, can be regulated, the scantlings of timber can be made uniform. Projecting stories and oriels are perhaps not desirable in crowded towns; but they cer-

tainly lend a picturesqueness to village and seaside buildings, and regulations as to these having reference to projection can be made, so as to be enforced in all similar cases. What we say is that no uniformity is possible or desirable under imperfect codes. A code of building by-laws that does not provide for local material, for hollow walls, for cement or timber-work, and other materials or methods, cannot be conformed to without inflicting hardship on architects and owners. This is only a further exemplification of the principle that a wide toleration is more consistent with uniformity than a narrow restricted, half-hearted, and niggardly policy. One-sided laws are always sure to be broken, and most surely is a code of by-laws that only applies to one set of conditions.

Uniformity might be justly exercised in the administration of by-laws. The complaints that reach us are that in one district the architect is expected to prepare duplicate tracings to deposit; in another we hear a set of working drawings executed on linen had to be deposited—an instance given by Mr. McArthur Butler, who referred to a Northern town; in another instance there was no code of by-laws, but the architect was told the corporation used their own discretion in passing or rejecting plans; then there were underpaid officials who gave varying interpretations, or were not competent to interpret them. As Mr. G. Gard Pye said, one set of by-laws ought to be promulgated for large towns, and another less stringent set for rural districts, and if this rule were adopted there would be a more intelligent uniformity observed than is possible now. The discord that takes place between urban and rural authorities is accentuated by the enforcement of one set of regulations made only for the urban district. The building committee, as Mr. Manning said, was often at fault, and the surveyor was the scapegoat;—there were members who could not disguise their narrow prejudices, and rejected plans of one architect, while passing without objection those of others. The surveyor ought to have authority to examine plans in their initial stage, give his opinion as to the requirements of the authorities, and thereby save time and trouble to the architect. The present administration of local regulations is very unsatisfactory: no recognised system of examination or approval of plans seems to be adopted; the plans are left to a committee for a lengthened period, and then fought over—a procedure happily unknown, as Mr. Ellis Marsland pointed out, under the Metropolitan building regulations. So long as the provisions of the London Building Act are complied with, the owner can proceed; but not so in the provinces—no beginning can be made till the plans have been deposited, and the authorities have passed them, which often means weeks of delay. If the London system was extended throughout the country, as suggested by Mr. Marsland, considerable friction would be avoided. We should not then hear of such an anomaly as that mentioned by Mr. W. Cooper, where the architect had to come to terms with the authorities of two districts whose boundaries overlapped, and who possessed different rules as to thickness of walls and to amount of air-space required. The conflicts arising as to party-wall questions in the provinces call for new legislation. No provision exists, as was pointed out, like that which exists under the London Building Acts, by which the building and adjoining owners can agree as to terms.

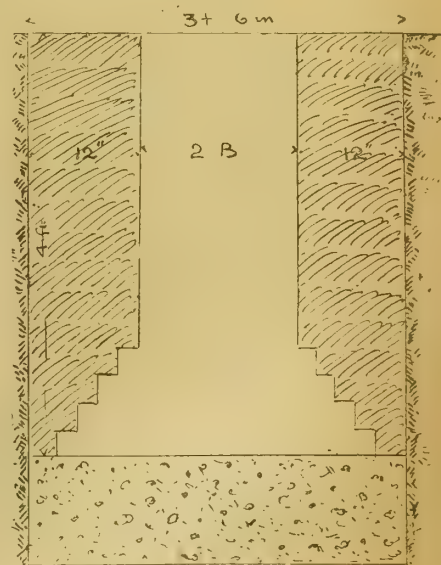
The conflicting by-laws have been mainly the result of the want of a general agreement between authorities. Each urban and rural council has had its own way in framing its code of regulations, in utter disregard of adjoining districts. What was previously the custom in a locality, however bad in itself, was retained, in deference to local prejudice. The large owners of

local properties naturally have had a voice in these regulations, with the result that insanitary conditions have been retained in some cases. Back-to-back dwellings, insufficient areas for light and air, are even now to be found in many of the large towns in the North. The question of assimilating the building regulations throughout the country is a difficult one; but the principle of unification must be made the keynote of future legislation. There ought to be agreement in all essential points of construction, but with a liberal interpretation as to those details of building which local variations suggest. A code of building regulations for urban and rural districts must be comprehensive. It should provide machinery for settling all those points as to party-walls, air space, and other matters that are likely to arise, and it should provide for an efficient and speedy system of administration confined to competent officials rather than ill-trained local committees.

## ESTIMATES.—II.

## EXCAVATION AND DRAINAGE.

**I**N the estimation of Excavator's work, the student will find a knowledge of mensuration, or the measurement of solids, of great value to him. It will be a help to him to be able to grasp mentally the relation of the superficies of a cross-section, as that of a cutting or trench to a cube yard, as, for



instance, a trench, say, 2ft. deep by 1½ft. wide, or 3ft. superficial on cross-section, and 3ft. or a yard long, will represent one-third of a cubic yard, and if 9ft. or 3 yards in length will represent a yard cube. These relationships between depth and width of cutting and length are often useful in enabling him to discover the unit of length that goes to a yard cube of digging, and the number of drain-pipes required in that length. Take another instance: A trench 6ft. deep and 3ft. wide, or 18ft. superficial in section, represents two-thirds of a cubic yard for a length of 1ft., and for a yard run would make two cubic yards. This quantity of digging, filling, and ramming would have to be taken and priced at from 9d. to 1s. 6d. per yard cube for the digging and throwing out, filling and ramming. It is often desirable to separate the items of digging and throwing-out, filling and ramming, especially in foundations for walls, where the earth returned and rammed is a proportionate item of the whole cutting. When the foundations are of concrete a small quantity of soil has to be returned, depending on the depth of concrete. Thus, if it is 3ft. deep by the width of trench (say 3ft.), half the soil excavated



will have to be wheeled or carried away, besides that portion of space occupied by brickwork. If we suppose an 18in. wall, there would be about 9in. left on each side by half the height of trench to be filled in and rammed. So that in the yard run of a 6ft. trench there would be only half a yard cube to be filled in, the other yard and a half being carted away.

To take a trench for a wall 18in. thick above footings—that is, 4ft. deep to bed of concrete and 3ft. 6in. wide, the wall of brickwork would occupy about three-sevenths of the trench or a trifle more, including footings. This portion, multiplied by depth, 4ft. is the quantity of soil to be carted away, and the side spaces, 4ft. by 1ft. each, would represent the part filled in and rammed. The space occupied by concrete (if any) would also be added to the quantity of earth carted away. (See diagram.)

To take an example, suppose the item was as follows:—

60 yards cube. Dig trenches for 18in. wall to average depth of 5ft., trimming sides and bottom, and cart away surplus earth or deposit of same, part returned, filled in, and rammed.

Here the whole excavation and throwing up of the trench has to be taken at so much each yard; next, the wheeling away and depositing the same at so much. Then there is the returning, filling, and ramming of a certain proportion of every yard. These several labours are added together. Let us take the part filled and rammed at, say, two-thirds of a yard:—

Digging trench 5ft. deep, 3ft 6in. wide, and throwing out, per yard .....	£ s. d.
Filling barrow and wheeling, per yard, 20yds. run .....	0 0 10
Part returned filling and ramming four-sevenths of yard, say, two-thirds of yard, at 6d. per yard .....	0 0 3½
Profit, 10 p.c. ....	0 0 4
	0 1 5½
	0 0 1½
	0 1 7

80ft. run. Strutting and planking to trenches 4ft. wide and 6ft. deep:—

Price at 6d. per foot run, taking 1d. per foot super.

89 yards run. Dig trenches for 4in. pipes, return, fill, and ram:—

Suppose the trench is 2ft. deep, it may be priced at 2d. to 3d. per foot run; or, say 9d. per yard run, to which add, say, 3½d. per yard ramming and filling, say 1s. per yard run. This would allow for about two-thirds of a yard returned and rammed (allowing for pipe). We are supposing here stiff clay; for ordinary soils 9d. per yard would be sufficient.

(ERRATUM.—The last item for drain-pipe excavation, p. 433, should have read as *not* including filling and ramming, the price only being for excavation.)

52 yards run. Dig trench for drains not exceeding 6ft. deep, filling in and ramming:—

The price depends very materially on the soil. We have seen this item priced at 1s. 2d. per cube yard. A yard run of a cutting of the above depth would be about 2 yards cube, allowing a width of 3ft., and would be worth about 2s. 4d. per yard run at the above price.

67 yards run. Digging average 4ft. deep for 6in. drain-pipe:—

Price this at 1s. per yard run.

156ft. run, 4in. glazed stoneware pipes, with socketed joints, jointed in cement and puddled with clay in trenches, averaging 2ft. deep, filling in and ramming.

In pricing this item we first obtain the cost delivered of 4in. socket drain-pipes, then the laying, jointing, and puddling, and

lastly, the digging and filling-in and ramming.

We may put the several elements down as follows:—

Cost of 4in. drain-pipe, per foot .....	£ s. d.
Cementing joints and puddling, say .....	0 0 6
Digging trenches, filling, and ramming .....	0 0 4
	0 0 3½
Add profit, 10 per cent. ....	0 1 1½
Say .....	0 1 1½
	0 1 3

The price of the best Doulton tested stoneware 4in. London pipes, jointed in cement, within three miles of Charing Cross, exclusive of excavation, is 9½d. per foot run.

67ft. run 6in. drain-pipe, with socketed joints in cement, and puddled in trenches, 6ft. deep, filling in, and ramming.

Add to the above amount 6½d. per foot for 6in. pipes, 4d. more for deeper digging and battering side, profit, &c.; making, say, 2s. 3d. in all. Doulton's best tested stoneware pipes, jointed in cement, is quoted at 1s. 0½d. per foot run, exclusive of excavation.

32ft. run 6in. drain pipe as before, average depth of digging 10ft.

Add to the last item 4ft. deeper digging 4d., and extra throw 3d., for planking and strutting trenches 10d., and profit 1½d.

30ft. run 6in. tested drain pipes (Doulton), bedded all round in 6in. of cement concrete under building, in trench 1ft. 8in. by 1ft. 8in.

Digging and throwing out, per foot run .....	£ s. d.
Wheeling and depositing .....	0 0 3
6in. pipes, jointed in cement, bedded in concrete 6in. all round, per foot run .....	0 2 8
	0 3 2
Profit, say .....	0 0 3
	0 3 5

20ft. run 4in. best Doulton's drain-pipe inclosed in 6in. of cement concrete, exclusive of excavation.

Price this at 2s. 1½d. per foot run.

Extra to No. 6 bends 4in. diameter.

The price of bend has to be taken extra, deducting the length of pipe it supersedes. Doulton and Sons charge for a 4in. bend 1s. 9d., and for a 6in. bend 2s. 3d.

Deducting 6d. for a foot run of 4in. pipe makes the extra for bend 1s. 3d., to which add labour and profit, say 2d., making 1s. 5d. for each bend.

No. 4.—6in. bends to drains.

Deduct from 2s. 3d. the price of 6in. bend length of pipe, or, say, 9d. This will leave 1s. 9d. for each bend, and add 2d. for extra labour, say 2s.

No. 4.—6in. junctions:—

Put cost of 6in. junctions at 4s. 6d., single junctions 3s. per foot run.

6in. junction .....	£ s. d.
Deduct pipe .....	0 3 0
	0 0 9
Laying .....	0 2 3
	0 0 2
Profit 10 per cent. ....	0 0 2½
	0 2 7½

For double junctions the cost would be 1s. 6d. more.

Laying No. 2 siphon traps, 4in. diameter:—

The cost of 4in. siphon traps is 3s. 6d. each.

4in. siphon .....	£ s. d.
Deduct 2ft. of 4in. pipe .....	0 3 6
	0 1 0
Add extra labour .....	0 2 6
	0 0 3
Profit 10 per cent. ....	0 2 9
	0 0 3½
	0 3 0½

No. 2 Doulton's 8in. by 8in. yard gullies with iron grating:—

Price 4s. 6d., add carriage and fixing and making good to drain.

Cost of gully, 4s. 6d., less 20 per cent. ....	£ s. d.
Setting same in brickwork .....	0 8 8
Labour connecting to drain .....	0 2 6
	0 1 0
Profit 10 per cent. ....	0 7 2
	0 0 8
	0 7 10

A few list prices may be useful:—

In Doulton's list 10in. square yard gullies are priced at 6s., and 12in. square gullies at 8s. 3d. The former is for 4in. outlet. A yard gulley with bend for rain-water pipe, 8in. by 8in., at top, with 4in. inlet for rain-water pipe is 5s. 9d.; with cast-iron gratings 9d. extra. A round 9in. gully, with 4in. outlet, is 6s. 9d., and a 12in. round gully for 6in. outlet 11s. 3d.

60 yards cube concrete composed of five parts of burnt ballast to one of ground lime:—

To price this item, obtain the prices of ballast or gravel and lime. These elements may be summed up approximately as follows: To obtain the proportions of ballast and lime 5 to 1, add the cost of 5yd. of ballast to 1yd. of lime, and divide by the whole number of parts. Laxton gives the price of grey lime at 13s. 6d. per yard, and of Thames ballast at 7s. 6d. Taking 5yd. of ballast at 7s. 6d. a yard and 1yd. of lime at 13s. 6d. gives a total of £2 11s. Divide this sum by six gives 8s. 6d., and adding cost of labour and profit, say 1s. 8d., makes a total of 10s. 2d. a yard.

The calculation of the value of concrete, to be accurately made, depends on the void created by the aggregate, and the quantity of matrix to fill it. When lime and sand are mixed together (the matrix), the diminution in bulk that takes place is, roughly, one-fourth. Cement and sand mixed, the reduction is one-sixth.

Mr. Leaning gives the following analysis of the value of a cube yard of lime concrete of 1 part stone lime and 6 parts of Thames ballast:—

6yd. of ballast (one-third sand), 4s. 6d. .....	£ s. d.
25 per cent. on 9s. for diminution of 2yd. of sand cost .....	1 7 0
1yd. lime .....	0 2 3
Diminution of lime, 25 per cent. ....	0 11 0
Voide in ballast, 15 ..	
Total .....	40 " on 11s. 0 4 4½
	7½ 4 7½
Labour mixing per yard .....	0 6 4½
25gal. water .....	0 1 6
Cost of 1yd. ....	0 7 11½

## "BUILDING NEWS" DESIGNING CLUB.

A VILLAGE SCHOOL OF ARTS AND CRAFTS.

THE result of this competition is by no means so good as could have been wished, and while we allow that the subject necessitated more than usual skill on the part of those who undertook the working out of the problem, it must also be admitted that the requirements presented no real difficulty, and just now they offer an attractiveness always to be associated with contemporary undertakings. Technical and art schools are being erected in a variety of places, more or less on the lines indicated by the instructions which we issued to our members, and many illustrations of similar buildings have been illustrated recently.

However, we have made the best choice afforded by the drawings received. "Swan" takes the first place, "McGilligan" second, and "Rikki" third. The following are the printed conditions governing the contest:—

E.—A School of Arts and Crafts, to be situated in a country town high-street on a right-angled corner site, with a lane on the return frontage. The façade will face south, and there will be a forecourt 18ft. deep, with villa residences on the adjoining land east of the new school, the next house blank wall abutting on to the site, so that



no windows can be obtained on that side boundary. The width of the school building to extend the whole limit of the frontage, which is 60ft. The depth is 200ft.; but ultimately, a picture gallery is contemplated at the rear, and the entrance must be so contrived to the front buildings as to be available as a corridor-way, 8ft. wide in the clear, to this gallery, which will be 70ft. long by 45ft. wide. A block plan to small scale to show how the completed scheme will be contrived. The land is practically level. The accommodation for the school to provide two large studios 18ft. high, the lower to have a mezzanine gallery along one side, 9ft. wide. Each of the big studios to be 36ft. long by 25ft. wide from back to front, and each having big windows towards the north. There must be two smaller studios with north lights, and one may be contrived as a mezzanine room suitable for a small life class. There is to be a master's room or office on the ground floor. In the basement a modeller's room and a smith's shop with two forges will be needed, 10ft. high, with a wide area back and front for light. The lane frontage may have lights above the pavement level, as the ground floor will be 3ft. above the ground line. Cloak-rooms and lavatory with two basins, and two w.c.'s, one for each sex, will be needed. A model's room to be contrived in the upper studio, with w.c. and lavatory basin. A lavatory and w.c. to be provided for the master. A heating-chamber and coal-place below stairs. A kitchen living-room, with scullery, larder, &c., also in the basement, for the caretaker, whose two bedrooms will be in the upper part of the building. An open-timbered roof to be put over the top-floor studios. The staircase to be in concrete, 4ft. wide. Style, a treatment based on the Renaissance, picturesquely handled in red brick, with Portland stone dressings; roof covered with tiles. Scale, 8ft. to the inch for elevations and section. Plans may be smaller. View sketch wanted.

"Swan's" plan is his strongest point. His elevation is bald and wanting in dignity, the big breadth of plain wall-space in the façade being bald and needlessly severe. This is made the more evident on account of the narrow brick pier at the corner of the front when viewed in strict elevation. The entrance is not sufficiently handsome or appropriate as an approach not only to an art school, but to a picture gallery. Some of the designs err on the side of pretentiousness, which is a greater fault still, and we willingly recognise the good taste in a degree of reserve and simplicity, which a plain design often well illustrates; but "Swan's" doorway, strictly speaking, appertains to a mere workshop or factory. The author has ingeniously worked in his mezzanine floor and bedrooms. His through-way approach to the intended gallery in the rear is good, and the school is not divided by it in the way adopted by some of the competitors. Of course, the plan is not free from faults. One of these is the absence of a private approach to the basement for the caretaker. This could readily have been managed, and the front areas should be reached without having to go down by a step-ladder, or get out of the basement-windows. There is no coal-place in connection with the heating-chamber, or for the living-house. The scullery-window should have been differently placed, seeing that the steps above would block out the light and air. There is no w.c. or yard for the caretaker, and the modelling-room is none too large. The models' room is needlessly important, and is isolated from the life classroom. A mere dressing-box often supplies the only accommodation of the kind provided, and even a screen is made to serve the purpose; but in a small studio every inch of room is often in demand, and in erecting a special building for an art school, a proper provision for the model should be made where funds allow. The mezzanine gallery should be connected with the floor of the studio by a small staircase. "Swan's" drawings are not very finished in style, while the crossing of the lines to all quoins and openings does not improve the effect of the plans.

"McGilligan," the second man, is not very happy in either his plans or elevations this time: the through-way to the picture gallery is not direct, and the general contrivance of his scheme is not good. The waste of space in passage room and landings is a fault. The entrance lobby is ungainly, while the ground-floor studio doorway facing the entry would mislead the public visiting the picture gallery, in a needless manner.

The gallery in the lower studio runs the wrong way, and the upper part of the forge room curtails the area of this studio in a seriously objectionable manner. The basement shops are better than "Swan's," and the caretaker has a side entrance, but his house is not a nice arrangement with the dark passage outside the scullery. The exterior calls for no special comment, and can claim no special distinction.

"Rikki," whom we have placed third, is the author of a rather good plan, and would have secured the second place if the execution of his drawings, and particularly his perspective, had been more up to the mark. The arrangements are straightforward and convenient generally speaking, with a direct through-way corridor. The caretaker has a separate entry, but to reach the kitchen he has always to go through the pantry, and to get into the school he must go out into the street and in at the front door. His bedrooms are approached by a private staircase. The elevation is adapted to the purpose of the undertaking, though the lower windows to the staircase raking with the flights ill accord with the monumental treatment introduced under the scroll pediment above, with the columns and niches to match.

"Thistle" drops to the fourth place this time, for he has not realised a suitable plan or appropriate design. The fenestration is continued round the two main fronts, regardless of the immediate interior arrangements, and in this way the lavatories and w.c.'s, which occupy the principal position along the front on the ground floor, have the same big, tall windows as the studio to the rear. This studio would by no means be improved by these same windows, because of the cross-lights which they necessarily would cause. The entrance to the picture gallery is contrived from the side lane, and not by way of a through-corridor from the front of the school building. The hall is wasteful, and the curved-shaped and domed entrance portico does not accommodate itself to the design very well. "Thistle" spends too much care upon his figures, as compared with the amount of thought illustrated by his plans. This is a matter for regret, but with all his faults he makes a good fourth. "Scruton" trifles with his design when he illustrates it by means of so poor a perspective, while the highly conventional air-balloon trees only serve to render the whole thing ridiculous. The clouds, too, are absurd. His elevation looks too much like a court-house or a small vestry-hall. The treatment, however, is not without dignity, though scarcely appropriate. The absence of a through corridor is conspicuous in the plan, though there is a note showing how two cupboards could be omitted to make way for such a corridor. "Scruton," however, fails to observe that an objection would then follow, because one studio would be located on one side of the public passage, and the second on the other, thus confusing the working of the building needlessly. "Tokio" sends a design which, judged by the elevation alone, is second to none, though we cannot like the rusticated columns to the upper part of the façade in the centre. The cornice, too, if it had been carried through between the end pavilion projections, would have materially improved the architectural effect, and greatly helped the continuity of the porch, which, as it is, looks too much like an individual feature. In a successful design, its parts are so essential to the whole that no one of them can be removed without detriment. The trick of blacking-in only the top range of window-panes to all the openings is calculated to give a fallacious impression, and tends to deceive no one so much as the draughtsman himself. Of "Tokio's" plan there is not so much to complain about, though the length of his studios would be better the other way on, so as to obtain the light from the north side rather than from the end. If this design had been drawn better it would have ranked higher. "Vigornia" makes a central open area in the middle of his school, and provides a sumptuous staircase hall which runs up from the ground floor to the top. The loss of room, too, in corridors spoils the plan, which, however, has been thoughtfully prepared. The elevation is marked by an octagonal turret and flagstaff. Also by a porch with a projecting balcony over the archway. This is omitted on the plan. "Quadrant" has a severe Classical sort of design, the upper floor being divided by Ionic columns 10ft. to 12ft. apart. Two bays have windows, the others have bricked-up openings suggesting a revival of the window-tax. The

plan is very compact, and four floors for the minor parts are worked-in similarly to the design placed first. The scheme is not attractive, however. "Le Nord" makes his elevation something like a board school, and in doing so scarcely touches originality. His plan, though concentrated, fails to economise space in the staircase hall. He is one of the few contributors who have included a lift. "Quercus" has disobeyed our rule as to the size of paper to be used. He thereby spoils his chances for illustration. He mars the effect of his building by putting foreground figures under the angles of the main projections. Had the façade been worked out with better detail, and been more spiritedly delineated, the result of the design would be more satisfactory. The plan is very defective with an exceptionally ugly staircase and landing. "Vulcan" harks back after a Gothic mode, which has worn itself out long ago. "Butts" puts a tower over his porch, and sends an Elizabethan type of elevation with mullioned windows divided by coupled pilasters. The plan is L shaped, extending a long way back upon the site. "Pup" comes in late with a very inky performance, which is distinguished by big windows at the west end of his studios, as well as towards the north. The main entrance is in the lane front. "First Attempt" has yet to be named to complete the list. It is of little use making any attempt if the rules of the competition are not observed. To reach the picture gallery the "First Attempt" must pass through the smaller studio. "Claude" came in too late, arriving after these notes were written. His design is crude and poor. It has no windows whatever in the façade above the plinth.

## IRON CONSTRUCTION IN DRAINAGE WORK.—X.\*

By T. E. COLEMAN, F.S.I.

AMONGST the different forms of joint that have been recently introduced in connection with stoneware drain-pipes may be mentioned Ernest Smith's patent iron joint for stoneware pipes (see Fig. 155). This consists of an ingenious

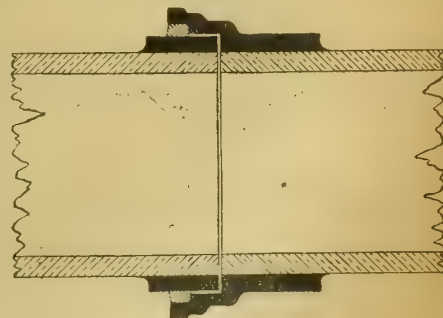


FIG. 155.

adaptation of the lead joint ordinarily used for iron pipes. The glazed stoneware pipes are plain butt-ended tubes, with an iron spigot and socket securely fixed at the ends by means of a specially prepared cement consisting of sulphur and precipitated gypsum. It is claimed that this cement is as imperishable as the stoneware, and that the iron spigot and socket cannot be detached without breaking the stoneware. The pipes are sent out with the spigot and socket fixed complete, and ready for laying. The socket is so designed that the pipes are concentric when brought together, and the joint made watertight by caulking a strip of lead around the outer annular space of the socket. Solid-drawn pure lead of the proper width and thickness is supplied ready for use. The pipes are made in 3ft., 3ft. 6in., and 4ft. lengths, so that fewer joints are required than is usually the case in stoneware pipes.

Cast-iron baths, when of good quality and thoroughly well enamelled, provide a very satisfactory fitment. At one time they were almost invariably inclosed within a wooden framing, but self-contained baths requiring no inclosure are now largely used. Sketches of the well-known patent *fin-de-siècle* bath are given in Figs. 156 and 157. It is designed to stand upon a safe or tray of marble, glazed porcelain, or other

\* All rights reserved.



pervious material, the entire bath being uninclosed, so that everything connected therewith is exposed to view. The upper edge of the fitment is finished with a bold rolled rim, whilst the waste and overflow are arranged within a small open recess at the foot so as to be readily accessible. The waste-plug is raised by means of a nickel-plated brass rod passing through the porcelain soap-trap fixed immediately above. The

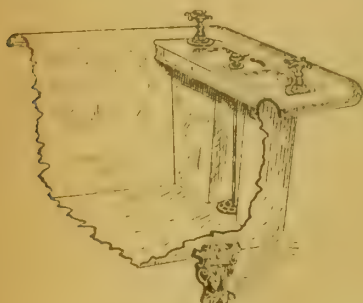


Fig. 156.

outlet grating (see Fig. 157) may be removed at any time for cleaning and inspection purposes. The overflow is cast on immediately behind the recess, and enters the waste just above the seal of the trap, whilst the taps to the bath are so arranged that every time they are turned on a small jet of water passes down the overflow so that it may be kept in a clean condition.

When a bath is fixed on the ground floor of a building the waste should discharge directly out

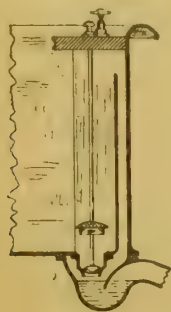


Fig. 157.

side, over a trapped surface gully. If preferred, however, the waste may be arranged to discharge just below the grating of the gully instead of over it. An antisiphonage pipe should be provided near the crown of the siphon trap to the waste, and carried through the wall into the open air.

The branch waste from a bath situated on an upper floor should be connected to the external vertical waste, the upper end of which is carried above the eaves as a ventilating pipe, whilst the lower end discharges over or into a trapped gully.

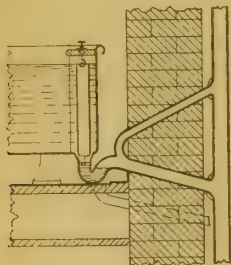


Fig. 158.

In the case of a single fitment, the antisiphonage pipe is directly connected with the vertical waste, as indicated in Fig. 158.

Where two or more baths discharge into the same vertical waste, the branch antisiphonage pipes are connected to a main antisiphonage pipe, which is carried above the highest fitment before being joined to the vertical waste. A typical illustration is given in Fig. 159, where a lavatory basin and two baths are shown connected to one common waste. The main waste discharges into a trapped gully, and is continued above the

eaves, whilst the antisiphonage branches are severally connected to the main antisiphonage pipe, the latter being carried well above the top-

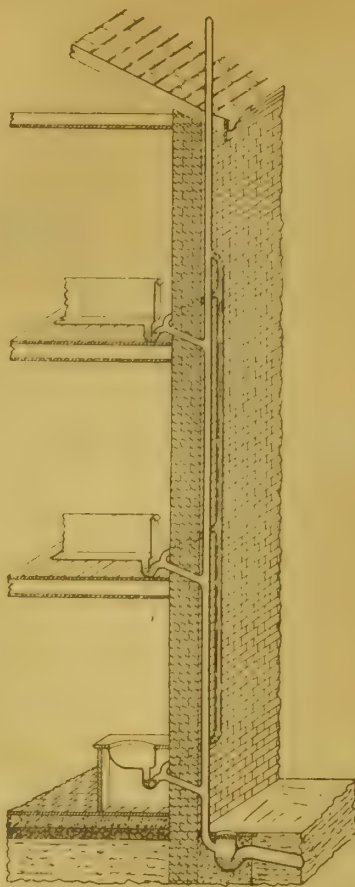


Fig. 159.

most branch before being joined to the main waste-pipe.

Amongst the various sanitary fittings required in hospitals, it is necessary to provide portable baths for the use of patients lying in the wards. Fig. 160 is a sketch of a movable bath mounted upon three wheels, each of which is fitted with

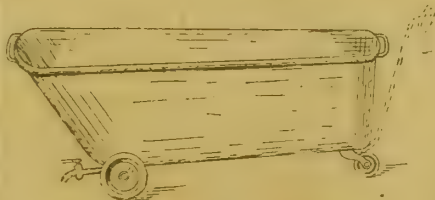


Fig. 160.

thick indiarubber tires, so that the whole may be noiselessly moved from place to place. The small wheel is arranged with a swivel, so that the bath is readily turned in any direction, a convenient handle being arranged at each end. Sometimes a long handle is attached to the swivel wheel, as indicated by the dotted lines in Fig. 160. The

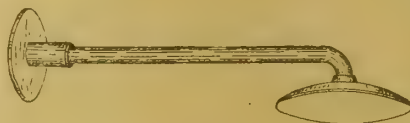


Fig. 161.

bath is finished with a bead or rolled edge, and at the bottom is fixed a large discharge cock. The average dimensions of such baths are 5ft. 6in. long, 2ft. 2in. wide at head, 1ft. 7in. at foot, and 1ft. 9in. deep, but they may be obtained in sizes varying from 4ft. 6in. to 5ft. 6in. long. They are usually made of heavy tinned and enamelled copper, but cheaper baths are constructed of tinned iron or steel.

A shower-bath forms a most refreshing adjunct to the usual slipper-bath. Where economy is the first consideration, a suitable arrangement may be independently provided over any ordinary bath (see Fig. 161). A wrought-iron, polished brass, or nickel-plated shower bracket is fixed over the head or centre of the slipper-bath, and directly connected to the cold-water supply. The shower is regulated by means of a handle and chain attached to the bracket, or by a stop-cock on the supply pipe. Immediately under the

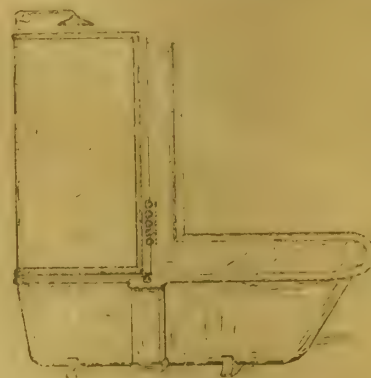


Fig. 162.

shower bracket is sometimes fixed another small bracket, with double or treble-jointed arms supporting a waterproof or mackintosh curtain reaching to the edge of the bath. On using the shower, the movable arms are arranged so that the curtain completely encircles the bather, and prevents any splashing of water outside the bath. After use the bracket arms are folded back so that the curtain lies flat against the wall. A mixing box,

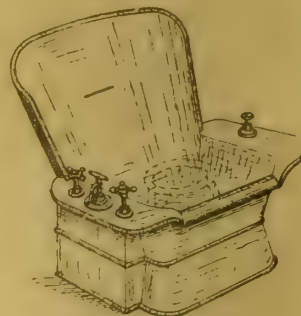


Fig. 163.

with hot and cold water supply, may also be provided in connection with the shower bracket if desired.

Fig. 162 is an illustration of a "canopy" or "hooded" bath designed for fixing without any inclosure. It consists of a cast-iron enamelled reclining bath, with tinned and enamelled copper

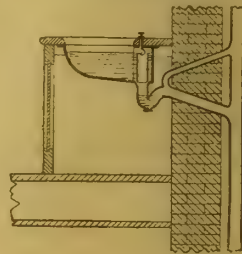


Fig. 164.

hood, having  $\frac{3}{4}$ in. hot and cold water taps, mixing box with controlling taps for shower, spray, and reclining baths. The overflow and waste is provided at the side. For baths of cheaper construction the hood is made of enamelled zinc.

Canopy baths constructed entirely of copper are also frequently used. These are fixed within a wooden inclosure — generally of framed, panelled, and polished mahogany or other hard wood. Baths of this description may be arranged



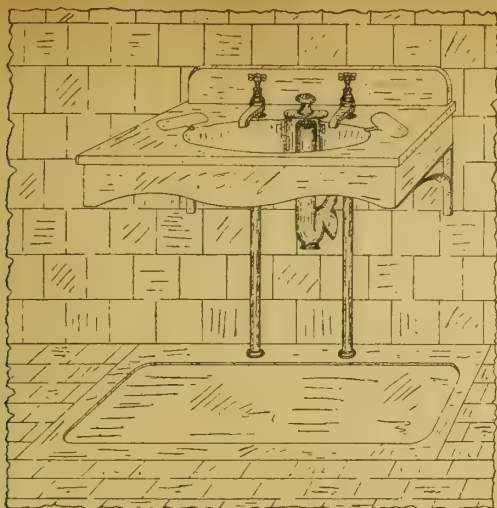


FIG. 165.

with any or all of the following hot and cold water fittings according to individual requirements, viz:—

*Shower.*—A finely divided stream falling vertically from the top of the canopy.

*Descending Douche.*—A jet of water falling vertically from the top of the canopy.

*Spray.*—A finely divided stream issuing horizontally from the side of the canopy.

*Wave.*—A compact body of water issuing horizontally from a slit or opening at the back of the canopy.

*Sitz Spray.*—A finely divided stream rising vertically from the floor of the bath near the canopy end.

*Sitz Douche.*—A jet of water rising vertically from the floor of the bath near the canopy end.

*Plunge.*—Water flowing into the bath for the purpose of obtaining the ordinary reclining or immersion bathing.

The type of bath known as a "sitz-bath" is shown in Fig. 163. It is found to be of great service in the treatment of certain diseases of the spine, muscular contraction, &c., and is therefore more particularly adapted for hydropathic and medical establishments. These fitments are obtainable in enamelled cast iron, cast brass, tinned and enamelled copper, zinc, or glazed fireclay, and may be arranged with hot and cold sitz spray, sitz douche, back spray, and back wave. The patient sits upon a removable stool placed within the bath, as indicated by the dotted lines (see Fig. 163).

Various other descriptions of baths, such as needle, hot-air, vapour baths, &c., are also manufactured; but they will not be further considered

vertical waste, the upper end of which is carried above the eaves. Fig. 164 is a section through a lavatory basin situated on an upper floor, and

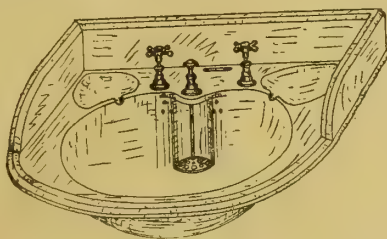


FIG. 166.

placed within a wooden inclosure. It is provided with an exposed standing waste in a small recess at the back of the basin, whilst the antisiphonage

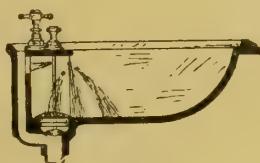


FIG. 167.

pipe from the crown of the trap is taken through the external wall and connected to the vertical waste. Where two or more lavatories discharge

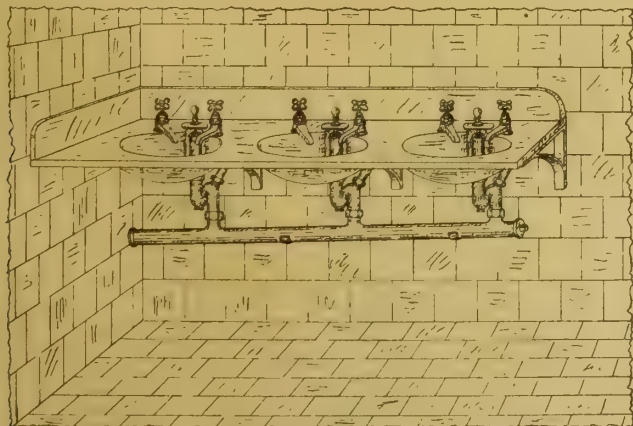


FIG. 168.

here, as they are only required under special circumstances.

Lavatory basins should be fixed under similar conditions to those already described for baths. The wastes from ground-floor lavatories are carried directly outside and arranged to discharge over or into a trapped gully. When fixed on an upper floor they are connected to an external

into the same vertical waste-pipe, the anti-siphonage pipe and its branches should be arranged as indicated in Fig. 159.

It is desirable to so arrange the lavatory that every part is as far as possible exposed to view, and the fitment is now frequently supported on iron, polished brass, or nickel-plated brackets, as seen in Fig. 165. The trap to the waste, together

with the hot- and cold-water supply-pipes, are also formed of similar materials, so that the general appearance of the different parts may correspond with each other. The floor under the lavatory is finished with a safe or tray for the

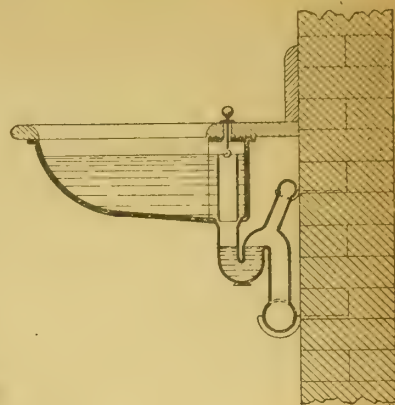


FIG. 169.

purpose of collecting any splashings or droppings of water.

Figs. 166 and 167 illustrate the well-known patent "Modern" lavatory. An open recess is formed at the back, with a projecting lip of porcelain at the top. The waste-valve is actuated by means of a nickel-plated pull-up rod working

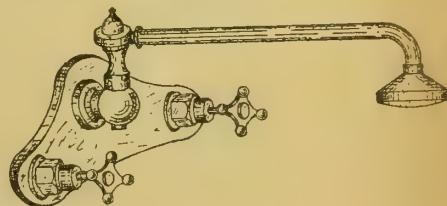


FIG. 170.

in the recess, as shown. The grating over the outlet is fitted with a bayonet fastening, so that on giving it a slight turn it may be removed for cleaning purposes. The water supply to the basin is so arranged that two small orifices discharge directly into the overflow at the back,

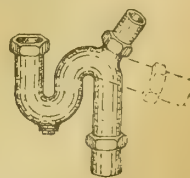


FIG. 171.

whilst similar jets impinge upon the grating, so that both are constantly cleansed. The remaining openings deliver the water into the basin in the ordinary manner.

Where a range of lavatory basins are required—as for hotels, clubs, railway stations, &c.—each fitment should be separately trapped before discharging into the main waste. Fig. 168 is a

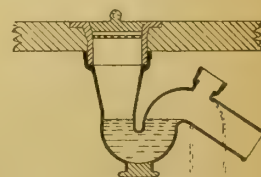


FIG. 172.

sketch showing a range of three lavatory basins supported on brackets. At the upper end of the main waste a brass screw-plug is fitted for inspection and cleansing purposes. The trap at the outlet of each basin is provided with a branch siphonage pipe connected to the main anti-siphonage pipe which is then carried through the wall and connected to the external vertical waste



pipe in the usual manner. Fig. 169 is a section through one of the basins showing the general arrangement of the waste and anti-siphonage pipes.

Lavatory basins are frequently provided with additional fittings for shampooing purposes. Fig. 170 shows a simple form of hinged shampoo-bracket (which may be of polished brass, gun-metal, or nickel-plated), with finely perforated rose for shower, including hot and cold-water taps, and mixing-box complete. Similar brackets, giving both shower and douche at pleasure, may also be obtained.

The traps to baths and lavatory basins are usually constructed of lead, cast iron, polished brass, gunmetal, or nicked plated, according to the nature of the finishings required. Fig. 171 is an illustration of a polished brass trap fitted with cleaning-eye and union for vent or anti-siphonage-pipe. A cast-iron trap, with socket-branch for ventilating-pipe, and suitable for wash-up sinks, baths, &c., is seen in Fig. 172. It is provided with cone inlet, brass grating, and solid plug, together with screw cleaning-eye. The outlet may be of S or Q pattern, to suit local requirements.

## NEW STATION, CITY AND SOUTH LONDON RAILWAY, LOMBARD STREET.

[WITH ILLUSTRATIONS.]

THE underpinning of St. Mary Woolnoth Church, including the construction of this railway station immediately below the sacred edifice, is an engineering feat of very great interest and considerable skill, carried out in the heart of the City of London, in the midst of continued traffic without interfering with the business of the adjoining thoroughfares. The church is at the junction of Lombard-street and King William-street, and faces the open space in front of the Mansion House. The great change thus carried out has gone on unknown to the man in the street, who has had little knowledge of what has been effected under his feet. The following account has been sent us by the architect of the new buildings forming an approach to the underground station, Mr. Sidney R. J. Smith, and we are enabled to give a view of this part of the work and also the engineer's sectional drawing illustrating how the underpinning of the church has been managed. Sir Benjamin Baker, K.C.M.G., Mr. David Hay, and Mr. Basil Mott are the engineers, and Messrs. John Mowlem and Co. are the contractors. Mr. Sidney Smith's building is to be in Portland stone, with a granite base. The new screen wall is carried along to the front of the west wall of the church to hide the roof of the station. The wrought-iron gates and screen facing the entrance of the church are in character with it. The booking-halls and waiting-rooms are under the road and church, as seen by the accompanying plans and section. The radical change which has thus taken place in the construction of the old City church is rendered necessary by the extension of the City and South London Railway northwards. In 1893 the railway company obtained an Act of Parliament to construct an extension of their line which at the present time runs from the Monument to Stockwell. This extension was to carry them northwards to the "Angel" at Islington. The plan was to cross the river by another tunnel on the east side of London Bridge, to proceed up King William-street—always, of course, at a considerable depth beneath the surface, for this is a deep-tunnel railway—past the Bank of England, up Princes-street, then by way of Moorgate-street, Finsbury-pavement, and the City-road towards the north, terminating at a spot near the Agricultural Hall; although, doubtless, at a future time, powers would be sought to carry the line beneath the High-street, Islington, so as to bring it in touch with the North London Railway at Highbury Station. Stations were to be made at London Bridge, Moorgate-street, Old-street, the City-road, and the "Angel." The Lombard-street station is situated right under the church. The Act of 1893 gave the company power to acquire the Church of St. Mary Woolnoth, to pull it down, and construct the station upon the site. The works, however, were not commenced within the time allowed in the Bill, and an extension of time was sought for in the year 1896. Parliament then imposed the condition that the church was to be upheld, but gave the company the right of using the sub-soil and constructing their station underneath

the church. A section of the church, showing the girders for supporting the walls and the four groups of columns is given herewith; also a plan at the station floor level, and the bedplates and foundations for the stanchions supporting the main girders. The large shaft is 73ft. 6in. by 24ft., and in this will be placed electric lifts together capable of accommodating about 350 passengers. The two station tunnels under King William-street are 21ft. in diameter, and are lined with cast-iron rings. They are for the up and down lines and platforms, and are constructed about 100ft. below the street. These are shown. Both platforms are approached by stairs from the passages communicating with the bottom of the lifts shaft. The work of supporting the church has been accomplished without the slightest damage of any kind to the structure. In carrying out the work the four main girders, designed to support the four groups of columns which carry the roof, were fixed in position, and small needle girders were then threaded through the bases of the columns. On piercing the bases for this purpose, however, it was discovered that the heart of the work was not of solid stone as had been believed, but of a very inferior description of brickwork, with only a casing of stone from 6in. to 9in. thick. It was therefore found necessary to place a continuous sheeting of steel joisting under the whole area of the bases, to tie the loose mass of brickwork together and equally distribute the weight upon the needle girders. This proved to be a very tedious operation, as only a very small part of each base could be attacked at a time. The steel joisting underneath the bases is shown in the section. Having completed this part of the work, the south wall on the King William-street side was next undertaken. The wall was pierced at intervals of about 5ft., and strong needle girders were fixed through the wall, one end resting on the solid stone on the outside, and the other tied down to one of the main girders supporting the columns. Sufficient of the inside of the wall was then cut away to allow of the girder (which had been built before the needles were fixed) being slid into position, and to allow of a 14in. blue brick wall being built, carrying short lengths of bearing girders, which were wedged tight up to the needles. The object of this was to reduce the overhang of the needles, when the outer portion of the wall should be cut away, as no reliance could be placed upon the old work. After the inside girder had been fixed, steel wedges and packings were inserted between the top of the girder and the needles, the wedges being driven up tight to insure that the whole of the weight was being carried by the girder and the blue brick wall before referred to. As the girder was designed to permanently carry only half the wall, it was assisted by timber packings below. After the wall had been pinned up above the girder, and everything made solid by grouting, the work of fixing the outer girder was comparatively easy. The outer half of the wall below the needles was cut away, care being taken not to jar the structure any more than necessary; and the girder, which had meanwhile been built, was moved into position on its bearings. The whole of the weight—roughly about 350 tons—was then taken by the two girders, and as the timber packings under the inner girder were removed, the folding wedges below the needles were driven up to take up the deflection as the weight came on. When the wall under the girders was cut away, the blue brick wall was left in and supported on the lower flanges by cross joists at intervals; the spaces between the wall and the webs of girders being filled up solid with cement grout. For supporting the north wall on the Lombard-street side, the same method as that adopted for the south side was not possible, as in this case the work could not be taken in hand from the street. One main girder was, therefore, designed to carry the whole weight; but as it could not safely be placed far enough under the wall to be in a position to do this, suspended needles were attached to support the outer part of the wall, the tail ends being tied down to one of the girders for supporting the roof columns. In carrying out the work much the same means were adopted as on the south side. Needle girders were fixed just below the church floor level, under cover of which the wall was cut away to allow of the girder being fixed. After the wall had been securely pinned up above the girder, the suspended needles were put in, one at a time, and the intervening masonry held up by cross steel joists placed on top of needles. The deflection of the girders has in every case been

taken up by a system of folding steel wedges, which were driven up as the old foundations were cut away, and the superincumbent weight taken by the girders. Grouting under air pressure has been largely employed in the work, especially in filling up any interstices between the girders and the old masonry, and the success of the operation has been in a great measure due to this. The girders are supported on steelwork stanchions resting on large bedplates formed of steel joists and plates, placed on a bed of concrete of a minimum thickness of 3ft. All the girders, stanchions, and bedplates are filled in solid with breeze concrete and grout, and will, further, be cased in the same material outside to guard against any deterioration through neglect of painting in the years to come. The oblong shaft shown will be lined with cast-iron segments for a depth of 52ft. from the top; and the remaining 28ft., in which will be formed the entrances and exits to and from lifts, will be lined with brickwork. Cast-iron struts will be placed in the positions shown every 8ft. in depth. The church will be restored—with, of course, the exception of the crypt—as when possession was obtained of the building, and within the church it will, we are informed, be impossible to know that any alterations have been carried out below.

## A FLOOR FIRE TEST.

A VERY instructive floor test was lately made by the British Fire Prevention Committee, whose valuable researches in obtaining reliable data as to the resistance of various building materials and systems we have on previous occasions referred to. In this case the test was of a floor by the Expanded Metal Company, Ltd. The official report of the committee states that the object of the test was to record the "effect of a smouldering fire of 15 minutes' duration of a temperature not exceeding 600° Fahr., followed by a fierce fire of one hour gradually increasing to a temperature of 2,000°, followed suddenly by the application for three minutes of a stream of water, and the consequent rapid cooling." The floor was 10ft. square, and loaded with 140lb. per square foot, and the time allowed for the drying of the floor was three months. The report gives plans, and sections, and details of the floor, from which we find that three rolled steel joists, 6in. deep by 3in. wide (14lb. to the foot) were placed across the chamber north and south, resting on a 4½in. set-off. The two outer joists were placed 1in. from the east and west walls, and the distance between the three joists was 4ft. 9½in. centres. The centring of 1in. boarding was fixed, and on this the expanded metal was laid, 3in. mesh, ½in. by ½in. strand, overlapped 18in. at the centre; the concrete floor was of Portland cement, with 1 cubic yard of furnace ash or cinder to pass through a 1½in. ring. The ash was covered with four sacks of cement, and the mass turned over dry three times, one-fourth part of this concrete being mixed at a time. After being well mixed the concrete was laid on centring and spread over with care, and then trodden down. It was 3in. thick. Its upper surface was cemented. After the centring was taken down, about fourteen days after the concrete was laid, the expanded metal for the ceiling was put up, according to the system of the company, the bars being ½in. by ½in. thick, placed below the joists 12in. apart, supported by steel clips secured to bottom flanges. The metal lathing is the ½in. mesh of Siemens-Martin steel. The ceiling was then plastered with coarse stuff ½in. thick below the expanded metal, with 1 of lime to 2 of sand, with long, well-beaten hair, 1lb. to 3c.ft. of coarse stuff. Other details of the completion of the floor and roof, also the temperatures from the time of completion of structure, December 6, 1898, to February 14 of the present year are given. The log of the test is minutely detailed from the time the door was closed and sealed with fireclay till the shutting off the gas. Observations taken from four pyrometer points are given, and the results are recorded automatically per diagram. We have no space to give these several results, but the summary of effect as given is: "The plaster ceiling below the floor remained intact until the application of water. There was a slight deflection of floor and ceiling. The concrete of floor slightly and superficially cracked. The fire did not pass through the floor." These results show the fire-resisting character of the





CENOTAPH IN SIDMOUTH PARISH CHURCH.

HARRY HEMS AND SONS, Sculptors, Exeter.

Expanded Metal Company's floor, and prove that under these severe tests, and the application of water, the floor remained intact and impervious, only that portion of the ceiling gave way that was struck by the jets of water. We recommend all interested in floor construction and the resistance to fire offered by expanded metal imbedded in concrete to obtain the committee's report, from which we have derived the foregoing facts. The pamphlet is entitled "Fire Tests with Floors," edited by Mr. Edwin O. Sachs, the chairman of the committee, and is published by the British Fire Prevention Committee, whose offices are in Waterloo-place, Pall Mall. Well authenticated tests of this kind are much needed by the profession, and this committee are doing a serviceable work in publishing a series of useful reports on the subject of fire-resisting construction. Those who have introduced fire-resisting floors are justified in availing themselves of reliable records. Facts, not opinions, are asked for by the public and the professional man.

## CENOTAPH IN THE PARISH CHURCH, SIDMOUTH.

A RICHLY sculptured cenotaph of marble and alabaster has been erected in Sidmouth parish church to the memory of the late Mrs. Vallance, of Brighton. The figures of Faith, Hope, and Charity are carved in the round. Messrs. Harry Hems and Sons, of Exeter, have carried out the work.

## INCORPORATED INSTITUTE OF BRITISH DECORATORS.

THE recently incorporated Institute of British Decorators held their first annual general meeting at Painters' Hall, Little Trinity-lane, in the City of London, on Thursday, March 23rd. Members from all parts of Great Britain and Ireland attended this meeting, the primary object of which was to formally elect the General Council, in which is vested the management of the business and affairs of the institute.

Mr. J. D. Crace, of Wigmore-street, London, was duly elected President of the institute; Messrs. Thomas Bonnar of Edinburgh, George G. Laidler of Newcastle, Alexander G. White of Liverpool, J. C. M. Vaughan of Hereford, Robert J. Bennett of Glasgow, and Henry Gibson of Dublin were appointed Vice-Presidents of the Institute, and Messrs. William Allon of South Shields, William Brown of Dundee, Charles Carlton of Glasgow, James Clark of Edinburgh, M. Cowtan Cowtan of London, M. E. Dockrell of Dublin, Isaac H. Donaldson of London, David Laing of London, John McIntyre of Dublin, Thomas Preston of Burnley, John Ratcliffe of Bolton, John Scott of Glasgow, James Sibthorpe of Dublin, John Smith of Sheffield, William G. Sutherland of Manchester, John Taylor of Birmingham, and H. John Whyte of Aberdeen were appointed Members of the General Council.

Mr. I. Hunter Donaldson, the present Master of the Worshipful Company of Painter-Stainers, in whose hall in Little Trinity-lane the institute have their headquarters for the time being, at the opening of the proceedings addressed, in the name of the Painters Company, a few words of cordial and sincere welcome to the members of the institute, wishing them a full realisation of the hopes on which they had constituted the institute.

Mr. John Dibble Crace, the President, then addressed the meeting as to the progress made by the institute since the meeting of the provisional council in February last, and it was stated that 174 decorators had become members of the institute, and that in addition upwards of 60 applications for membership had been received by the secretary, and would be brought up for consideration and election at the meeting of the General Council, to be held at the close of the annual general meeting.

Several matters of interest were brought to the notice of the meeting by the President, including the question of the admission of women, if duly qualified, as members of the institute; and it was the general opinion of the meeting that, if qualified, they ought to be admitted.

A further question of subdividing the institute

into a larger number of districts than at present was also considered; but it was thought that further inquiry should be made, and reports were invited from the various local associations.

The President then invited the members present to express their views as to the expediency of compelling applicants for admission as members of the institute to submit to an examination before being admitted to membership; and pointed out that, in his opinion, to insist upon such a test would be to kill the institute at the very start, for it was obvious that men who had been in business for many years, and who were of established reputation, would not submit themselves to examination as a condition of admittance to an institute only in its infancy. The President further stated that all applications for admission to membership of the institute would have to come before the General Council for election, and every applicant would have to be nominated by two existing Fellows of the institute, and that every care would be taken, both by the General Council and by the Fellows nominating, that no unsuitable persons should be elected; and that—at any rate, for the present—this should afford the institute a sufficient protection against the admission of unsuitable members.

Several members present expressed themselves as of this view.

At a meeting of the General Council which was subsequently held, new members were elected to the number of 56, of whom 44 were elected as Fellows and 12 as Associates. Several of the leading decorators in London have applied for admission to the institute since the meeting was held.

## BOOKS RECEIVED.

*The London Water Supply*, by ARTHUR SHADWELL, M.A., M.B.Oxon., Member of the Royal College of Physicians. (London: Longmans, Green, and Co.)—The author of this book writes for the information of all customers of the Metropolitan water companies, especially for those who desire to be posted in the facts and details of the question as to whether it is desirable for the London County Council to acquire the property and control of these undertakings in the interests of the public. As our readers are aware, the question is now before a Royal Commission to obtain evidence to be able to report to Parliament, and Bills for the purchases of the companies are being prepared, and others are deposited by the companies themselves. Mr. Shadwell gives a full and comprehensive view of this important question; he traces the origin of the water companies; deals with the growth of the supply; compares London with other towns. The future supply, the East London supply, the question of public control are discussed. The author appears to favour the view of the inadvisability of purchase. He points out that the adoption of the Welsh scheme of supply has militated against the L.C.C.'s purchase settlement. The Council are committed to a gigantic scheme, which has, the author says, increased the distrust of a large section of the public. Again, authorities outside the County of London are ignored, and they are only permitted to make terms as they can afterwards. The author summarises the views of these outside authorities, the gist of them being that it is not desirable that the water companies' undertakings be purchased, many being content to remain as they are in the hands of the companies. Again he observes: By the County Council's ever-impending but never-realised purchase of the water supplies, and by their opposition to all new works by the companies, the public have suffered. Mr. Shadwell puts the question very clearly before his readers. He thinks the control of the Local Government Board might be extended in regard to the sources of supply and in respect of the treatment of water before delivery; the Government might intervene to protect surrounding country districts whose supply is threatened by London by the sinking of wells and exhausting the springs. The author suggests in short an amalgamation of the companies with Government control as meeting all the present difficulties. We advise all interested in this pressing public question to read Mr. Shadwell's book. The appendix contains facts, reports, and estimates of various schemes.—*The Cornish See and its Cathedral* (Truro: Heard and Son; and London: Hamilton, Adams, and Co.) is a second edition, revised and enlarged, of a paper-covered handbook to Truro Cathedral,



published by authority of the Dean and Chapter. It is illustrated by reproductions of some fifteen photographs, and contains well-written historical and architectural notes on the old church and new cathedral, the late Mr. Pearson's work being treated of appreciatively. The little handbook is disfigured, however, by a lack of expert revision of the proofs, especially in the matter of small letters for the names of the styles. Now that a tender has been definitely accepted for building the nave, the guide will attract attention, and ought to result in a liberal response to the appeal made on behalf of the building fund. As completed, Truro Cathedral will be, it seems, almost equal in size to Rochester, containing an area of 23,200sq.ft., against the 23,300sq.ft. of its ancient North Kent sister, and will be larger than Bristol, which, including G. E. Street's new nave, only covers an area of 22,556sq.ft.—

*Dilapidations: a Textbook for Architects and Surveyors.* By BANISTER FLETCHER, Professor of Architecture, &c., King's College, F.R.I.B.A., &c. Fifth edition revised and enlarged. (London: B. T. Batsford.)—This well-known treatise in tabular form has been carefully revised, and the author has added new cases and decisions. The legal part of the book has been carefully revised by the late Mr. Edward Uttermare Bullen. Other chapters relate to the Conveyancing and Law of Property Act, 1881, and Amendment Act, 1892; the rights and liabilities of lessors and landlords, of lessees, tenants at will, tenants in tail, yearly tenants, &c. The construction and meaning of covenants to repair in their various forms are very fully discussed in tabulated form—a chapter of the book that every lessee should study before taking a lease of a house. Thus it is not generally known by ordinary persons that a landlord is not liable to repair premises where there is no express agreement to that effect, whether they be let to a yearly tenant or on lease. Even where the premises are in a dangerous state, the lessor is not liable. Neither is the landlord liable to rebuild, even though he has insured premises and received the amount from insurance office. (See "*Leeds v. Chestham*," "*Boyne v. Walker*," &c.) The landlord is not bound to repair unless there is an express covenant to do so. We read also "A general covenant to repair is satisfied by the lessee keeping the premises in substantial repair." Table II. which deals with the rights and liabilities of lessees, concisely states all that the lessee is expected to do. He must pay the rent even if the premises are burnt down, unless there is an express covenant to the contrary. There is no implied covenant that if landlord omit to do the repairs according to covenant the lessee may do them and deduct the amount from the rent; the tenant is liable to rebuild the premises if blown down, and he must put them into repair where the lease of old premises contains covenant to keep in repair, and must leave them in repair at the end of term. Table XII. shows the rights and liabilities of yearly tenants. They are not liable for permissive waste, only for injury through voluntary negligence; they are not liable for dilapidations nor for accident or fire, and, as noticed by the author, the tenant is not generally liable in London to do any repairs. The dilapidations scheduled under the trades, the method of taking dilapidations, the interpretation of repairing covenants, duties of surveyors, powers of lessors, agricultural holdings, ecclesiastical dilapidations, a variety of other information, forms of notice of repair, schedules, and a very full list of cases cited, make this volume indispensable to the lessee, student and surveyor.—

*A Manual of Practical Instruction in the Art of Brass Repoussé for Amateurs*, by GAWTHORP, art-metal worker to H.R.H. The Prince of Wales, second edition, revised (London: B. T. Batsford), is a useful shilling manual for students and amateurs in this interesting art. Repoussé work has lately become a favourite occupation among artistically disposed people of all ranks, to judge by amateur art exhibitions. T.R.H. the Princess of Wales and Princess Louise of Lorne are themselves amateurs, and the author acknowledges his gratitude for their encouragement and patronage. The manual is well illustrated with examples, and treats the subject in a practical manner, describing the tools, the selection of suitable metal, appliances, how to commence the various stages of outlining, grounding, raising, finishing, &c. Anyone following the directions given ought to be able to produce designs in copper, brass, or any suitable metal. The author has a thoroughly artistic perception of the art he illustrates.

## OBITUARY.

MR. EDMOND EGAN, A.R.I.B.A., died at his residence, Holmdale, Loughton. Essex, on Easter Sunday, aged 59 years. Mr. Egan had been an Associate of the Royal Institute of British Architects since 1880.

MR. ROBERT BAILLIE, the sole surviving partner of the firm of Westwood, Baillie, and Co., shipbuilders and engineers, of London Yard, Isle of Dogs, died at the residence of his son, Kent House, Lordship Park, N., on Saturday. He was born near Edinburgh in 1818, was apprenticed to a firm at Grove House, Edinburgh, and was employed on building the first steam cars made to run on the roads according to the late John Scott Russell's patent. He came to London in 1837, and ten years later he and his late partner, Mr. Joseph Westwood, became sub-contractors under the late Charles John Mare for the Britannia Tubular Bridge, North Wales, and on their return to London became Mr. Mare's works managers. In 1856 Mr. Baillie, with the late Mr. Joseph Westwood and Mr. James Campbell, commenced the business at London Yard, and many celebrated bridges were constructed by the firm, notably the Sukkar Bridge for India—which, previous to the completion of the Forth Bridge, was the largest cantilever bridge in the world—the Attock and Chenab Bridges, and hundreds of thousands of tons of bridge work for India, the Cape, and South America. The firm also built her Majesty's ships *Resistance*, *Valiant*, and other well-known vessels. Mr. Baillie married, in 1839, Emma, the daughter of the late Mr. Jonathan Bickford, of Milbrook, Cornwall, who survives him. Mr. Baillie, whose death occurred within five months of his diamond wedding, was a member of the Institution of Civil Engineers, the Institution of Mechanical Engineers and Society of Engineers, and an Associate of the Institution of Naval Architects.

## CHIPS.

A new club is being erected at Bolsover, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

At the vestry meeting for Wrexham parish, held on Monday, it was reported that a legacy of £500 had been left for the restoration of the windows of the noble parish church, conditionally upon another £500 being raised for the purpose within two years. It was stated that the tower and nave roof were in a bad condition, and that a thorough restoration would cost at least £10,000. It was unanimously resolved that the vicar and churchwardens be instructed to obtain a report from Messrs. Middleton and Prothero, or some other eminent architects, as to the work necessary to be done to thoroughly restore the fabric of the church and tower, and an estimate of the approximate cost.

Mr. W. N. Preece, C.B., late chief engineer to the Post-Office, was on Saturday officially appointed consulting engineer to the Department. This is a new office, which has been specially created in order to retain the benefit of Mr. Preece's experience in the arrangements required for carrying out the installation of the telephone system undertaken by the Government.

Sir Robert Reid, Q.C., M.P., turned on the water for the new clear-water tank at the Dumfries and Maxwellton Waterworks at Lochfoot on Monday. The tank has been formed at a cost of between £3,000 and £4,000, and has a capacity of 250,000 gallons, its average depth being 12ft. The tank is lined with white enamelled bricks. It is surmounted by a superstructure of freestone, the interior being lined with red bricks, and a tiled footway running round the edge of the tank.

Two oil paintings have just been hung on the walls of the reception-room at the Foreign Office. They are full-length portraits of William IV. and Queen Adelaide in their full State robes, and were unearthed some time ago in an old curiosity shop in London by the Hon. Reginald Brett, the secretary to H.M. Office of Works, by whom they were purchased for the nation. They have been restored, and in their present position are a welcome addition to the interesting furnishings at the Home Office.

The Calverley Hotel at Tunbridge Wells was reopened for Easter after enlargement, refurnishing, internal decoration, and the provision of electric lighting. Mr. Jarvis, of that town, was the contractor for structural works, and Messrs. Haward for the electric lighting.

At St. Lawrence's Church, York, on Easter Sunday morning, the vicar dedicated two windows, completing a series on the south side. These lights complete a series of English northern saints, and give representations of St. Cuthbert, St. Hilda, St. Oswald, and St. Wilfrid.

## Building Intelligence.

ALLOA.—The Earl of Mar and Kellie formally opened on Good Friday the accident ward which has been gifted to the town of Alloa. The building has been erected from plans by Mr. R. A. Bryden, architect, Glasgow. The main building consists of a central administrative block and two wings—one containing wards for males and the other for females. Each of the wings contains one ward for six beds, one ward for three beds, and two private wards for one bed each. To the rear of the main building is the probationary ward, as also the washing-house, laundry, and drying-room.

BIRKENHEAD.—It is intended to proceed at once with the extension wing of the Borough Hospital, which was subscribed for in commemoration of the Diamond Jubilee of the Queen in 1897. The designs of the new building have been prepared by Mr. E. Kirby, of Liverpool, and the contract has been given to Mr. Richard Allen, of Birkenhead.

EDGBASTON.—A new high altar was unveiled at the Oratory Church, Edgbaston, on Wednesday. It has been erected from designs given by Mr. Dunstan J. Powell, son of the late John Hardman Powell, who has also gratuitously superintended its erection. The style chosen is the Italian Renaissance, according with the architecture of the church, and the materials employed are alabaster, coloured marbles, mosaic, and gilt metal. The whole piece of work is 16ft. long and 10ft. high, and has been carried out by Mr. R. G. Lomas, of Derby, and the total cost is about £700.

PORTSMOUTH.—Preliminary operations in connection with the erection of naval barracks have been commenced this week. Anglesea Barracks have been acquired by the Admiralty from the War Department, and the main building—an extensive range, with clock-tower in the centre—will be utilised for the accommodation of seamen, the plans which have been prepared providing for extensive alterations and improvements. The officers' quarters and other buildings, including a long row of houses on contiguous land, formerly occupied by warders of the convict prison (which was closed some time ago, and absorbed for dockyard purposes), are to be pulled down. The contractor, Mr. H. Lovatt, of Wolverhampton, has undertaken to complete the barracks in about four years, at a cost of £400,000.

MONTROSE.—On Saturday afternoon the dedication of a reredos, erected in memory of the late Rev. John Woodward, LL.D., for thirty-two years Rector of St. Mary's Scottish Episcopal Church, was performed in that edifice by the Dean of Brechin. Dr. Woodward was an acknowledged authority on archaeology, and on historical and heraldic subjects. The reredos extends the full width of the triple lancet windows in the east gable, and is 15ft. wide by 12ft. high. The base to the height of the super-altar is built in courses of Caen stone enriched with carved paterae and floral ornaments. The super-altar is of Victoria red marble, and over it rises the central compartment of the reredos (the width of the altar), and divided into three carved and deeply-recessed pointed arches, supported by marble columns of green marble, with carved capitals over. The arches are deeply moulded and carved, and with crocketed gables over, the central one rising highest, and finished with a decorated cross. These three panels are divided and flanked by buttresses running up between the gables and surmounted by figures of angels. In front of the central panel and on the super-altar is placed the tabernacle, finished with crocketed gable and cross, and an oak door with brass mountings. On either side of the reredos the flanking spaces recede, and are treated in a less ornamental manner than the centre—the panels being arched, resting on carved capitals and columns, and finished with straight carved cornice over. The three central arches referred to are filled in with gold mosaics and opus sectile work, the subjects representing in the centre the Virgin and Child, surrounded by adoring angels, with the Shepherds and Magi in the side panels. The four side arches are fitted in with figures of the Four Evangelists standing out in relief on carved brackets. The material throughout is Caen stone, with marble shafts and mosaics referred to.



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## Our Illustrations.

ROYAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.

These drawings, at present on view at the House of Commons, have an additional interest just now on account of Mr. Aston Webb's election the other day as an Associate of the Royal Academy, these drawings being the first published in illustration of any of his designs since this well-merited circumstance, to which we last week drew attention, was recorded. The block of buildings represented by the accompanying plan and sketch view, will occupy a long site extending the entire length of the Imperial Institute, which building it is to directly face, in front of the existing museum galleries. At the ends of Exhibition-road it is intended to erect archway screens, as shown, while in the midst of a central circus to be formed in this thoroughfare, between the main entrances of the new Royal College of Art and the Imperial Institute, a handsomely-treated tower-like structure, enriched with statuary, is to form a central feature. The general arrangement of the new College is indicated quite clearly by the ground plan printed on our double-page plate. The lecture theatres are located to the right and left of the entrance hall, and measure 60ft. by 50ft. each. The chemical laboratory is much larger, and rises, like the others, from a lower level than the ground floor. It is to be 38ft. by 84ft., being divided by a central range of piers. In a corresponding position on the plan the senior physics laboratory, L-shaped in form, will extend 60ft. both ways. These buildings are isolated from the main block, forming the façade of the college.

NEW GOVERNMENT OFFICES, WESTMINSTER.

The accompanying elevation shows the vast improvement which will be realised in Parliament-street when the new Government buildings are built and connected (as we have previously described) with the Home Office by an archway arcade at the end of Charles-street. Spanning Downing-street another like archway will connect the Home Office with the Treasury buildings, as drawn on our plate, which consequently shows the whole scheme from Parliament-square up to the end of the Government buildings, a length of about 1,060ft. The Treasury, as here drawn, has the proposed central elevation added to increase the height and bring the façade more in unison with those of the other two blocks. It is doubtful, however, whether the stability of the fabric, owing to the many alterations which have already been done to the internal arrangements of this building, will allow of so much super-

structure being added. We agree that it would be wiser not to leave the intermediate part of the elevation as it is and lift up the end pavilions of the Treasury front, seeing that already it is intended to have towers added, by Mr. J. O. Scott, to the Home Office, while Mr. Brydon's block, as shown further down Parliament-street, is to be terminated in a similar fashion. This elevational drawing, embracing the whole of these buildings, illustrates at a glance their relative proportions in a very complete manner, and cannot fail to interest our readers. The plan and perspective view of the proposed new offices, of which Mr. J. M. Brydon is the architect, were published in the BUILDING NEWS last week.

## THE NEW WAR OFFICE.

We give a general elevation of the Whitehall front of Mr. William Young's design for the new War Office, with the Banqueting Hall shown to scale, and the proposed Parliamentary library drawn as an exact replica of Inigo Jones's masterpiece on the north side of Whitehall-place. If built, as here suggested by Mr. Young, the new library would occupy the site of the present office of the Woods and Forests department. This scheme has a grandeur of idea, no doubt, and a repeat of the Banqueting Hall would, to a large extent, serve to redeem the irregularity peculiar to the War Office site as now determined upon. Mr. Young has spared no endeavour to master the difficulties presented by so awkward a site, and it must be also admitted that he has kept the proportions of his façade well in harmony with the handsome scale of Inigo Jones's façade. We have already in our leading article the week before last directed attention to the obviously different conditions as to the floor levels which govern the designing of the new offices and those with which the Court architect had to deal when he planned the state dining-hall of the new palace for King Charles. The plan of the new War Office and view now at the House of Commons were given in our pages last week.

NEW STATION, CITY AND SOUTH LONDON RAILWAY, LOMBARD STREET, E.C.

(See article on page 470.)

“BUILDING NEWS” DESIGNING CLUB: A VILLAGE SCHOOL OF ART.

(For description and awards, see page 466.)

## WEEKLEY HOSPITAL.

WEEKLEY Hospital is situated about two miles from Kettering. It was founded by Sir Edward Montagu in 1614, and is now used as an almshouse for men, 65 years being the qualifying age for admission. The illustration shows the centre gable. The panelled ornament round the sundial seems to have been added at a later date. The church of Weekley, which is interesting, contains a very fine example of a colour-decorated Elizabethan monument to the same family.

## HECKINGTON CHURCH, LINCOLNSHIRE.

This sketch shows the spire only, which is one of the finest in England, both in proportion and detail. The masonry of the tower is extremely good, the joints being very close. One is surprised, on examining the upper part of the spire with a field-glass, to find it just as well finished as on ground level. There is an Easter sepulchre in the church very similar in design to the famous one at Hawton, Newark, but very much inferior in workmanship.

## KETTERING CHURCH.

The spire of this church is the only part which is of any interest. It is one of the best of its kind, and a great many churches with spires of similar design are to be found in the surrounding districts. The town itself contains little else of architectural interest.—HERVEY RUTHERFORD.

Mr. W. A. Ducat held a Local Government Board inquiry at Scarborough on Wednesday on the application of the town council to borrow £6,698 for street improvements and footpaths, £3,245 for fire brigade purposes, £1,297 for works of sewage and storm-water drainage, and £920 for the purchase of land for public walks and pleasure grounds.

On Saturday afternoon the foundation-stone of a cottage hospital for the borough of Colne was laid by Mr. W. P. Hartley, of Aintree. Last year it was decided to build a cottage hospital in celebration of the Jubilee, and Mr. Hartley offered to erect a hospital which, with the site and furnishing, would cost £4,000, on condition that £4,000 more was subscribed by the public to form an endowment fund. This condition has been met.

## COMPETITIONS.

ARTISTIC POSTERS FOR SCARBOROUGH.—With the view of securing a suitable design for a poster to advertise the attractions of Scarborough as a watering-place and health resort, the advertising committee offered £60, divided into three prizes, and 91 poster designs were forwarded from various parts of the country, and will be exhibited at St. Nicholas House, until to-morrow night. The committee, who were assisted in the work of awarding the prizes by Mr. Aubyn Trevor Battye, editor of the *Artist*, has awarded the first prize of £30 to Mr. Alexander H. Webster, 134, St. Vincent-street, Glasgow, for a design which shows a view of the Spa and the North Bay treated in an extreme manner, and which was the nearest approach to a picturesque poster of any sent in, containing as it does a view of the Spa, Promenade, and a part of the Castle, a view of the North Pier, and small views of the Grand Hotel and the valley. The second prize of £20 has been awarded to Mr. H. Wanless, of Scarborough, for a picture representing a young lady in white, with red parasol, and a view of the Spa, Castle, and harbour; and the third prize of £10 goes to one whose *nom de plume* is “Laleham,” but who has omitted to send his name, it representing three children sitting on upright beams of timber, holding balloons in their hands, on which there is printed the word “Scarbro,” with a view of “Old Scarborough” in the distance. Seven other exhibits were highly commended.

## PROFESSIONAL AND TRADE SOCIETIES.

PEOPLE'S PALACE ARCHITECTURAL SOCIETY.—A society under this name has been formed in connection with the Building Construction and Building Trade Classes at the East London Technical College, People's Palace, E. The membership is open to present and past students. The society aims at promoting social intercourse between students of the Building Classes, and at mutual advancement by the reading and discussion of papers and visits to buildings and places of interest. The preliminary meeting was held on Feb. 25, and the following officers and committee were elected:—Vice-presidents, Mr. J. L. S. Hatton, M.A., Mr. D. A. Low, Mr. Francis R. Taylor, and Mr. Albert Grenville; committee, Messrs. Barclay, Beckett, Dann, High, Loates, Posenheim, Sumpter, and Worrow; hon. treasurer, Mr. F. Harper; hon. secretaries, Messrs. F. Ferry and C. Weaver. The first ordinary meeting was held on Saturday, March 25, at 7.30 p.m., Mr. Francis R. Taylor in the chair. A short paper was read by Mr. Watson on “Bricks.” The author, in a well-written paper, dealt with the manufacture and properties of bricks in a very interesting way. Mr. T. E. J. Kinch gave a short paper on “The Decay of Timber,” and this contained some very useful notes on the subject. The meeting expressed thanks to both the authors of the papers, and then adjourned. The first visit will take place to Messrs. Gibbs' Cement Works, at Grays, to-morrow (Saturday).

## CHIPS.

The 21st annual dinner of the Builders' Clerks' Benevolent Institution will be held at the King's Hall, Holborn Restaurant, on Tuesday next, Mr. Alfred Randall, the president, in the chair.

Mr. Martin Beatty, the principal surveyor to the Board of Agriculture, died on the 29th inst. from acute bronchitis, in his 66th year.

Sir William Henderon, Aberdeen, laid the foundation-stone of the new Free Church at Roches on Monday. The new church is being built from plans by Mr. Sutherland, Elgin. It is estimated to cost £2,200.

At the Dean of Guild Court held at Leith on Monday, the trustees of Newhaven Parish Church were granted warrant on amended plans to build an extension to the church which will provide for 220 additional seats, and to erect a session-house and vestry. The cost of the extension will be about £1,300.

The dedication of a new reredos and two stained-glass windows took place at Wollstanton parish church on Saturday. The reredos consists of three vitreous fresco panels, representing the Nativity on the left, the Crucifixion in the centre, and the Resurrection on the right, which have been painted and worked at Sir Henry Doulton's pottery, Lambeth. These panels are incased in a carved oak framework.



THE UNDERPINNING OF THE

ENGINEERS.

SIR BENJAMIN BAKER KCMG.

MR DAVID HAY AND

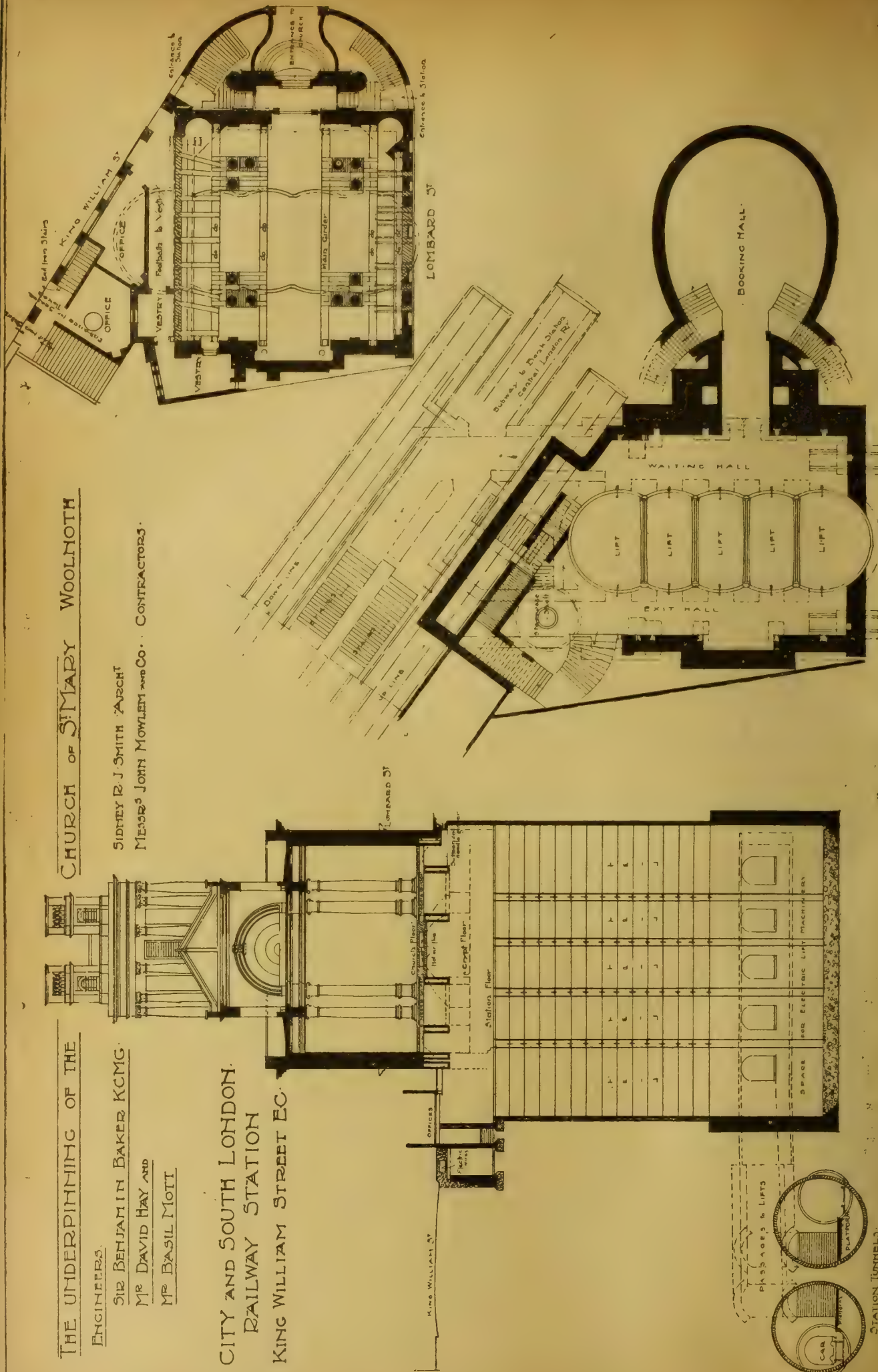
MR BASIL MOTT

CITY AND SOUTH LONDON  
RAILWAY STATION  
KING WILLIAM STREET EC.

CHURCH OF ST MARY WOOLNOTH

SIDNEY R. J. SMITH ARCHT

MESSRS JOHN MOWLEM AND CO. CONTRACTORS.









THE NEW WAR OFFICE, WHITEHALL



Supports Parliamentary Library.

Whitehall place

89-10



Local Government Board

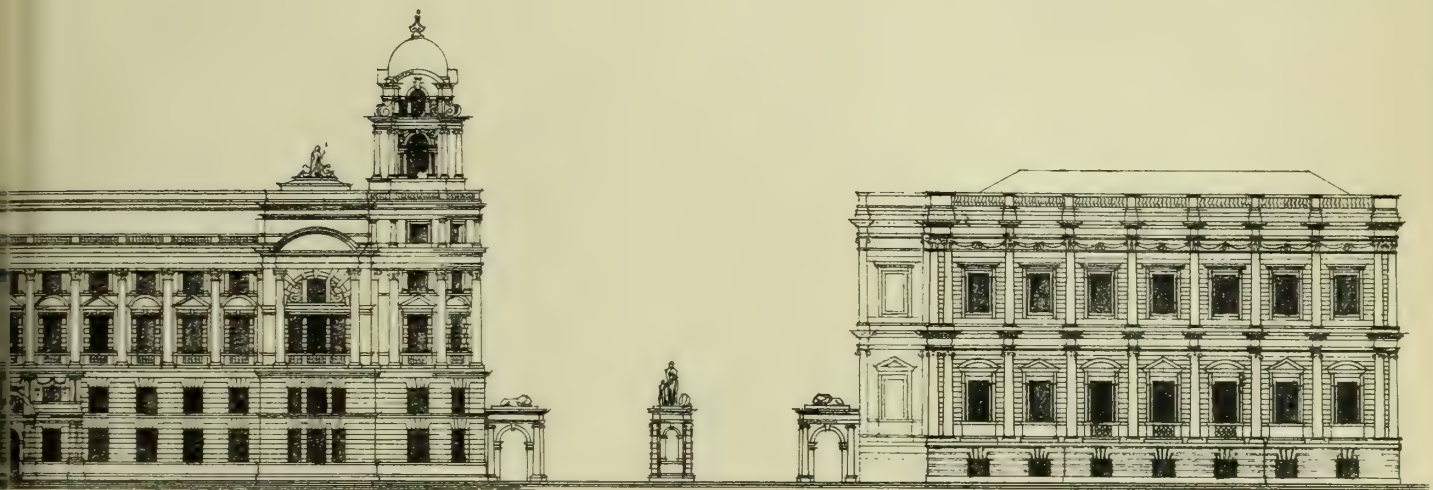
Charles Street

Elevation of

10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40



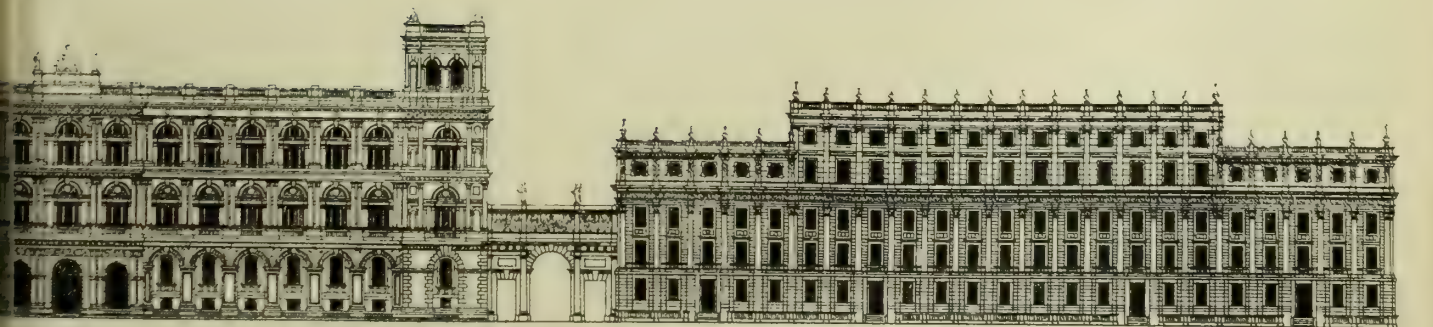
ALL. WM YOUNG, F.R.I.B.A., ARCHITECT.



Office.

House of Commons

House of Lords



House of Commons

Elizabeth Tower

House of Lords

House of Commons      House of Lords      Elizabeth Tower

See

See

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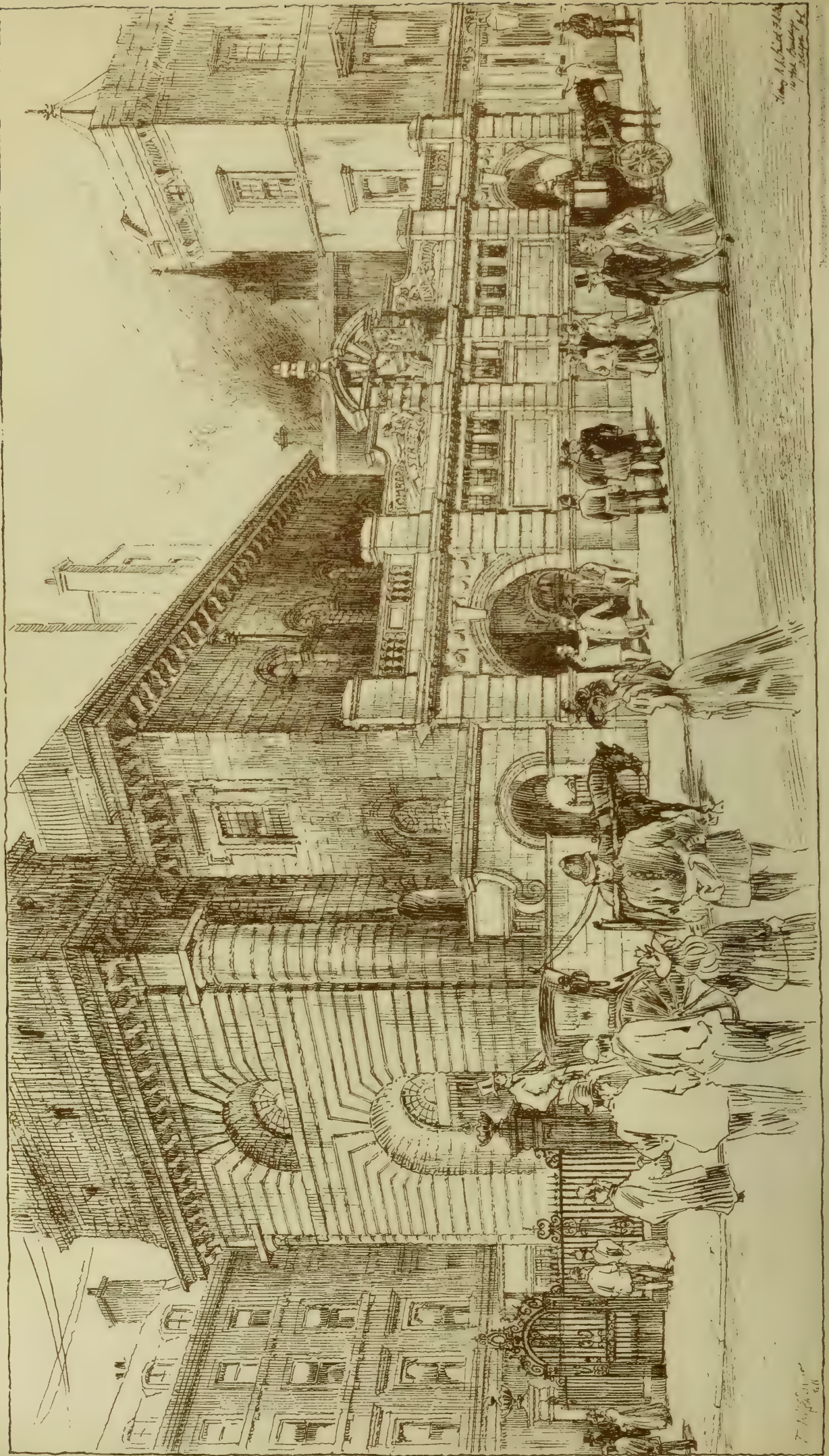








THE BUILDING NEWS, APRIL 7, 1899.



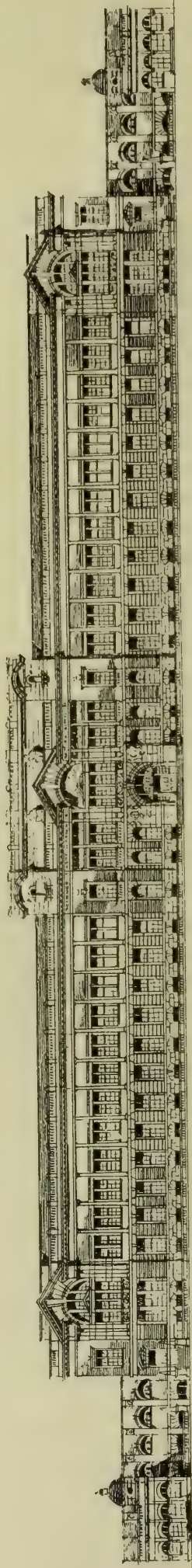
NEW STATION, CITY & SOUTH LONDON RAILWAY, LOMBARD STREET.

SIDNEY R. J. SMITH, ARCHTCT.



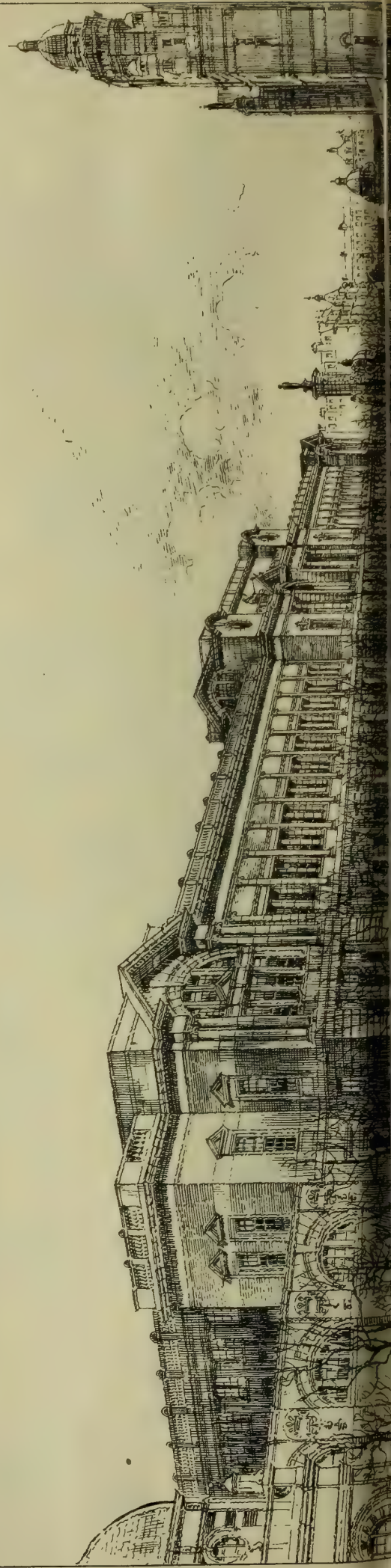






ROYAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.

FIRST SKETCHES FOR PROPOSED:  
ROYAL COLLEGE OF SCIENCE, SOUTH KENSINGTON:  
VIEW FROM IMPERIAL INSTITUTE ROAD:  
ASTON WEBB, ARCHITECT.





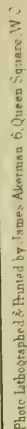


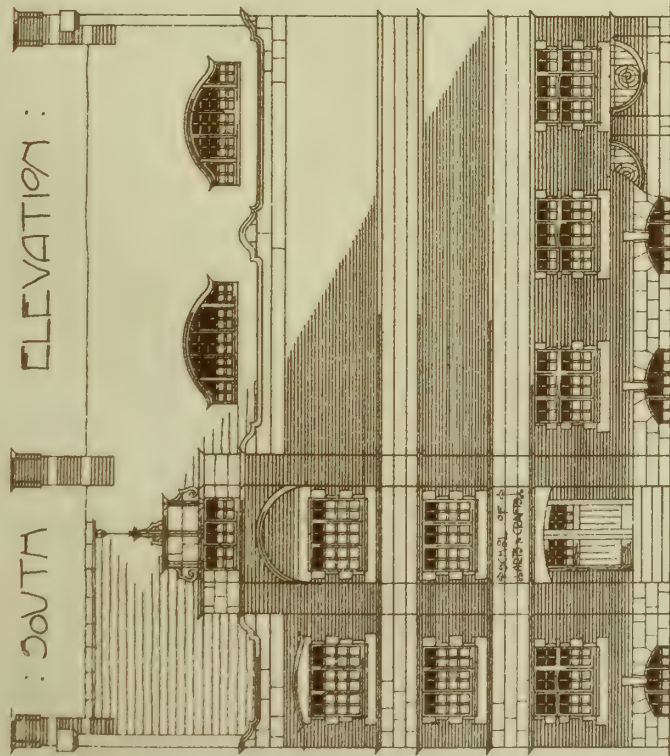
Photo Lithographed & Printed by James Akerman 6, Queen Square, W.







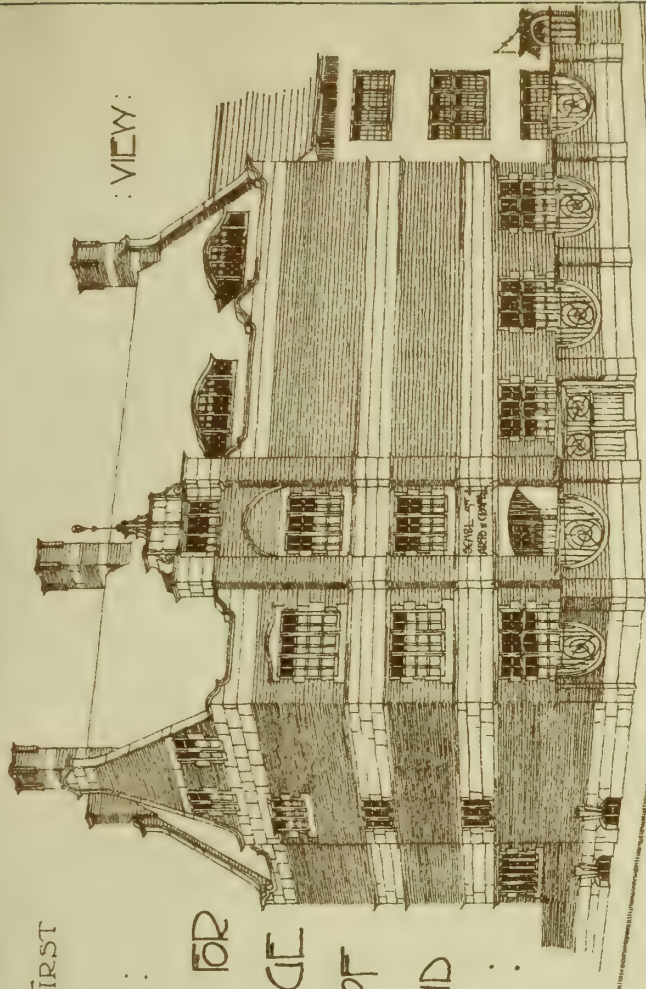
SOUTH ELEVATION:



PLACED FIRST

B:N:D:C:  
DESIGN FOR  
A VILLAGE  
SCHOOL OF  
ARTS AND  
CRAFTS:  
BY  
"SWAN"

VIEW:



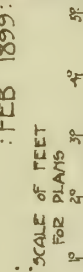
GROUND PLAN:



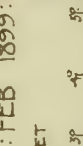
FIRST FLOOR PLAN:



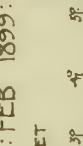
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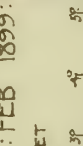
SCALE OF FEET FOR PLANS:



BED ROOM PLAN:



BLOCK PLAN:



SECTION THRO STUDIO:













Heckington Church

PUGIN STUDENTSHIP F  
DRAWN BY HERVEY



Front Elevation



E DRAWINGS.  
HERFORD

KLEY-HOSPITAL  
-KETTERING-



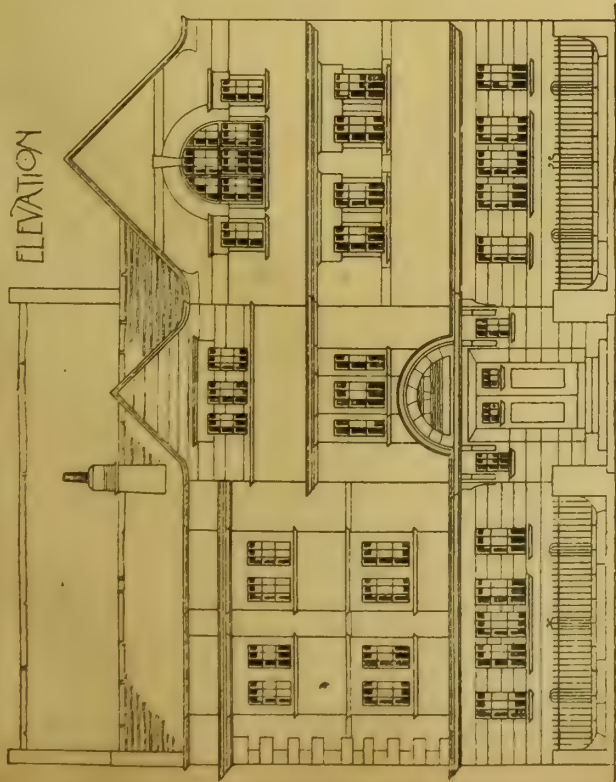
Kettering Church, Northants.





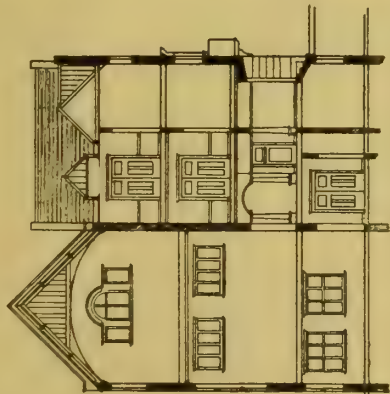


ELEVATION



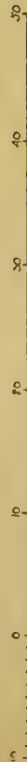
BUILDING NEWS DESIGN CLUB  
A SCHOOL OF ARTS  
AND CRAFTS

BY MCGILGIAN

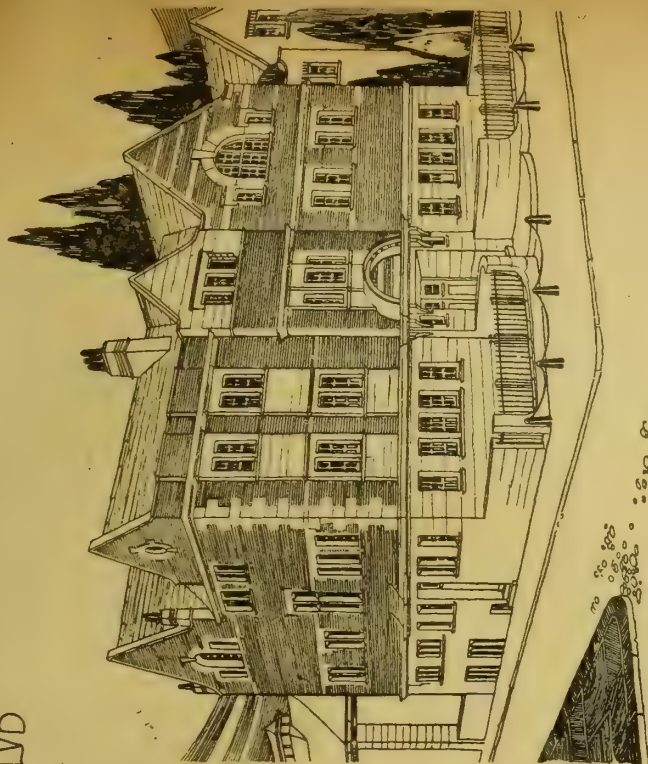


SCALE FOR  
ELEVATION

SECTION ON LINE A-A.



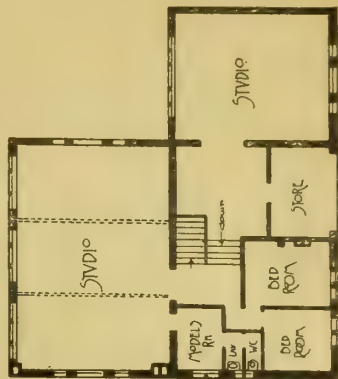
SKETCH



BLOCK PLAN

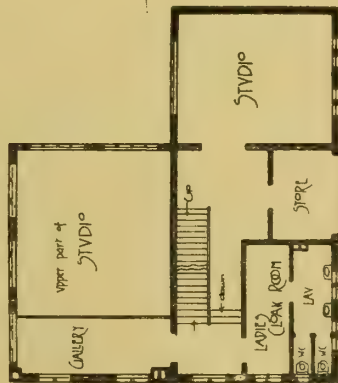
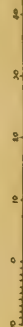


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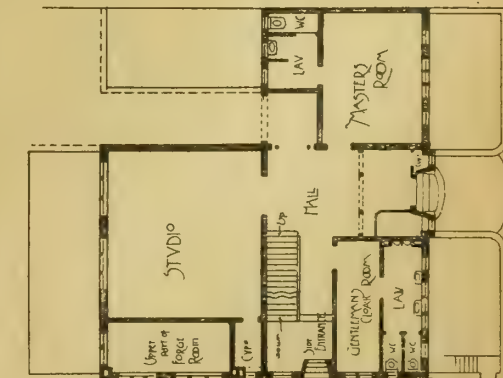


SECOND FLOOR PLAN

SCALE FOR PLANS AND SECTION



FIRST FLOOR PLAN



GROUND FLOOR PLAN



BASMENT PLAN



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

J. S. H. (The series of articles entitled "Notes on Building Prices," by Mr. John Leaning, appeared in the issues of the BUILDING NEWS for May 30, June 13, July 11 and 25, August 8, 22, and 29, September 5, 19, and 26, October 10 and November 14 and 28, 1890; January 16 and 23, February 6 and 27, April 10 and 24, 1891; January 22 and Feb. 12, 1892; January 27, Feb. 3, 10, and 24, March 3, June 9 and 30, and October 27, 1893; November 30, Dec. 7 and 21, 1894; and January 4, February 8, April 12 and 26, 1895; extending with rather long intervals over Volumes LVIII., LIX., LX., LXII., LXIV., LXV., LXVII., and LXVIII. The series has not been republished.)

RECEIVED.—B. G. S.—W. H.—M. B. (Belfast).—F. J.—C. K. C. and Co.—L. S. R.—D. L. O. Co.

## "BUILDING NEWS" DESIGNING CLUB.

## SEVENTH LIST OF SUBJECTS.

G.—A Small School for a country parish, situate on a hill-side, and having a frontage towards the main road, which is level. The ground falls some 10ft. southwards from the frontage line, so that a covered playground is to be contrived under the main buildings, the ground-floor level of which is to be 1ft. above the footway. The building-line is to be fair with the frontage. The accommodation to provide a central hall 46ft. by 25ft., with four classrooms opening out of it, and adapted to be thrown into the hall on the occasion of general assembly and for public meetings. Cloak-rooms and conveniences for both sexes, and distinct entrances to be provided, also a bell-turret. Economy of contrivance and proper arrangement of classroom seating to receive careful attention, and be shown on the plan. The treatment of the building externally to be simple and picturesque, adapted for stone, with slab slates for the roof. Sufficient representations of the design to be furnished to illustrate the scheme properly, and a view sketch from the roadside to be given. Scale, 8ft. to the inch for elevations and section. Plans may be to the scale of 16ft. to the inch.

DRAWINGS RECEIVED.—"Honeysuckle," "Shamrock," "Grip," "Clovelly," "Deschade," "McGilligan," "Arno," "Butts," "Rikki," "Vignonia," "Pop," "Marcus," "B. Gyn. R.," "Bits," "Vulcan," "Koh-in-noor," "Thistle."

## Correspondence.

## THE NEXT PRESIDENT OF THE INSTITUTE.

To the Editor of the BUILDING NEWS.

SIR,—There is a rumour afloat that the Council of the R.I.B.A. have nominated Mr. William Emerson, the present honorary secretary, for election as President for the ensuing year.

I venture to think that this nomination will be received with complete astonishment by the great body of members of the Institute, not because Mr. Emerson is not well able to occupy the Presidential chair, but because it is not yet his turn to do so.

I am quite aware that there is no obligation, so far as the written rules and regulations of the

Institute go, to elect as President one who has filled the office of Vice-President, and there may be instances quoted as precedents upon this particular point, but it is none the less certain that the expectations of the members are that, given a qualified and willing-to-serve Vice-President, he is the man who should pass on to the proud position of President as a matter of justice and of right—far stronger credentials than printed rules and regulations.

It is, I think, a fact open to little question, that of the four gentlemen who are now Vice-Presidents there is one who, from the work in the chair which he performed during the reign of the present President, from the fair and able manner in which he has ruled the debates under his chairmanship, from the position he holds as an architect in extensive practice, with all the knowledge and value to the Institute which such position entails, and from his consistent courtesy to all brought into contact with him, is fairly and fully entitled, and is unquestionably expected to fill, the Presidential chair for the ensuing year, and that gentleman, I need hardly add, is Mr. Henry L. Florence.

It has been said by some to whom I have spoken upon this subject, that it would be unfortunate if a contest were invoked on this election; but of the result of that contest, if it comes about, there cannot be a shadow of a doubt. Every member of the Institute is of one voice, and that voice is that the next president of the Institute should be Mr. Henry L. Florence.

I have not communicated in any way with Mr. Florence upon this subject, and I am, therefore, not aware whether or not he would submit himself for election if a substantial body of his professional brethren requested him to do so; but there is another course open, and one which I sincerely trust will be adopted by Mr. Emerson, and that is, that he should withdraw this year from the nomination as President, submit to be nominated as Vice-President, and come on in his due turn to fill the Presidential chair, which he would then do with the acclamation of the general body of the Institute, and succeed to an honour which, unless it is accompanied by the good wishes of his professional brethren as a body, becomes a mere empty bauble.

I should be glad to hear that Mr. Emerson will adopt the suggestion I have made—it will do credit to his sense of fairness; it may save a contested election, and it will enable the right man to take the right place at the right moment. In the mean time the views of the members of the R.I.B.A., either communicated to me direct or through the columns of this Journal, would be very useful as a guide to future action in the matter.—I am, &c., WM. WOODWARD.

13, Southampton-street, Strand, April 5.

## SECRET COMMISSIONS.

SIR,—A communication appeared in your issue of the 18th ult. on the above subject over the signature of "An Architect." Surely this heading is a misnomer, and instead of calling them "secret commissions," your correspondent should have headed his letter with "Trade Discounts," a title which places the matter in quite another category. It may be conceded at once that there is a need in some classes of products for a revision of the discounts. This is obviously the case where the discounts range from 40 to 60 per cent., as in some of the hardwood trades; but, allowing for this, your correspondent makes a great mistake when he thinks the discount upon goods is all profit. For instance, take paper-hangings and decorative materials. Most contractors in estimating for these take into consideration the discounts, about which there is nothing "secret," as an element in their profits, and it modifies their estimate for labour considerably; but does "Architect" think that if he were to eliminate this definite sum, that the work could be done for the same amount, minus the sum deducted as discount? If he does, he has little knowledge of human nature, and less of the modern conditions of the labour market.

Most contractors, however experienced, find that calculations as to the cost of labour on any given job have a knack of falsifying themselves almost automatically, and if they had to quote for materials "net," they would be bound to put on the margin which now exists in the shape of "discounts," or, what is tantamount to the same thing, an increased margin for their labour. My own experience is that the majority of contractors would only be too pleased to work on a system of

day work at a reasonable but assured rate of profit, like "Architect" does, for instance; but if they stand to be shot at by the vagaries of the modern labour market, they are entitled to an assured and an ample margin on their materials; especially as all responsibility for damage done to the materials in fixing attaches to the contractor—a consideration of no little moment.

The practice adopted by some architects, of seeking to intercept the profits—the legitimate profits—of the contractor, whether for their own pocket (a not unknown thing) or for their clients, is equally reprehensible. If the architect or his client desire this, they should take the corresponding disadvantages and employ labour direct, and at their own risk. It appears to be very much in the nature of seeking to eat your cake and having it at the same time, a process admittedly difficult.

The duty of an architect is not exhausted by his client. He has a duty to the contractor—to the men who carry out his ideas and transmute them into things of beauty, and that architect gets the best value for his client out of his contractor who impartially and justly holds the balance between the two. There are architects whose names stink in the nostrils of all good contractors, and who constantly find it necessary to employ fresh men, because no good man will do a second job for them. They think that in tramping on and over-riding the rights of the contractor they are doing their clients service; but it is a left-handed kind of service after all, and is satisfactory to no one concerned.

"An Architect" might profitably turn his attention to the members of his own profession, some of whom have no hesitation in pocketing five and ten per cent from contractors in addition to their professional charges to their clients. If "Architect" thinks he is going to deprive his contractors of what is a legitimate trade profit and still get his work done at the same rate, he is labouring under a delusion, which he had better wake from as soon as possible.—I am, &c.,

CONTRACTOR.

## Intercommunication.

## QUESTIONS.

[12223].—Joists and Girders.—Will some reader of the BUILDING NEWS kindly give the best modern formula for calculating the breaking weight of steel joists and girders, and oblige?—G. F. LAKE.

## REPLIES.

[12216].—Thickness of Walls of Churches.—It would be best to write to the secretary of the Incorporated Church Building Society, 7, Dean's-yard, S.W., for a copy of their "Instructions to Architects." Their rules are many, and are stringently applied; and they have, besides, preferences, which it is well to know—for square chancel ends, for example.—G. A. T. M.

[12217].—Sashes and Frames.—Take the superficial dimensions out to out, allowing an inch in the height. This allowance is to cover meeting rails. The price you name is a fair one. From top of sill to soffit of arch it is usual to add 3in. for the height and 9in. to the width between the reveals.—G. H.

[12215].—Architect's Powers.—It must be a very loosely drawn contract not to give the architect the right to refuse inferior material, whether before or after insertion in the work, and he is undoubtedly the judge to be consulted as to quality. In any case he would be fully justified in withholding certificates until poor material were replaced by such as satisfied him.—G. A. T. MIDDLETON.

[12218].—Architect's Powers.—The architect has power to order removal of inferior bricks and timber under most contracts, and the contractor is liable. "Thomas" had better get an experienced surveyor or architect to read the contract, and give his opinion before he refuses to do the work.—PRACTICAL.

[12220].—Cottages.—Get "English Country Cottages," by Green. The sums you give are low, but cottages have been built in the Home Counties at the figures quoted, and are let at from £2 10s. to £3 10s. per annum. Those on estates like the Duke of Grafton's and Lord Cadogan's are well built, and have good gardens, sheds, and outhouses. Cottages of this cost can be built of brick with tile roofs with ordinary-sized rooms. The floors are of stone or brick on concrete. A living-room, about 15ft. square and 8ft. 6in. high; a back kitchen, with fireplace, copper, and sink, a pantry, fuel-store, three bedrooms, about 10ft. to 15ft. square, with distinct access to each.—A COUNTRY BUILDER.

[12222].—Ferro-Prussiate and B.W. Photographic Processes.—Copies are made by these processes from tracings made in black ink (no colour or washes) on thin tracing paper. Descriptive pamphlets and all necessary particulars are to be had from most photographic dealers, such as Hinton and Co., Bedford-street, Strand; Fallowfield's, Charing Cross-road; or Stanley, Great Turnstile.—G. A. T. MIDDLETON.

A new park 11½ acres in extent was formally opened at Selly Oak, Birmingham, on Monday.



## LEGAL INTELLIGENCE.

**PORTICOES AND THE LONDON BUILDING ACT**—At the Marlborough-street Police-court on the 29th ult., the Coburg Hotel, Limited, appeared to an adjourned summons taken out on behalf of the London County Council under section 200, subsection 3, of the London Building Act, 1894, as amended by the Amendment Act of 1898. Mr. Chilvers, from the solicitors' department, represented the Council, and Mr. Ernest Pollock, barrister, appeared for the defendants. Mr. Chilvers stated the summons was in respect of an iron and glass portico erected in front of the entrance porch of the Coburg Hotel, Carlos-place, St. George's, Hanover-square. The Council had given their consent to the erection of the porch, but declined to sanction the erection of the portico. However, notwithstanding the Council's refusal to give their consent, the defendants, in December last, erected the portico, and he now asked the magistrate for an order for its demolition. Evidence was given as to the portico extending over the public way and projecting 4ft. 3in. beyond the general line of buildings as defined by the architect to the Council. Mr. Pollock, for the defence, contended that the portico was not a structure within the meaning of section 22 of the London Building Act, and in support of his contention he referred to section 73 of the Act, and he further contended that the proviso in section 22 applied to this case, as the land on which the hotel was erected has been previously lawfully occupied by a building. Mr. De Rutzen, the magistrate, having taken time to consider his decision, stated he was clearly of opinion that the portico in question, which, according to the evidence, was wholly in advance of the general line of buildings, and was 11ft. in length, was a structure within the meaning of section 22 of the London Building Act, 1894, and did not come within the exemption contained in the proviso to that section as contended by the defendant's counsel. He therefore made an order for its demolition within one month, and also imposed a penalty of £2 with £5 s.d. costs. On the application of Mr. Pollock, the magistrate stated, however, he would be quite willing to state a special case for the High Court.

## CHIPS.

The general committee for the repair and restoration of Chichester Cathedral have appointed Sir Arthur Blomfield, B.A., to succeed the late Mr. Pearson, R.A., as their architect, and this selection has been approved by the Dean and Chapter. The newly-appointed architect has been requested to report on the work that he thinks necessary; and a meeting will be held in Brighton early in June, when the needs of the building will be brought before the diocese.

In the case of John William Carr, of Green-street, Upton Park, builder, the order of discharge from bankruptcy has been suspended for three years, ending March 1, 1902.

The urban district council of Frome have decided to invite competitive designs from architects for a school of art, to be afterwards extended to serve as a technical school. Premiums will be offered.

New gasworks offices in Broad-street, Hanley, were opened last week. The premises were till recently known as Barrack House, and have been altered from plans by Mr. J. R. Heath, engineer to the Gas Company, the builder being Mr. T. Godwin, of Hanley.

Messrs. Singer, of Frome, have just founded a cast in bronze of the model of Cromwell, made by Mr. Hamo Thornycroft, R.A., for an unknown admirer of the Protector (some say Lord Rosebery). It is understood that the statue will be presented for erection in the Metropolis, though where it is not known.

Visitors to Douglas this season will miss a favourite landmark. The last vestige of old St. Matthew's Church, which stood in the market-place near the quay, has just been removed. Built in the early part of the 18th century by Bishop Wilson, it was the most interesting relic of his episcopate. Hugh Stowell Brown, in his day one of the most popular of Liverpool's preachers, was born in the chaplain's house hard by. His father was the chaplain.

New public baths are being erected in the High-street, Wandsworth, adjoining the bridge over the river Wandle, from plans by Messrs. Spalding and Cross. The cost will be about £20,000. The style is English Renaissance, and the front will be built of red bricks, with Portland stone dressings. The building will have a frontage of 75ft., and an average depth of 246ft. The plans provide for a first-class swimming-bath 100ft. by 30ft., and a second-class bath 85ft. by 30ft.; six men's first-class slipper-baths, and thirty second-class; the ladies will be provided with four first and eight second class. The suite of private baths will have waiting-rooms and offices attached. An establishment laundry will be worked by an electric motor.

## Our Office Table.

THE annual dinner of the Society of Architects will be held on Wednesday, the 26th inst., at St. James's Hall, Piccadilly, and promises to be influentially attended. Among those who have signified their intention of being present are the Lord Chancellor (Earl Halsbury), Sir David Evans, Sir James D. Linton, the Right Hon. Edward Carson, Q.C., M.P., Mr. J. A. Rentoul, Q.C., M.P., Mr. Atherley-Jones, Q.C., M.P., Mr. Ernest Flower, M.P., Mr. Robert Vigers (the President of the Surveyors' Institution), Mr. Andrew Murray (the City architect), Mr. Charles Welsh (the City librarian), Mr. T. L. Corbett (Deputy-Chairman London County Council), Mr. Joseph Randall (the President of the Institute of Builders), and the Masters of the Worshipful Companies of Plumbers, Carpenters, and Tilers and Bricklayers (Alderman Richard Hind, and Messrs. J. Classon Preston and H. Mansfield).

A LARGE, representative, and comprehensive collection of Turner's work in oil and water colours will be on view at the art loan exhibition in the Guildhall Gallery, to be opened by the Lord Mayor in state on Monday next. The Turner collection will be supplemented by examples of his contemporaries, including Sir Joshua Reynolds, Gainsborough, Constable, Sir David Wilkie, R. Wilson, W. Collins, Stanford, and Nassmyth. The large gallery will be devoted to Turner's oil-paintings, and the gallery at the west end will be occupied by a selection of plates from his "Liber Studiorum," the principal contributors of these latter examples being the Rev. Stopford and Mr. W. G. Rawlinson. In the smaller gallery a collection of about seventy water-colours by Turner will be on view. A characteristic collection of the works of the great artist's contemporaries will be found in the large upper gallery. The general public will be admitted on Tuesday in next week. The exhibition will remain open until Monday, July 10.

THE country meeting of the Surveyor's Institution, for the present year, will be held, by kind permission of the mayor and corporation, in the reception-room of the Council House, Bristol, on Wednesday, the 26th inst., at 11 a.m., when the following papers will be read and discussed:—"Bristol," by Mr. William Sturge (past president); "The Railways and the Farmers," by Mr. W. M. Acworth, barrister-at-law; "The Proposed Provision of Workmen's Houses by Loans from Local Authorities," by Mr. Howard Martin (fellow). The members will dine together at the Grand Hotel, Broad-street, Bristol, in the evening. The following day will be devoted to excursions to places of interest in Bristol and its vicinity, Tintern Abbey and Chepstow Castle, and Wells and Glastonbury. The next ordinary general meeting in London will be held on Monday, May 1st, when a discussion will take place on the "Agricultural Holdings Bill," prepared and brought in by Mr. Channing and others. The annual dinner of the institution will be held at the King's Hall, Holborn Restaurant, on Wednesday, May 10th.

LORD RONALD GOWER, in a letter to the *Times*, suggests that the Hyde Abbey, Winchester, would be the most appropriate place in which to erect a memorial to King Alfred. Turning out of Jewry-street in that city, a narrow lane called after Alfred leads, he says, to a handsome 15th-century ecclesiastical gateway, attached to an old barn-like building. Beyond the gateway a farmyard is entered, with a number of barns and outhouses; this is all that remains of the abbey founded by the great King, and the place where his body, that of his Queen, and of his son, Edward the Elder, rested for seven centuries, till at the close of last century the stone graves were used to mend the roads and the ashes which they contained thrown away. It would be possible to remove the farm buildings and clear away the surrounding rubbish, thus removing a standing scandal to the city of Winchester. He suggests that on the site might be erected a half-circle of pillars, or a cloister, within which might be placed a colossal cross inscribed to Alfred.

"THE ART OF WILLIAM MORRIS," published as an "Easter Art Annual" of the *Art Journal*, is a cheap and interesting collection of illustrations of some of Morris's designs. The coloured illustrations are crude, the rest are very well produced. The letterpress is by Mr. Lewis F.

Day, and is fair and appreciative—more so, perhaps, than might reasonably have been expected of one who evidently understood Morris so little as to write as he does on page 10, that Morris "never seemed to suspect that socialism (as understood by his political brethren) would leave less room than ever for the free action of a man—a man, that is to say, as distinguished from a sheep"! If socialism is powerless to bring back that "free action," so much the worse for all of us. Morris's own life was certainly no proof of any such inability.

LORD KELVIN has just prepared a report on some investigations made by Professor Archibald Barr and himself in Edinburgh, Bradford, and Oldham, on the subject of the destruction of town refuse. In one instance Lord Kelvin experimented on damp ashpit refuse, containing a large proportion of night soil and vegetable matter from markets and shops. This was consumed without the slightest trace of smoke. In addition to this solution of the smoke difficulty the residual products proved to be of great commercial value. In another case the steam produced by the process of destruction was utilised for the driving of electric-lighting machinery and other power purposes. No coal or coke whatever was employed, and in this instance also there was an entire absence of smoke. Lord Kelvin considers that our public bodies have no longer any excuse for referring to "waste products," but have within their reach the means of turning the most unpromising refuse to account.

A PROCESS for seasoning wood by electricity is now being introduced into this country. The method is known as the Nodon-Bretonneau process, which consists in placing the timber to be seasoned in a tank, and immersing it all but an inch or two, in a solution containing 10 per cent. of borax, 5 of resin, and 0.75 of carbonate of soda. The lead plate upon which it rests is connected to the positive pole of a dynamo, and the negative pole, being attached to a similar plate on its upper surface so as to give good electrical contact, the circuit is completed through the wood. Under the influence of the current, the sap appears to rise to the surface of the bath, while the aseptic borax and resin take its place in the pores of the wood. It requires from five to eight hours, according to the character of the wood, to complete this part of the process, the timber afterwards being removed and dried in either by artificial or natural means. In the latter case exposure to summer weather for a fortnight is said to be equivalent to storage in the usual way for five years.

A REPORT on electric traction for tramways has been submitted to the Corporation of Southampton by a deputation who visited Dover, London, Glasgow, Liverpool, and Bradford. The deputation, after inspecting the systems in these towns, were unanimously of opinion that the overhead system adopted by the Southampton Corporation is the cheapest and best, and that the electric system throughout the various towns has proved to be economical and advantageous. The electrical engineer also submitted a report, which the deputation summarised, and made the following recommendations:—1. That double lines be used wherever possible. 2. That side poles and centre poles be used in all positions favourable, but span wires are not recommended. 3. That fixed stopping-places be adopted throughout the entire system, and that such stopping-places be denoted on the lamp columns, at a distance of about 220 yards apart. 4. That the Corporation adopt a type of car similar to car No. 450 in use by the Liverpool Corporation, and that Messrs. Kincaid, Waller, and Manville be instructed to prepare a specification with such modifications, including longitudinal seats, as may be necessary, and to obtain tenders to be submitted to the Corporation. 5. That in view of the recommendation to immediately order the rolling stock, Messrs. Kincaid, Waller, and Manville be instructed to prepare plans and specifications for the necessary alterations to the Shirley depot. 6. That time recorders be placed at each terminus, as at Dover. The report and recommendations have been adopted by the Corporation.

At the last meeting of the Lincoln Corporation it was decided to make application to the Local Government Board for loans amounting to upwards of £10,000 for additions and alterations to the market, and for building a model abattoir. Plans are also in hand for a City Isolation Hospital, the site of which has already been secured. These are among many signs of the interest in



sanitary science which is spreading in the eastern counties. Many of the leading sanitary engineering firms have already responded to the invitation of the local committee to exhibit at the Health Exhibition to be held in the Drill Hall, Lincoln, from the 3rd to 19th August. This exhibition, the first of its kind ever held in the county of Lincoln is being arranged in conjunction with the annual provincial meeting of the Sanitary Inspectors' Association.

A NOVEL agitation was inaugurated in Aberdeen one evening last week, when a public meeting was held under the auspices of the Operative Masons' Union to protest against jerry building. It was stated that the architects and master masons of the city had been invited to attend, but had declined, holding that a private conference as to procedure should first be held. Resolutions were unanimously adopted to the effect that in view of recent experiences in the building trade the meeting protest against the operations of the jerry builder on the ground that they were dangerous to workmen and detrimental to the community, in so far as dwellings were erected not with the view of the comfort and convenience of occupants, but solely in the interests of the speculator, and urging the town council to have fully-qualified inspectors or architects to supervise all work to which the plans committee gave sanction. The meeting has given rise to an animated correspondence in the local newspapers.

THE Fitzwilliam Museum Syndicate, in their 50th annual report for the year 1898, announce the gift of two pictures from Mr. T. Bumpstead, of Trumpington. One is a painting, on panel, of the school of Holbein, dated 1549, representing a man and his wife; the other is a portrait of an old man, by the sculptor Bernini. Professor W. M. Flinders Petrie has presented a number of specimens of pottery, mace-heads, and smaller objects, found during his excavations on behalf of the Egyptian Research Account in 1898. An engraving of the interior of the Leyden University Library by Woudanus and a collection of 48 engraved portraits of Cambridge celebrities have been presented by J. Willis Clark, M.A., Registrar. The principal purchases have been: A MS. of Aristotle's "Analytics" of the 14th century, written in Italy, with illuminated initials. A copy of the German version of Sir John Mandeville's Travels, printed at Basel, cir. 1480, with numerous hand-coloured woodcuts. A series of photographic reproductions of pictures in the Prado Gallery at Madrid, and of pictures by Rembrandt in the galleries of Berlin, Cassel, and Dresden. A set of E. aus'm Weerth's publications of Monuments of Early Rhenish art. Two water-colour drawings by T. M. Rooke—viz., a view of Troys (Aube) and one of Beaugency (Loir-et-Cher). A volume of miscellaneous engravings by (and after) Martin van Heemskerck, the elder Brueghel, and other artists of the 16th and early 17th centuries.

In the case of John Edward Tate, of Huddersfield, architect and surveyor, a discharge from bankruptcy has been conditionally granted.

A lecture on the Upper Stour Valley Sewerage Scheme—its arrangement, service, and cost—was given in the Trinity Hall, Old Hill, on Wednesday week, by Mr. W. Fiddian, one of the engineers to the Upper Stour Valley Main Sewerage Board. Mr. Fiddian pointed out that the cost of carrying out the scheme was £124,976, and the area of the district drained 17½ square miles, the length of sewers, carriers, and house connections 250 miles, and the sewers delivered daily 1½ million gallons.

The existing lunatic asylum, jointly owned by the counties of Leicester and Rutland, being inadequate for modern requirements, the joint committees of the two county councils have agreed to purchase an estate in the parishes of Narborough and Enderby, for the erection thereon of a new asylum. It is proposed that the asylum shall be planned for 800 patients, but that for the present the proposed new asylum shall provide for the accommodation of 650 pauper patients only, with administrative departments adapted to the larger number, leaving two blocks for the remaining 150 to be hereafter erected.

Owing to the Easter festival there was a great falling off in the number of sales held in the Tokenhouse-yard Mart during last week, and the returns show a decided drop. The properties disposed of consisted chiefly of metropolitan and suburban investments, which together produced a total of £29,761. The residential and training estate, Moulton Paddocks, Newmarket, the property of the late Mr. Alexander Baird, comprising a mansion and 757 acres, was sold for over £40,000.

## MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).—St. Paul's Ecclesiastical Society.** Visit to the Dutch Church, Austin Friars, E.C. 3 p.m.  
Edinburgh Architectural Association. Visit to Woodhouselee Mansion. Meet at Rutland-street. 2 p.m.

**MONDAY.—Royal Institute of British Architects.** Paper on the "Application of Colour to Interior Ornament in Relief." 8 p.m.  
Bristol Society of Architects. "Iron and Bronze Work," by Herbert Singer, of Frome. 8 p.m.

**TUESDAY.—Builders' Clerks' Benevolent Institution.** Annual Dinner, King's Hall, Holborn. 6 for 6.30 p.m.

Institution of Civil Engineers. Discussion on "Alloys of Iron and Nickel," and paper entitled "Buenos Aires Harbour Works," by James Murray Dobson, M Inst.C.E. 8 p.m.

**WEDNESDAY.—Society of Arts.** "Telephones," by John Gavey, Assistant Engineer-in-Chief and Electrician to the General Post Office. 8 p.m.

**FRIDAY.—Architectural Association.** "Modelling as Applied to Architecture," by F. W. Pomeroy. 7.30 p.m.  
The Glasgow Architectural Craftsmen's Society. Reading of Prize Essay.

**SATURDAY.—Architectural Association.** Visit to Fishmongers' Hall, London Bridge. 8 p.m.

## THE ARCHITECTURAL ASSOCIATION.

APRIL 14th.—ORDINARY MEETING, No. 2, Conduit-street, W. 7.30 p.m. Mr. F. W. POMEROY on "MODELLING AS APPLIED TO ARCHITECTURE," with Practical Demonstrations.

APRIL 15th.—SPRING VISIT TO FISHMONGERS' HALL, London Bridge, 3 p.m.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

## CHIPS.

The corporation of Ipswich, at a special meeting, have decided to widen College-street, a narrow thoroughfare leading from Stoke Bridge to the Docks, from 20ft. to from 35ft. to 26ft., at a cost of £1,000, and also agreed to several minor street improvements.

The Ostermouth urban district council have raised the salary of their surveyor, Mr. J. S. Bran, formerly town surveyor of Christchurch, Hants, by £50 a year.

The new parish church of St. Aidan, Bradford, Manchester, will be consecrated by the Bishop of Manchester on Sunday. The edifice is constructed of local bricks, with dressings inside and outside of terracotta, and consists of nave and chapel in one span, organ chamber, clergy and choir vestries. The architect is Mr. R. Bassett Preston, of Diocesan Chambers, Manchester. The cost, including site and furniture, has been £6,600, and 528 sittings are provided. Mr. R. Carlyle, of Ardwick, was the builder.

The name appears among Friday's list of adjudications in bankruptcy of Thomas Clarke, of Chancery-lane, W.C., and the Constitutional Club, Northumberland-avenue, W.C., late The Gables, Upper Hamilton-terrace, St. John's Wood, N.W., surveyor.

Mr. A. B. Hicks held an inquest at Lambeth on the 30th ult. on James Young, aged 36 years, a foreman scaffolder in the employment of Mr. Sarff, builder, of West Kensington, and lately residing at 9, Caslon-street, Lambeth. On the previous Friday the deceased, while at work on some buildings in course of erection in the South Lambeth-road, stepped on a putlock which was loose, the uprights having only shortly before been removed, and fell to the ground, a distance of 21ft. He was conveyed to St. Thomas's Hospital, where he died two days later from a fracture of the spine. The jury returned a verdict of "Accidental death."

Mr. H. H. Ward, one of the Local Government Board Inspectors, attended at the Guildhall, Canterbury, on Tuesday week, to hold an inquiry into the application of the town council to borrow a further sum of £13,250 for the purposes of the electric light and dust destructor works.

A large new lodge will shortly be erected at the south entrance to Beaulands Park, Cumberland, for Mr. R. G. Graham, J.P., from plans prepared by Mr. T. Taylor Scott, F.R.I.B.A., architect, Carlisle. It will be in the form of a cross with four gables, and constructed with coursed red stone walling of an ornamental character and green slated roofs.

Messrs. W. G. Sutherland, Ltd., the well-known stained-glass artists, of Manchester, have removed their premises from Mosley-street and St. Peter's Works to self-contained premises at Longford Studios, 16, Oxford-street, Manchester. This step has been rendered necessary in order to get the whole of the staff and artists under one roof. At the new premises the whole of the operations will be conducted under the personal supervision of Mr. W. G. Sutherland. All communications should be forwarded to the above address in future.

## LATEST PRICES.

IRON, &c.			
	Per ton.	Per ton.	
Rolled-Iron Joists, Belgian.....	£8 0 0	to	£8 10 0
Rolled-Steel Joists, English.....	6 10 0	"	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	"	6 10 0
Bar Iron, good Flat.....	7 5 0	"	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	"	17 5 0
Do., Welsh.....	6 15 0	"	6 17 0
Boiler Plates, Iron—			
South Staffs.....	7 17 6	"	8 5 0
Best Snedshill.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £8 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20.	No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	Per ton.	£11 0 0
Best ditto.....	11 5 0	"	11 10 0
Cast-Iron Columns.....	£8 5 0	to	£8 15 0
Cast-Iron Stanchions.....	6 5 0	"	8 15 0
Rolled-Iron Fencing Wire.....	8 5 0	"	9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	"	9 5 0
" Galvanised.....	11 10 0	"	12 10 0
Cast-Iron Sash Weights.....	4 2 6	"	4 5 0
Cut Clasp Nails, 6in. to 6in.....	9 0 0	"	10 0 0
Cut Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9			per cwt.
Cast-Iron Socket Pipes—			
8in. diameter.....	£6 2 6	to	£6 7 6
4in. to 6in.....	5 17 6	"	6 2 6
7in. to 24in. (all sizes).....	5 7 6	"	6 12 6
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lillishall.....	105s.	to	110s.
Hot Blast, ditto.....	57s. 6d.	to	62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.—			
Gas-Tubes.....			75p.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 5cwt. casks.			
Per ton.	Per ton.		
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 8lb. per sq. ft. super.....	15 15 0	"	16 15 0
Pig Lead, in 1cwt. pigs.....	15 7 6	"	16 7 6
Lead Sheet, in 25lb. bags.....	19 0 0	"	20 0 0
Copper Sheds, sheathing and rods.....	8 0 0	"	81 0 0
Copper, British Cake and Ingot.....	71 0 0	"	72 0 0
Tin, Straits.....	110 0 0	"	111 0 0
Do., English Ingots.....	113 0 0	"	114 0 0
Spelter, Silesian.....	27 0 0	"	27 1 8
T I M B E R.			
Teak, Burmah.....	per load £13 0 0	to	£15 10 0
" Bangkok.....	10 10 0	"	14 10 0
Quebec Pine, yellow.....	4 7 6	"	6 5 0
" Pitch.....	8 10 0	"	8 15 0
" Oak.....	4 0 0	"	6 0 0
" Birch.....	3 0 0	"	5 0 0
" Elm.....	4 12 6	"	5 15 0
" Ash.....	3 17 6	"	5 5 0
Dantiac and Memel Oak.....	3 5 0	"	8 15 0
Fir.....	1 10 0	"	3 10 0
Wainscot, Riga, p. log.....	3 15 0	"	6 5 0
Lath, Dantiac, p.i.....	4 0 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	8 0 0	"	8 5 0
Box.....	4 0 0	"	15 0 0
Sequoia, U.S.A.....	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5½	"	0 0 7
" Honduras.....	0 0 3½	"	0 0 4½
" Mexican.....	0 0 2½	"	0 0 4
Cedar, Cuba.....	0 0 4	"	0 0 4½
" Honduras.....	0 0 3½	"	0 0 4½
Satinwood.....	0 0 9	"	0 1 9
Walnut, Italian.....	0 0 8	"	0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in. :—			
Quebec, Pine, 1st.....	£18 15 0	to	£25 5 0
" 2nd.....	13 15 0	"	17 0 0
" 3rd.....	6 15 0	"	10 0 0
Canada Spruce, 1st.....	8 5 0	"	10 5 0
" 2nd and 3rd.....	7 0 0	"	8 15 0
New Brunswick.....	7 0 0	"	7 15 0
Riga.....	8 5 0	"	10 5 0
St. Petersburg.....	11 15 0	"	14 5 0
Swedish.....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	18 0 0
Battens, all sorts.....	5 0 0	"	16 0 0
Flooring Boards, per square of lin. :—			
1st prepared.....	£0 9 0	"	£0 15 3
2nd ditto.....	0 7 0	"	0 12 3
Other qualities.....	0 5 3	"	0 6 8
Staves, per standard M :—			
Quebec pipe.....	—		—
U.S. ditto.....	£35 0 0	"	£42 10 0
Memel, cr. pipe.....	210 0 0	"	220 0 0
Memel, brack.....	180 0 0	"	190 0 0
O I L S.			
Linseed.....	per ton £18 0 0	to	£18 10 0
Rapeseed, English pale.....	22 10 0	"	22 15 0
Do., brown.....	21 0 0	"	21 10 0
Cottonseed, refined.....	16 10 0	"	17 0 0
Olive, Spanish.....	30 0 0	"	32 0 0
Seal, pale.....	21 0 0	"	21 5 0
Cocoon, Cochin.....	29 5 0	"	29 10 0
Do., Ceylon.....	25 10 0	"	25 15 0
Palm, Lagos.....	24 10 0	"	24 15 0
Oleins.....	18 15 0	"	19 15 0
Lubricating U.S.....	per gal. 0 6 8	"	0 7 6
Petroleum, refined.....	0 0 6	"	0 0 6½
Tar, Stockholm.....	per barrel 1 0 0	"	1 5 0
Do., Archangel.....	0 15 0	"	0 18 0
Turpentine, American.....	per ton 28 15 0	"	29 0 0



## LIST OF COMPETITIONS OPEN.

Bradford—Cartwright Memorial Hall and Art Gallery (A. Waterhouse, R.A., Assessor) .....	£150, £100, £50	The City Surveyor's Office, Bradford .....	April 14
Fleetwood—Board Schools, West-street (600 places) .....	10gs. (merged) .....	J. H. Kean, Clerk to Board, Fleetwood .....	19
Arbroath—Infectious Diseases Hospital (35 beds) .....	£20, £15, £10	W. K. Macdonald, Clerk, Arbroath, Forfarshire .....	21
Frome—Science and Art School .....	£25, £10	Geo. W. Bradbury, Clerk, Public Offices, Frome .....	23
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff .....	£50, £20, £10	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate .....	29
Dover—Concert Pavilion for Promenade Pier (limit of cost £3,000; seating capacity 800 to 1,000) .....	£25	Ardlie Marsh, Secretary, Marine Parade, Dover .....	May 1
Stockton-on-Tees—Market Hall .....	£25, £15, £10	The Borough Engineer, Stockton-on-Tees .....	1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks .....	£30 (merged), £20, £10	The Borough Engineer, Salford .....	3
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds .....	June 1
Okehampton—Workhouse and Infirmary (9 inmates) .....	£50, £25	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton .....	1
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	9
London, W.—Four Pairs of Semi-Detached Villas (£1,000 per pair; frontages 60ft. pair) .....	£100 (merged), £60, £40	F. Moggridge, 18, King's-place, Portman-square, W. ....	—
Wandsworth, S.W.—Guardians' Board-room, Offices, &c. ....	£20	Alfred N. Henderson, Clerk, Union Offices, St. John's Hill, S.W. ....	—
Hexham—Vagrant Wards at Workhouse .....		J. H. Nicholson, Clerk, Midland Bank Chambers, Hexham .....	—
Staines—London-rd. Bd. School (250 places; £6 limit per head) .....		J. Anthony Engall, Clerk, Staines .....	—
Ballyshannon—Rectory (probable cost £1,000) .....		Rev. William Baillie, M.A., Laputa, Ballyshannon .....	—
St. Thomas—Boys' School (600 places) and Teachers' Residence .....		J. Champion, Clerk, St. Thomas, near Exeter .....	—
Fulham, S.W.—Public Baths .....	150gs., 75gs., 50gs.	Charles Botterill, A.M.I.C.E., Town Hall, Walham Green, S.W. ....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Great Yarmouth—Additions, Devonshire Hotel, Howard-street .....	Charles Ellis	Chas. G. Paker, Architect, Great Yarmouth .....	April 8
Brighouse—Retort-House, &c. ....	Gas Committee .....	The Engineer at the Gasworks, Mill-lane, Brighouse, Yorks .....	8
Trelawny—Twenty Houses .....	Rev. T. O'Leary, P.P. ....	T. Roderick, Architect, Ashbrook House, Aberdare .....	8
Durrus, Co. Cork—Church .....	Mrs. Hartley .....	M. A. Hennessy, Architect, 74, South Mall, Cork .....	8
Seathwaite—Farm Buildings at Turner Hall .....	Oxford Municipal Charities Trustees .....	J. Bell, Architect, Coniston, R.S.O. ....	8
Lenborough, Bucks—Farnhouse .....	Corporation .....	W. H. Castle, Surveyor, Town Hall, Oxford .....	8
Even Swindon—Primitive Methodist Church, Rodbourne-road .....	David Morgan .....	Wm. Drew and Sons, Architects, Victoria-street, Swindon .....	8
Sunderland—Fever Pavilion, Borough Sanatorium, Hylton-rd. ....	Llanberis Local Governing Body .....	The Borough Engineer, Town Hall, Sunderland .....	8
Cardiff—Hayes End of the Morgan Arcade .....	G. Wilkinson and Sons .....	James and Morgan, M.M.S.A., Charles-street Chambers, Cardiff .....	8
North Berwick—Houses and Stables, Abbey-road .....	Corporation .....	R. Thornton Shiels, Architect, 6, Doddington-park, Portobello .....	8
Bryn-refail—County School .....	Board of Guardians .....	Rowland Lloyd Jones, Architect, 14, Market-street, Carnarvon .....	8
Sedgefield—Bakery at the Durham County Lunatic Asylum .....	Hornsey Urban District Council .....	William Crozier, A.M.I.C.E., County Surveyor, Shire Hall, Durham .....	10
Keighley—Foundry, Bradford-road .....	Mrs. Jenkins .....	W. H. and A. Sugden, Architects, Keighley .....	10
Carlisle—Six Houses, Botcherby Old-road, Carlisle .....		J. Slack, Architect, 18, Bank-street, Carlisle .....	10
Derby—Extension of Foundations, Electric Light Station .....		Arthur Eaton, Architect, 2, St. James'-street, Derby .....	10
Horsham—Additions to Queen's Head Hotel .....		C. H. Burston, F.I.A.S., Architect, 6, West-street, Horsham .....	10
Brampton, Suffolk—Two Houses .....		Arthur Pells, F.S.I., Architect, Beccles .....	10
Newark—Infirmary Works, &c., Bowbridge-road .....		Sheppard and Harrison, Architects, 17, Kirkgate, Newark .....	10
Bathgate—Infectious Diseases Hospital .....		John Melvin and Son, Architects, Alloa .....	10
Stroud Green, N.—Branch Public Library .....		E. J. Lovegrove, Surveyor, Southwood-lane, Highgate .....	10
Morpeth—House, Stables, Conservatory, &c. ....		Boulds and Hardy, Architects, Morpeth .....	10
Brookeborough—Auxiliary Creamery .....		John M'Connell, Hon. Secretary, Brookeborough .....	10
Cornely—Villa .....		P. J. Thomas, Architect, Bridgend .....	10
Kendal—Converting Old Zion Chapel into Sunday Schools .....		Stephen Shaw, F.R.I.B.A., Architect, 45, Highgate, Kendal .....	10
Belfast—Greenhouses in Alexandra and Woodvale Parks, and Fernery, &c., Botanic Gardens Park .....		Sir Samuel Black, Town Clerk, Belfast .....	11
Craigievar Estate, Aberdeen—Dwelling-House at Newbraes .....	Governors .....	A. Stronach, jun., and Sons, Advocates, 20, Belmont-st., Aberdeen .....	11
Annan—Alterations to Conservative Club .....	Joint Committee of Railway Cos. ....	Oliver and Leeson, Architects, Bank Chambers, Newcastle .....	11
Craigievar Estate, Aberdeen—Cottar-House at Shieldfield .....	McVitie and Price .....	F. J. C. Carruthers, Architect, Dumfries .....	11
Helshy—Six Cottages .....	E. Bailey and Son, Ltd. ....	A. Stronach, jun., and Sons, Advocates, 20, Belmont-st., Aberdeen .....	11
Craigievar Estate, Aberdeen—Stead at Bogside .....		A. E. Bolter, Secretary, Paddington Station, London .....	11
Wigton—Alterations and Additions to Girls' Grammar School .....		A. Stronach, jun., and Sons, Advocates, 20, Belmont-st., Aberdeen .....	11
Craigievar Estate, Aberdeen—Stead at Middlemuir .....		Joseph Graham, Architect, Bank-street, Carlisle .....	11
Stechford—Biscuit Works .....		A. Stronach, jun., and Sons, Advocates, 20, Belmont-st., Aberdeen .....	11
Frome—10-Quarter Malting at Station Maltings .....		T. W. Willard, Architect, Rugby .....	12
St. Ishmael's—Minister's House .....		Wm. G. Brown, Architect, Park-road, Frome .....	12
Halifax—Sixteen Houses on the Newstead Estate, Gibbet-lane. ....		The Rev. T. Thomas, Baptist Minister, St. Ishmael's, Milford Haven .....	12
Salisbury—House and Shop, Winchester-street .....		W. Clement Williams, Architect, 29, Southgate, Halifax .....	12
Barnsley—Twelve Houses and Shop, Agnes-road .....		John Harding and Son, Architects, 58, High-street, Salisbury .....	12
Tivdale—Public Mortuary .....		Wade and Turner, Architects, 10, Pitt-street, Barnsley .....	12
Stegness—House .....		The Council Offices, Lawrence-lane, Old Hill, Staffordshire .....	12
Bradford—Showyard, &c. ....		G. Bell, 38, Lumley-road, Skegness .....	13
Ipswich—Addition to New Workhouse .....		Wm. Fraser, Secretary, Commercial Hotel, Bingley-st., Bradford .....	13
Chelmsford—New Roofs, &c., at St. Mary's Church .....		A. F. Vulliamy, Clerk, Tower-street, Ipswich .....	13
Gateshead—Rebuilding the Foresters' Arms, Askew-road .....		Chancellor and Son, Architects, Chelmsford .....	13
Botcherby—School .....		A. G. Kyle, Architect, 145, Pilgrim-street, Newcastle .....	13
Okehampton—Restoring Stonework at Oaklands .....		A. W. Johnson, Architect, 81, Castle-street, Carlisle .....	14
Aberystwith—Alterations and Additions to St. George's Hotel, Portland-street .....		J. Archibald Lucas, Architect, Town Hall, Okehampton .....	14
Halifax—House and Shoeing Forge in Westgate .....	Allsopp and Sons .....	Hipkiss and Bassett, Architects, Terrace-road, Aberystwith .....	15
Aber—Forty Houses .....	Powell Duffryn Steam Coal Co. ....	C. F. L. Horsfall & Son, Architects, Lord-street Chambers, Halifax .....	15
Treharris—Baptist Chapel .....	Trinity House Corporation .....	Geo. Kenshole, Architect, Duffryn House, Ystrad Mynach .....	15
Penzance—Buoy Store, &c., Trinity Store .....	Great Western Railway Company .....	Homeleigh House, 39, Perrott-street, Treharris .....	15
Mansfield—Additions to the Forest Hospital, Southwell-road .....	Town Council .....	Chas. A. Kent, Secretary, Trinity House, London, E.C. ....	17
Cardiff—Stable .....	Guardians .....	R. Frank Vallance, Borough Surveyor, Mansfield .....	17
Cambridge—Police Station in St. Andrew's-street .....	Ruabon U.D. School Board .....	G. K. Mills, Secretary, Paddington Station, London .....	18
Chelsea, S.W.—Two Bath Turrets at Infirmary, Cale-street .....	Junction Railway Co. ....	John Morley, Architect, 22, St. Andrew-street, Cambridge .....	18
Johnstown—Board School .....	Lord Dunleath .....	Lansell and Harrison, Architects, 38, Bow-lane, Cheapside, E.C. ....	18
Oldham—Alterations to Clegg-street Station .....	County Intermediate School Gvms. ....	J. Morison and Son, Architects, King-street, Wrexham .....	19
Abergavenny—Cottage Hospital and Dispensary, Hereford-rd. ....	East Sussex County Council .....	O. S. Holt, Secretary, London-road Station, Manchester .....	19
Warrington—Cottages, Diaper Hill .....	High Peak Hospital Committee .....	E. A. Johnson, M.S.A., Abergavenny .....	20
Llanfyllin—School Buildings .....	Gasworks Committee .....	Henry Hobart, Architect, Dromore .....	20
Seacombe—Welsh Congregational Chapel and Schoolroom .....		H. Teather, Architect, 83, Wyle Cop, Shrewsbury .....	20
Bexhill—Three Police Constables' Cottages .....		The Secretary, 125, Brighton-street, Seacombe .....	21
Chinley—Isolation Hospital Buildings .....		Fred. J. Wood, A.M.I.C.E., County Surveyor, County Hall, Lewes .....	22
Oldham—Retort House, &c., Higginshaw Gas Station .....		W. R. Bryden, F.R.I.B.A., Architect, 1, George-street, Buxton .....	22
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler House at South-Eastern Hospital, Hatfield-street .....		Arthur Andrew, Gas and Water Offices, Greaves-street, Oldham .....	25
London—Station Houses .....	Metropolitan Asylums Board .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ....	26
Barrow-in-Furness—New Technical School, and Alterations to Existing Building in Abbey-road .....	Donegal Railway Company .....	James Barton, M.I.C.E., Exchange Buildings, Dundalk .....	26
Altcar—Royal Naval Reserve Buildings .....	Corporation .....	Woodhouse and Willoughby, Archts., 100, King-street, Manchester .....	28
Silloth—Stable, Byres, &c., at Wolsty Hall .....	Wood Bros. ....	Director of Works Department, 21, Northumberland-avenue, W.C. ....	May 5
Morecambe—Villa, Stabling, &c. ....	W. Whitaker and Co., Bradford .....	P. and J. W. Hayton, Surveyors, Bank-street, Carlisle .....	—
Belfast—Dwelling-houses, Brown's-square and Gardiner-street .....	A. G. Rayner .....	Marshall Bros., Architects, Back Crescent, Morecambe .....	—
Otley—Rebuilding Black Horse Hotel .....	C. and W. C. Keighley .....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....	—
St. Mellon's—Three Cottages .....	James M'Mullan .....	H. Chippendale, Architect, Springfield, Guiseley .....	—
Colchester—House, Rawstorn-road .....	Rogers and Co .....	David Oaklands, St. Mellon's, Mon. ....	—
Ashton-under-Lyne—Fourteen Cottages .....	J. Stutton .....	C. E. Butcher, Architect, 3, Queen-street, Colchester .....	—
Morecambe—Two Semi-Detached Houses, Rosendale-avenue .....	C. E. Maulden .....	T. George and Sons, Architects, Old-square, Ashton-under-Lyne .....	—
South Acton, W.—Laundry Premises .....		Marshall Bros., Architects, Back Crescent, Morecambe .....	—
Lurgan—Grocery Premises, Market-street .....		G. P. Pratt, A.R.I.B.A., 10, The Parade, Churchfield-road, Acton .....	—
Frinton-on-Sea—Small House .....		W. J. Moore, Architect, Ann-street, Belfast .....	—
Cardiff—Additions to 1, Adam-street .....		Beresford Pite, F.R.I.B.A., 49, Harley-street, W. ....	—
Kidderminster—Two Shops and Houses, New-road .....		J. P. Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff .....	—
Morecambe—House and Shop, Sefton-road .....		J. M. Gething, Architect, Oxford Chambers, Kidderminster .....	—
Cardiff—Church .....		Marshall Bros., Architects, Back Crescent, Morecambe .....	—
Bulmer, Sudbury—Rebuilding Fox Inn .....		Frederick R. Kempson, F.R.I.B.A., Hereford .....	—
Stapleford—Primitive Methodist Chapel and School .....		John Shewell Corder, Architect, Wimbourne House, Ipswich .....	—
		Hy. Harper, Architect, 8, Beasmarket Hill, Nottingham .....	—



## BUILDINGS—continued.

Goole—Alterations to Building in Victoria-street.	Goole Steam Laundry Co.	J. Roberts, Clarkson's Hotel, Goole
Morecambe—Alterations to 22, The Crescent	R. Hastewell	P. B. Rigg, Architect, Market-street, Morecambe
Haltwhistle—Dwelling-House	G. R. Burnett	H. Higginson, M.S.A., Carlisle
Ackworth—Two Stone Houses	Aldrich and Co., Limited	Walter E. Richardson, Architect, 25, Bond-street, Leeds
Seascale—Preparatory School	A. Wenlock	W. Mason and Son, Architects, Ambleside
Bermundsey, S.E.—Factory	School Board	Wm. Freeman, Surveyor, 162, Kennington-road, S.E.
Disa—Warehouse and Offices	J. Abraham	J. Shewell Corder, Architect, Wimbourne House, Ipswich
Bradford—Porch, Seating, &c., at Park Chapel, New Cross-st.	Ed. Woodward	Saml. W. Pitchers, 14, Grantham-place, Bradford
Brightlingsea—House and Shop, High-street	Halstead Co-operative Society	Chas. E. Butcher, Architect, 3, Queen-street, Colchester
Abingdon—Pair of Semi-Detached Cottages	Jas. Campbell	William Dowdeswell, Architect, Treharis
Long Eaton—Schools and Swimming-Bath	Managers	E. R. Ridgway, Architect, Long Eaton
Nacton—Additions to Rectory	Waterloo Co-operative Society	J. Shewell Corder, Architect, Wimbourne House, Ipswich
Clevedon—House and Shop, Kenn-road	Pragnell and Co.	C. R. Middle, Clevedon
Bradley—Five Small Through Houses, Somerset-road	John Jackson, M.S.A., Barry-street, Bradford	George D. Goforth, Richardshaw-lane, Pudsey
Hanley—Shop Premises and House, Keeling's-lane, Northwood	J. Judson and Moore, Architects, York Chambers, Keighley	A. F. Miller, Architect, Frederick-street, Hailey
Ballynahinch—Business Premises	David C. Salmond, Architect, 7, Windsor-place, Cardiff	H. M. Reid, C.E., Ballynahinch, Ir.-land
Halstead, Essex—Four Pairs of Cottages	Empall and Clarkson, Architects, 7, Exchange, Bradford	Goady and Cressall, Architects, 2, Victoria Chambers, Colchester
Stonham Pave—House	Morrison and Son, Architects, King-street, Wrexham	Walter Durrant, Hermon Lodge, Felixstowe
Belfast—Two Shops and Three Houses, Old Park-road	J. Wedderspoon, C.E., Inverness	W. J. Moore, Architect, Ann-street, Belfast
Inwich—Shop Front and Alterations to Premises, Westgate-st.	W. Cecil Jackson, M.S.A., 29, Knife-smith-gate, Chesterfield	Thos. Wm. Cotman, Architect, Northgate-street, Ipswich
Wolverhampton—Schools, Gatis-street	R. Drake, Architect, 142, Allerton-road, Allerton	F. Hunter Lynes, A.R.I.B.A., Graham Chambers, Wolverhampton
Dudley—Temperance Institute	Geo. Ford	Wool and Kendrick, Architects, West Bromwich
Littlemoss, Ashton—Branch Store	Industrial Co-operative Society	A. J. Howcroft, Architect, 12, Clegg-street, Oldham
Thornham—Repairing Nave Roof of Church	Valentine Harrison	The Vicar, Thornham, Norfolk
Bristol—Additions to Premises, Broadmead	James Grabam	James Hart, Corn-street, Bristol
Shipley—Combining Shed	Meltham Spinning Company	John Jackson, M.S.A., Barry-street, Bradford
Dewsbury—Glassworks, Savile Town	Totnes Rural District Council	J. Judson and Moore, Architects, York Chambers, Keighley
Port Talbot—Fifty Cottages	Guardians	David C. Salmond, Architect, 7, Windsor-place, Cardiff
Bradford—Alterations to Premises, Leeds-road	Neath Harbour Commissioners	Empall and Clarkson, Architects, 7, Exchange, Bradford
Wrexham—Central Stores, Bridge-street	Edinburgh & Leith Gas Commissioners	Morrison and Son, Architects, King-street, Wrexham
South Uist—Additions to Eriskay School	Corporation	J. Wedderspoon, C.E., Inverness
Baslow—Enlarging Cottage	Greenwich Union Guardians	W. Cecil Jackson, M.S.A., 29, Knife-smith-gate, Chesterfield
Allerton—Four Houses and House and Shop, Prospect-terrace	Corporation	R. Drake, Architect, 142, Allerton-road, Allerton
Southend-on-Sea—Tower Boarding House, Beach-road	Rockford Rural District Council	W. Y. Hobbs, Architect, 57, High-street, Southend-on-Sea
Derby—Seven Cottages, Nottingham-road	British Electric Traction Co., Ltd.	E. R. Ridgway, Architect, Long Eaton
Coxhoe—Assembly Hall	Rural District Council	C. A. Todd, Clarence Villa Hotel, Coxhoe
Rugeley—Bakery and Slaughter-House	Corporation	The Architect, Co-operative Wholesale Society, Manchester
Bradford—Warehouse	Town Council	Jas. Young and Co., Architects, 62, Market-street, Bradford
Asby-de-la-Zouch—House and Stable, Tanworth-road	Great Western Railway Company	J. Piekthorn, Market-street, Asby-de-la-Zouch
Ulverston—Alterations to Shop, King-street	Electric Supply Committee	Settle and Farmer, Architects, Ulverston
Wrexham—Central Stores, Bridge-street	North-Eastern Railway Company	Morison and Son, Architects, King-street, Wrexham
Keighley—Shop, &c., Cooke-lane	Finance Committee	Judson and Moore, Architects, Keighley
Felixstowe—Presbyterian Church	Corporation	G. W. Leighton, Architect, Princes-street, Ipswich
Manningham—Converting House into Shop, Whetley-lane	Great Northern Railway Co.	H. Hardaker, Architect, Ivegate Chambers, New Ivegate, Bradford
Wigton—Alterations and Additions to Westmorland House	Locheanhead and St. Fillans Rly.	Jos. Graham, Architect, Bank-street, Carlisle
Carlisle—Dye-House	London County Council	Johnstone Bros., Architects, 39, Lowther-street, Carlisle
Pontypridd—Chimney (150ft. high)	London County Council	Tiptonwys Black Vein Steam Coal Co., Pontypool
Great Harwood—Deveron Mill	Metropolitan Asylums Board	Clayton, Goodfellow, and Co., Limited, Atlas Foundry, Blackburn
Lurgan—Licensed Premises	Gravesend Waterworks Company	W. J. Moore, Architect, Whitehall Buildings, Belfast
Ballynahinch—Teacher's Residence	Paddington Vestry	Henry Hobart, Architect, Dromore
Elland—New Church	Hants County Council	Geo. H. P. Prynn, F.R.I.B.A., 6, Queen Anne's-gate, Westminster
Ravenhill, Carlisle—Sixteen Dwelling Houses	Dublin, Wicklow, & Wexford Ry. Co.	P. and J. W. Hayter, Surveyors, &c., Bank-street, Carlisle
Bradford—Alterations to Premises, Leeds-road	Wallasey Urban District Council	Empall and Clarkson, Architects, 7, Exchange, Bradford
Meltham—Circular Brick Chimney (50yds. high) at Brigg Mills	Municipal Council	W. Carter, Architect, Meltham, near Huddersfield
Kingswood, Bristol—Additions to Holy Trinity Church	City Council	E. H. Lingen Barker, Architect, 146, St. Owen's-street, Hereford

## ENGINEERING.

Buckfastleigh—Bridge at Hawson Crossing	Charles Ellis, Highway Surveyor, Buckfastleigh	April 8
Roscommon—Waterworks	C. Mulvany, M.I.C.E., Athlone	" 8
Briton Ferry—Removal of Partly-Constructed Ship Lock	Gwyn Lewis, Harbour Superintendent, Briton Ferry, Glamorgan	" 10
Edinburgh—Two Lancashire Steel Boilers	W. R. Herring, Chief Engineer, Gasworks, Edinburgh	" 11
West Ham—Steam Road Roller	Lewis Angell, Borough Engineer, Town Hall, Stratford, E.	" 11
Grove Park, S.E.—Sinking Well at New Workhouse	Thos. Dinwiddy, Architect, 12, Crooms Hill, Greenwich, S.E.	" 12
Burton-upon-Trent—Bridge Ironworks, Horninglow-street	G. T. Lynam, Borough Engineer, Burton-upon-Trent	" 13
South Benfleet—Well, &c.	James Mansergh, Engineer, 5, Victoria-street, Westminster	" 13
Dudley—Tramway Permanent Way (2½ miles)	W. Howard-Smith, Donington House, Norfolk-street, Strand, W.C.	" 14
Peterborough—Steel Girder Lattice Footbridge	F. J. Whitaker, 214, Cromwell-road, Peterborough	" 14
Tymouth—Electricity Works	Lacey, Clirehugh, and Sillar, 2, Queen Anne's-gate, Westminster	" 15
Brighton—Two Pumping-Engines, Boilers, &c.	Francis J. Tillstone, Town Clerk, Town Hall, Brighton	" 17
Llanbilleth and Aberbeeg—Widening Line (1 mile 30 chains)	G. K. Mills, Secretary, Paddington Station, London	" 18
St. Helens—Tramways (6 miles)	Geo. J. C. Broom, M.I.C.E., Borough Engineer, St. Helens	" 19
Seaham Harbour and Hartlepool—Double-Line Railway (9mi.)	W. J. Cudworth, Engineer, Darlington	" 19
Newcastle-on-Tyne—Iron Arched Roof over Alley of Grainger	The Property Office, Town Hall, Newcastle	" 21
Market (316ft. long, 56ft. span)	J. C. Gill, A.M.I.C.E., Municipal Offices, Peterborough	" 20
Peterborough—Electric Lighting Plant	Professor Alex. B. W. Kennedy, 17, Victoria-street, S.W.	" 24
Sutton and Howth—Electric Tramway	Crouch and Hogg, Engineers, 175, Horse-street, Glasgow	" 24
Perth—Railway (6 miles), Comrie to St. Fillans	The Engineer's Department, County Hall, Spring Gardens, S.W.	" 25
Erith—Overhead Traveller (10-ton), Crossness Pumping Station	The Borough Electrical Engineer's Office, Abbey Mills, West Ham	" 25
West Ham—Engines, &c.	The Engineer's Department, County Hall, Spring Gardens, S.W.	" 26
Pimlico, S.W.—Tidal Flaps	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C.	" 26
New Cross, S.E.—Boilers, Pumps, Radiators, Steam Heaters, &c., at South-Eastern Hospital, Hatfield-street	James Mansergh, Engineer, 5, Victoria-street, Westminster	" 27
Gravesend—Pumping Machinery, &c.	George Weston, Surveyor, Vestry Hall, Harrow-road, W.	May 1
London, W.—Removal and Reconstruction of Westbourne Terrace-road Bridge	W. J. Taylor, County Surveyor, The Castle, Winchester	" 1
Breamore—Bridge over River Avon	The Engineer of the Company, 1, Westland-row, Dublin	" 1
New Ross and Waterford—Railways (13½ miles)	J. H. Crowthorpe, Engineer, Great Float, near Birkenhead	" 18
Egremont—Gasholder and Tank	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	June 30
Shanghai—Electric Trolley Tramways (23 miles)	H. Cleaver, Consulting Engineer, 52, Bridge-road, Southampton	"
Southampton—Shafting, &c.	The Italian Department of Public Works, Rome	"
Civita Vecchia—Harbour Extensions, &c.		"

## FENCING AND WALLS.

Cardiff—Boundary Wall, &c., Northcote Lane	Corporation	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	April 11
Bridgwater—Setting Back Boundary Walls and Gates in Washington-terrace	Corporation	W. T. Baker, Town Clerk, King-square, Bridgwater	" 11
Hull—Four Pairs Iron Gates, and 77 yards of Wrought-Iron Fence for West Park		A. E. White, City Engineer, Town Hall, Hull	" 12

## FURNITURE AND FITTINGS.

Coventry—Fitting and Furnishing Police Court	City Council	H. Quick, Architect, Hertford-street, Coventry	April 15
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## PAINTING.

Woolwich—Portion of Herbert Hospital (internal)	War Department	W. G. Du Boulay, Lt.-Col., R.E. Office, Woolwich	April 10
Woolwich—Portion of Royal Artillery Barracks	War Department	W. G. Du Boulay, Lt.-Col., R.E. Office, Woolwich	" 10
Leeds—North-street Recreation Ground	Parke and Baths Committee	The City Engineer's Office, Municipal Buildings, Leeds	" 12
Wolverhampton—Iron Railings (3,174 super. yards), East Park	Corporation	J. W. Bradley, A.M.I.C.E., Boro' Surv., Town Hall, Wolverhampton	" 12
Leeds—Exterior of Town Hall		The City Engineer's Office, Municipal Buildings, Leeds	" 14
Wigan—Sewage Farm Buildings at Hoscarr Moss		The Borough Engineer, Rodney-street, Wigan	" 15

## PLUMBING AND GLAZING.

Dumbarton—Internal Plumbing Work at Poorhouse	Combination Poorhouse Committee	Wm. B. Thomson, Clerk, 2, Strathleven-place, Dumbarton	April 10
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## ROADS AND STREETS.

Alloa—Recauswaying Streets	Urban District Council	John R. Lake, Burgh Surveyor, Alloa	April 8
Leadgate—Cementing Footpaths (2,070 yards)	Urban District Council	T. S. Longstaff, Surveyor, Leadgate, Durham	" 10
Govan—Street and Sewer at Holmfauldhead	Urban District Council	Wm. R. Robertson Copland, 146, West Regent-street, Glasgow	" 10
Drighlington—Laying Down Footpath (533 lineal yards)	Urban Sanitary Authority	Richard Thornton, Council Offices, Drighlington	" 11
Bedford—Paving and Roadmaking in Alexandra-road	Coast Development Co., Ltd.	The Borough Surveyor's Office, Town Hall, Bedford	" 12
Southwold—Making New Roads	F. Ball, C.E., Borough Surveyor's Office, Southwold	Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton	" 14
Tottenham—Laying Wood Paving	Urban District Council	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham	" 18
Batley—Paving and Flagging Whittaker-street	Town Council	O. J. Kirby, Borough Surveyor, Market-place, Batley	" 22



## SANITARY.

Sunderland Bridge—Sewers (819 yards)	Nottingham—Two Underground Lavatories, in Burton-street and North-street
Camden Town, N.W.—Two Underground Conveniences	Leads—Two Public Conveniences
Queensbury—Pipe Sewers	Rawtenstall—Sewers, &c. (2,630 yards of 15in.)
Brightlingsea—Sewerage Works (5,100 yards)	Westbury-upon-Trym—Sewerage Works
Wexmouth—Surface-Water Drains and Water-Mains	Blackburn—Additions to Conveniences at Market House
Bexhill—Sewerage Works	Croston—Sewers, &c.
Johannesburg—Sewerage Scheme	

Durham Rural District Council	George Gregson, Surveyor, Eastwood, Western Hill, Durham	April 9
Improvement Committee	Arthur Brown, M.I.C.E., City Engineer, Guildhall, Nottingham	10
St. Pancras Vestry	W. N. Blair, M.I.C.E., Engineer, Vestry Hall, Pancras-road, N.W.	11
Urban District Council	T. S. Longstaff, Surveyor, Leads, Durham	11
Urban District Council	The Surveyor's Office, Albert-road, Queensbury	12
Corporation	A. W. Lawson, M.I.C.E., Municipal Offices, Rawtenstall	12
Urban District Council	J. J. Taylor, 1, Victoria-street, Westminster, S.W.	12
Urban District Council	A. P. I. Cotterell, A.M.I.C.E., 7, Baldwin-street, Bristol	12
Urban District Council	John Pearson, Clerk, Cockermouth	17
Urban District Council	W. Stubbs, A.M.I.C.E., Municipal Offices, Blackburn	19
Urban District Council	G. Ball, A.M.I.C.E., Surveyor, Town Hall, Bexhill	20
Urban District Council	F. E. Dixon, C.E., 49, Lune-street, Preston	24
Urban District Council	The Town Engineer's Office, Johannesburg	May 12

## STEEL AND IRON.

Pudsey—Cast-Iron Socket Water-Pipes (1,000 yards)	Madras—Cast-Iron Pipes (36in.)
Loftus—Cast-Iron Pipes and Castings	Todmorden—Cast-Iron Main Pipes
Christiania—Rails, Trolleys, &c.	London, S.E.—Galvanised-Iron Pails (2,000)
Tynemouth—Spigot and Socket Cast-Iron Pipes (400 tons)	Shrewsbury—Cast-Iron Socket and Spigot Pipes
Stockport—Cast-Iron Mains	

Urban District Council	Benjamin Dufton, Clerk, Council Offices, Pudsey	April 10
Madras Municipal Commission	Henry S. King and Co., 65, Cornhill, London	12
Urban District Council	Thos. Hy. Tarbitt, Surveyor, Town Hall, Loftus, R.S.O.	12
Gas Committee	Henry Hawkins, Gasworks, Millwood, Todmorden	17
Bermondsey Vestry	The Chief Engineer of the Ofoten State Railway, Narvik	17
Water Committee	Fredk. Ryall, Vestry Clerk, Town Hall, Spa-road, S.E.	17
Gaslight Co.	John F. Smylie, Borough Surveyor, Tynemouth	18
Gas and Electricity Committee	Wm. Belton, A.M.I.C.E., Secretary, Gas Works, Shrewsbury	19
	S. Meunier, Engineer, Stockport	19

## STORES.

Southport—Wood Paving Blocks (30,000)	Chatham—Road Materials
Edinburgh—Lime, Paints, Timber, &c.	Croydon—Road Materials
Cheadle—Road Materials (One Year)	Truro—Materials and Work (One Year)
Gravesend—Guernsey Granite Spalls (200 tons)	Blackburn—Granite Setts (3,000 tons)
Wigan—Cast Mains, &c.	London, S.E.—Wood Paving Blocks (550,000)
Ashford—Granite (1,050 cubic yards)	Tyldesley—Firebricks, &c.
London, W.C.—Builders' Materials and Timber to Asylums and Hospitals	

Corporation	Richd. P. Hirst, A.M.I.C.E., Borough Surveyor, Southport	April 8
Corporation	C. Day, Borough Surveyor, Corporation Offices, Military-rd., Chatham	8
Gas Commissioners	James M'G. Jack, Clerk, 25, Waterloo-place, Edinburgh	8
Town Council	The Borough Road Surveyor, Town Hall, Croydon	10
Urban District Council	Edward Sykes, Surveyor, Public Offices, 9, High-street, Cheadle	10
Urban District Council	William Clemens, Surveyor, Municipal Buildings, Truro	11
Guardians	Wm. Jno. King, Clerk, Town Hall, Gravesend	12
Highway Committee	Wm. Stubbs, Borough Engineer, Municipal Offices, Blackburn	13
Gas Committee	Jos. Timmins, Engineer, Town Hall, Wigan	17
Vestry of St. Mary, Newington	L. J. Dunham, Vestry Clerk, Vestry Hall, Walworth-road, S.E.	18
Urban District Council	William Terrill, Surveyor, North-street, Ashford, Kent	21
District Council	Chas. Austin, Manager, Council Office, Tyldesley	25
Metropolitan Asylums Board	T. Duncombe Mann, Norfolk House, Norfolk-street, Strand, W.C.	27

## Trade News.

## WAGES MOVEMENTS.

**PLASTERERS' LOCK-OUT.**—A conference between the National Association of Master Builders and the National Association of Operative Plasterers took place at the offices of the former, in Bedford-street, Strand, yesterday (Thursday), but the result was not known when we went to press. Each side had appointed 12 representatives, and the points discussed were those set forth in the employers' ultimatum to the union on Feb. 1—viz.: The limitation of apprentices, the practice of "black-listing" certain building firms, the refusal to work with non-unionists, and the refusal of the union to accept the decision of employers as to which workmen shall do certain work. The employers were represented by Messrs. W. Houldsworth (Huddersfield), R. Neill (Manchester), T. F. Rider (London), B. I. Greenwood (London), J. Bowen (Birmingham), W. Symonds (Cardiff), W. Lowry (Newcastle-on-Tyne), W. Nicholson (Leeds), J. Higson (Manchester), W. Blake (Plymouth), John Rule (Sunderland), and G. Nichols (Leicester). The representatives of the Plasterers' Union were its president (Mr. Mark Jones), the general secretary (Mr. M. Deller), and delegates from Cardiff, Birmingham, Bristol, London, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and Nottingham.

**ASHTON-UNDER-LYNE.**—The question of an increase in the wages of operative painters has been settled without resort to a strike. Colonel John Eaton, architect, as arbitrator between the masters and the operatives, has decided in favour of the men's claim for an increase of 3d. per hour from July 1. In regard to other points, the arbitrator has fixed the hours from six in the morning to 5.30 at night from the 15th of March to the 15th of October, to come into force from April 1 this year. His decision as to the apprentice rule is also in favour of the men.

**ECCLES.**—An advance of 3d. per hour has been granted to the operative painters in the Eccles, Patricroft, Pendlebury, and Swinton districts, to commence this week, increasing the rate to 8 3/4d. per hour. A concession of half an hour in the time of starting work has also been made. The painters' application was for 1d. per hour advance, and time and a quarter for the first two hours' overtime.

**GRIMSBY.**—The joiners struck on Saturday for 3d. per hour advance.

**LEICESTER.**—The demand of the Leicester bricklayers' labourers for an advance of 1d. per hour not having been acceded to by the Master Builders' Federation, the local members of the union refused to resume work on Wednesday. The men numbered about 700. By their action the bricklayers are also stopped, so that some 2,000 men are affected. The rate of pay at present for labourers in Leicester is 6d. per hour.

**NEATH, SOUTH WALES.**—The stonemasons and bricklayers of the Neath district struck work on Saturday, the employers having failed to comply with the demand for an increase of wages.

**OLDHAM.**—The painters, numbering fully 200,

came out on strike on Saturday for an advance of 3d. an hour, from 8d. to 8 3/4d., which the employers have unanimously decided to resist. A lengthened stoppage is not unlikely, as both sides are evidently determined upon their position. Work will be almost totally suspended, as the non-unionist painters in the town are exceedingly few. Similar disputes are pending in other Lancashire towns.

**RADCLIFFE.**—Notice was given to the masters in September last by the painters in the Radcliffe, Whitefield, and Prestwich District of the Amalgamated Society of House-Painters and Decorators for an advance from 8d. to 9d. per hour, which was requested to come into operation on April 1. The final meeting of masters and men was held on Monday at the Boar's Head Hotel, Radcliffe, when an agreement was come to, the men accepting 8 3/4d. per hour, and agreeing to work under Manchester rules in place of the Radcliffe District rules, which have been in force for several years.

**SCARBOROUGH.**—The secretary of the Labourers' Union recently wrote to Mr. Moore, a builder at Scarborough, notifying that unless a non-union labourer in his employ was discharged the union men would strike. The letter was referred to the Master Builders' Association, who informed the union that if Mr. Moore's men struck all the union labourers in Scarborough would be locked out. The men struck work on Wednesday, and the lock-out was enforced yesterday.

**SUNDERLAND.**—The notice recently given by the builders' labourers to the masters for an advance of wages has been discussed by the committee of the Northern District Federation, and they have decided that, as the labourers' wages are the highest paid in any provincial town in the kingdom, the notice is unreasonable, and the demand will be resisted.

At the first election of urban district councillors for Ilminster, on March 27, Mr. Alexander Poole, builder and contractor, was returned at the head of the poll. There were 21 candidates for 12 seats.

The Allenton Schools, Darby, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

Mr. Lorenzo B. Wheeler, an architect well known in the Southern States of America, died last week at his home in Danbury, Conn. Mr. Wheeler began practice in New York, for a part of the time in partnership with Mr. Hugh Lamb, but removed eight or nine years ago to St. Louis, where he remained until failing health compelled him to give up practice altogether, and return to Connecticut. Among his works in Atlanta are the Kimball House and the Constitution building; and he built at Memphis the Cossitt Library, and a public library at East St. Louis, besides several court-houses in the south.

A stained-glass window, erected in memory of the late Dean Lake, was unveiled in Durham Cathedral last week. The window has been placed in the eastern wall of St. Gregory's Chapel, in the north transept. The chief subject is Our Lord seated in Glory, and below are figures of SS. Benedict, Oswald, Cuthbert, Francis, and Aidan.

## CHIPS.

The new Headland Hotel at Newquay is in course of completion, the roof being now on. It is being built at a cost of £21,000 by Mr. Arthur Carkeek, of Redruth, and the contract for the supply of terracotta has been taken by the Ruabon Coal and Coke Co., for a further sum of £4,054. Mr. Silvanus Trevel, of Truro, is the architect.

Additions are being made to the brewery of Messrs. Bushell, Watkins, and Co. at Westerham. The new premises cover a superficial area of 6,000 sq. ft., and consist of offices and board-room on ground floor, with clearing-room on first-floor, and malt and hop stores above, while the basement will store 2,000 barrels. The walls are of red brick, and the outlay has been £5,000. Mr. Harrison Fagg, of Tonbridge, is the architect, and Mr. Walter Wallis, of Balham, S.W., is the builder.

The will of Mr. Josiah Latimer Clark, F.R.S., M.I.C.I., M.I.E.E., of 31, The Grove, Bolton, and 11, Victoria-street, Westminster, has been proved, the value of the estate being £10,149 15s. The testator bequeaths his machinery, plant, tools, and all his interest in the business of a dock engineer carried on at Grays, Essex, and also his books, plans, letters patent, &c., to his son Lyonel Edwin.

Mr. Vincent Stuckey Lean has bequeathed £50,000 for the improvement and extension of the library and reading-room at the British Museum, and large sums to various charities, colleges, and hospitals.

The Mayor of Blackburn has formally opened the new electric tramways in the borough. The corporation has purchased the whole of the tramways working in Blackburn, but so far only four miles have been electrically equipped.

At a special meeting of the Royal Society of Painter Etchers and Engravers, held on March 9, M. Bolingbroke, R. Bryden, and W. Monk were elected ordinary Fellows.

The authorities of St. Bartholomew's Hospital have decided to carry out in one of the wings of the institution a series of alterations similar to those already completed in another wing. The present deal flooring will be taken up and replaced by teak. The wards will also be warmed by hot water pipes and stoves. These will involve the closing of about 160 beds from the commencement of May until October next, by which time the alterations are to be completed.

Mr. J. Dewhurst, surveyor and sanitary inspector of Guildford, has been appointed to a similar position at Chelmsford.

A free open-air bath, situate adjacent to the Water Committee's pumping station, Green-lane, Liverpool, was publicly opened last week. It is 73ft. long, 45 1/2 ft. wide, and contains 70,000 gallons of water, the temperature of which can be regulated from 80° Fah. downward as required. There will be a constant flow of clean warm water through the bath at the rate of 5,000 gallons per hour. A small cleansing bath is provided, where children may be cleansed before entering the swimming-bath. The usual dressing-ahed and other accommodation is provided. The whole of the work has cost about £1,000.



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## TENDERS.

\* Correspondents would in all cases oblige by giving  
the addresses of the parties tendering—at any rate, of the  
accepted tender: it adds to the value of the information.

ABERDEEN.—For the construction of permanent way  
and road, and overhead line, between Market-street and  
Woodside, for the electric tramways committee of the  
town council:—  
M'Adam, J., and Sons, Aberdeen... £19,000 0 0  
(Accepted.)

BARNARD CASTLE.—For the addition of a technical  
instruction wing to the North-Eastern County School:—  
Kyle, J., and Sons, Newcastle-on-  
Tyne (accepted)... £8,000 0 0

BEDDINGTON.—For laying-out and fencing a cemetery  
at Bandon Hill, Beddington, and erecting chapels, lodge,  
and mortuary therein. Messrs. R. M. Chart and Son,  
Union Bank Chambers, Croydon, architects. Quantities  
by Messrs. Franklin and Andrews, 25, Ludgate  
Hill, E.C.:—

Batchelor and Snowden, Cardiff	£13,300	0	0
Burgess, Wimbledon	10,788	0	0
Rice and Son, Stockwell	10,665	0	0
Burnard, Wallington	10,550	0	0
Stewart and Sons, Wallington	10,328	0	0
Smith, W., & Sons, West Croydon*	9,957	0	0

\* Accepted.

BRIXHAM.—For the renovation and enlargement of the  
Wealean church:—

Phare	£1,490	0	0
Pike	935	0	0
Smaridge	898	10	0
Waycott	893	0	0
Yeo and Co. (accepted)	889	0	0

[No tenders received from Brixham builders.]

COVENTRY.—For the reconstruction of Priestley's  
Bridge, for the city council:—  
Kelley & Son, Foleshill (accepted)... £1,786 9 8  
(Lowest of five tenders received.)

CROMER.—For the removal of the gasworks to a new  
site of four acres west of the town, and reconstruction on  
an extended scale. Mr. Percy Griffith, A.M.I.C.E.,  
engineer to the Gas Co.:—  
Dempster, R., & Sons, Elland, Yorks (accepted).

EAST HARLING, NORFOLK.—For the extension of the  
infants' room, at the National Schools:—  
Land, W. J. (accepted)... £46 12 8

GLASGOW.—For the conversion of several routes of the  
tramway system to electric traction, to connect the south  
side and east end of the city with Kelvingrove Park, for  
the Corporation Tramways Committee. Mr. H. F. Par-  
shall, London, consulting engineer. Accepted tenders:—

From Whiteinch to Anderston Cross:—	
Stark, A., and Son, Glasgow	£25,789 0 0
From Langside, via Eglinton-street, Renfield-street, and Sauchiehall-street, to Overnewton:—	
Fail, A. and J., Glasgow	£32,610 0 0
From Anderston Cross to Bridgeton Cross, and also London-road to Terminus:—	
M'Cartney, M'Iroy, and Co., America	£20,754 0 0
From Bridgeton Cross to Dalmarock Terminus, Pollok- shaws and Pollokshields to Eglinton Toll, and Ruth- erglen-road, from Brahead-street to Crown-street:—	
Murray, D., Maryhill	£22,973 0 0

[Total amount of accepted tenders, £102,000.]

GLASGOW.—For the erection of the industrial and  
machinery halls of the International Exhibition of 1901:  
Shaw, W., and Sons, Glasgow... £68,425 0 0

For iron and steel work:—

Arrol Bridge and Roof Company, Limited.  
(Both accepted.)

GREAT EASTON.—For carrying out works of sewerage  
at Great Easton, for the Hallaton rural district council:—  
Smith, J., Little Bowden (accepted)... £372 2 4  
[Lowest tender received; highest, Siddons and Free-  
man, Oundle, £544 15s. 7d.]

HEREFORD.—For the erection of electricity station  
buildings, for the city council:—

Lewis, W. P., and Co. (accepted)... £2,752 0 0

For the supply or ironwork for same:—

Alexander and Duncan (accepted)... 391 17 8

LONDON.—For alterations, additions, and fittings at the  
Crooked Billet, p.h., King David-lane, Shadwell, E., for  
Messrs. Erbach Bros. Mr. Fred. A. Ashton, 177, Rom-  
ford-road, Stratford, E., architect:—

	A.	B.	C.
Harper, W.	£1,001	2838	£1,939
Wall, H., and Co.	948	905	1,853
Cocks, J. and H.	900	899	1,799
Williams, R. E., & Sons	827	800	1,727
Maddison, W. J.	835	804	1,639
Symes, A. E.	786	761	1,517

A.—Alterations, &c. B.—Fittings. C.—Total.

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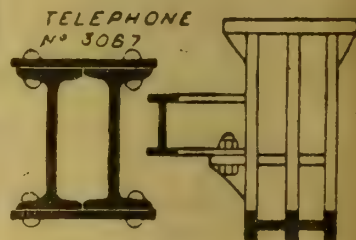
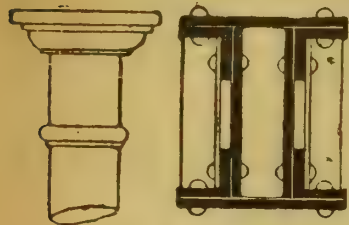
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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2310.

FRIDAY, APRIL 14, 1899.

### APPRENTICESHIP TO THE BUILDING TRADES.

FROM the evidence elicited by the Special Committee of the Technical Education Board on the question of apprenticeship, it appears that employers do not often readily co-operate to assist in the training of youths for the building trades. So long as the London employer can obtain from the provinces ready-trained artisans for his work, he does not trouble, nor find it remunerative, to take raw youths into his workshops. The payment of large premiums—even sums of £25 or £40—is beyond the means of workmen to give with their sons, and the evidence given on this head by Mr. Henry Holloway and others is instructive. The decline, he said, as to taking apprentices on behalf of the masters was their belief that apprentices did not pay, and the youths often caused trouble and inconvenience. The consequence of the decline was the lowering of the "standard of skilled mechanics, and a difficulty of securing good foremen." There are a few exceptions. Messrs. Holloway take apprentices in all the trades except painters, and these turn out to be the best workmen. Applicants in most of the trades are plentiful, and the premiums charged vary from £5 to £20 or £25. Sometimes the applicants are able to obtain assistance from charitable funds. The firm hold a check on unruly apprentices by having a clause in the indentures "to the effect that if the apprentice gives satisfaction and makes good progress, at the end of the term the sum of £5 will be paid to him as a gift." The wages given are from 5s. to 6s. a week, rising to 18s. or 20s., and the term of apprenticeship is from five to six years. A clause also states that the apprentice is required to attend technical classes under the Science and Art Department; but this expert admitted that these classes could not supersede apprenticeship, and they had no practical bearing upon the ordinary work of the shop. Practical instruction can only be obtained in the workshop.

It is important the apprentice should learn the whole trade, not a part of it; the class looked only at one branch. Referring to the action of the Technical Education Board in granting funds, it was suggested that all charities and trustees of funds for assisting apprentices should require as a condition that the apprentice should attend evening classes. These funds from the guilds, &c., could be administered by a central authority who would act between the employer and apprentice. On the whole, Mr. Holloway's evidence is in favour of apprenticeship, as the only means of acquiring a thorough and practical knowledge of the trades as a whole, and his experience shows that the apprentice turns out the best mechanic, although he does not pay for some time. Very similar evidence was adduced by Mr. Howard Colls, of the well-known firm. While acknowledging the excellent training of polytechnics, he said they could not turn out men as skilled tradesmen. The work the young apprentice wanted engaged all day was a theoretical knowledge of setting-out work. "The best men who could take the lead should be taught drawing and building construction at evening classes." The technical workshop attracted men to classes. Speaking of the restrictions of the trade-unions, Mr. Colls said the paucity of bricklayers was owing partly to the union's objection to

boys working on scaffolds. He attributed the lower standard of work to the decrease of the apprenticeship system; he thought "the best way to teach bricklaying was to let the workmen work in the daytime on the scaffold, and in the evening attend classes where only theoretical instruction fully illustrated was given." It was a mistake, he contended, for polytechnics, to try to turn out finished workmen. The attempt injured the trade, and produced only a fictitious substitute for the real tradesman. He thought, on the other hand, that bricklayer labourers should be admitted to the classes, and the regulation excluding them was the cause of the thin attendance in the trade classes. It was recognised by all employers that theoretical training, however valuable, was not absolutely essential to skilled carpenters and other trades. A builder's foreman said that class-teaching did not make men better workmen; the bricklayers were less intelligent than the carpenters, as a rule, and this was owing to the absence of apprenticeship. Bricklayers could not be got to attend classes; their hands were not fit for drawing exercises and instruments. The evidence of builders' foremen follow a good deal in the same lines: there is a general agreement that apprenticeship is necessary, that those intended for foremen should attend drawing, building, construction, and geometry classes; the instruction given enabled the workman to set out his work. Mr. Rowland Plumbé, F.R.I.B.A., pointed to a weak point in the modern system, when he said there was "no great incentive with regard to a young workman acquiring a scientific knowledge of his trade, as he is paid just the same rate of wages as the other men." He strongly advocated apprenticeship as an inducement to men to come to the classes. Mr. Blashill, then architect to the L.C.C., said that there was a larger number of men capable of doing good work, and he was of opinion that the building business ought to be considered as one business, all ranks learning the same as the artisans.

The conclusions to be drawn from the evidence of experts are briefly that high premiums cannot be paid by workmen unless through the City Parochial Charities Acts or Charity Commissioners. These and other charities who have funds ought to provide an entrance to a skilled trade to as many London boys of the working classes as possible. Provincial trade labour is found to be more remunerative by many employers, but is detrimental to London youths. The suggestion is made in the report that if premiums cannot be paid that would meet establishment expenses during the unremunerative years of the term, the boys should be trained in school till, say, 15, until they are skilled enough to induce employers to take them on a reasonable weekly wage. Manual training during this early period is recommended. At the elementary public school the boys should also be instructed in workshop calculations, in geometry, and technical drawing. After leaving the school, further training in workshop practice and technology of the trade might be provided in the day classes of polytechnics. Manual training in woodwork and metal would be developed. The young bricklayer and mason should also be taught the geometry of their trades, and it is thought this training would fit a boy to learn the trade methods of the workshop rapidly, and that he would be worth to his employer 10s. a week without paying a premium. The suggested scheme of higher manual instruction would be worth trying, if it did not go so far as to attempt to produce a fully trained workman.

No doubt the conditions under which the old apprenticeship system existed have passed away, or been much altered. Builders are apt to employ their own plumbers and smiths, as cited by Mr. R. Mitchell, doing away with apprentices; machine labour has

been introduced; restrictions of unions and the better all-round training of country workmen have also led to the same result. Then there is the number of openings for competent men in other situations, as in the leakage to the great world of "clerkdom," all of which causes have been detrimental to a system of skilled artisans following almost in an hereditary line.

### THE TURNER COLLECTION OF PICTURES AT THE GUILDHALL.

THESE priceless examples of Turner include a valuable collection of his drawings, on the whole a much more interesting display than is to be seen at the National Gallery. These drawings contain all that is best of the master; especially we would mention the fine architectural drawings representing York, Oxford, Salisbury, which show how dexterous a draughtsman Turner was, how accurate his perspectives were, as in that noble interior of the Chapter House, Salisbury—a wonderful water-colour drawing dated 1799, and also of the Lady-chapel of the same cathedral. The accuracy of his detail in these interiors is astonishing. One of his first water-colour drawings was a view of the Archbishop's Palace, Lambeth. A very neatly-executed drawing of Westminster, 1790, lent by the trustees of the Whitworth Institute, Manchester, and a view of Clare Hall, Cambridge, of the same year, are examples of Turner's earliest period.

But we may first refer to the oil-paintings in the lower hall of the Guildhall. "Kilgarran Castle on the Twyvey" (1), painted in 1799, is one of the earliest. In this work we find breadth of handling of masses of light and shade, and a subdued colour. Turner delighted in painting these sullen strongholds perched on hills in impregnable positions. Two other views of the same castle (Nos. 3 and 5) are hung rich in colour; in each we see his power as a painter of atmosphere, light bursting through dark clouds, and broad shadows. We can soon trace the influence of foreign travel—his first tour to France and Switzerland in 1802. His view of "Bonneville, Savoy," and "Scene in the Apennines" (11) are full of colour, tenderness, and vigour. "Dunstanborough Castle," "Conway Castle" (6), "Pembroke Castle" (114), "Fishermen on a Lee Shore" (7), are good examples of his first style. His Pembroke Castle is a wonderful example of cloud painting, with a gleam of sunshine penetrating a stormy cloud. There is movement and colour in the last named; we can see the effect of the wind, and the boat trying to push out from the shore. The stormy and threatening sky, and the warm contrast of the beach, are admirably painted. "The Nore" (15) is remarkable as a seascape; clearness, movement, colour, and vigorous technique are expressed. "The Trout Stream" (12), with sunshine bursting through an opening in the sky—a common form of cloud-painting with Turner; "The Wreck of the *Minotaur*" (14); "The Fifth Plague of Egypt," painted in 1800 for W. Beckford of Fonthill—a large, powerfully-painted subject-picture (9)—are remarkable. Of his second period, dating from 1810, we have pictures like Somer Hill, Newark Abbey, Walton Bridges (17, 18, 19). In these there is a more delicate sense of atmosphere and colour. Soft sunlight tones bathe the hilly green slopes and foliage and lake in the landscape of Somer Hill; the scene from Newark Abbey on the Wye is suffused in a warm glow, and the view of the Thames at Walton is full of sunlight. The view of "Mortlake," painted in 1827, is another charming, brilliant river view from the terrace of a riverside house with a screen of trees; and another example of warm evening sunlight is observed in "Barnes Terrace," painted the same year



(23). This large view is remarkable by the introduction of a dog cut out of black paper, and pasted on the parapet of the terrace, which still remains. The effect was to increase the distance and atmosphere. At the end of hall hangs the large classical composition of "Mercury and Herse," painted in 1811. The painter records the incident in Ovid's "Metamorphoses," where Herse, clad in white, is followed by a procession. This and the riverside pictures are marked by a more delicate handling and brilliancy of colour, the influence of his Italian tour. In all of them we find the gloomy and rugged austerity of his earlier English impressions giving place to more delicate tones; "Chryses Worshipping the Sun" (138), "Rape of Europa" (25), are remarkable productions. The latter is a melody in colour, the whole sea and atmosphere flooded with light, of gold and roseate hues. Another wonderful piece of aerial painting is "The Beacon Light" (24), said to be taken from the south-east side of The Needles, Freshwater. The dashing spray and waves, which almost obscure the cliffs, are irradiated with sunlight, and the whole gamut of tone from blue to red is used. It was painted 1835-40. "Mercury and Argus" (1836) is another harmony of iridescent hues (30); so is the "Sun Rising in Mist" (31). These are all of the "fourth style." The view of "Venice" (32) is a fine example of this style, and belongs to Sir Donald Currie. Here we have all the charming delicacy of brilliant tones from blue to green and gold which Turner revelled in. Gondolas float on the translucent waters, beyond which rises the "city of rose and white," in which we see the Guidecca, and the churches of Santa Maria della Salute and San Giorgio Maggiore. But the most splendid work of this period is "The Marriage of the Adriatic" (34), represents a custom in which the Doge and senators officiated in gorgeous costume. The Doge took a ring from his finger and dropped it into the Adriatic, as betrothing the sea. This large picture is rich in gorgeous colour of rose, sunlight, and pearl. The marble palaces and the "emerald sea," the thronged balconies and landing stages are replete with brilliant colour, and throw into relief the scarlet robes of the Venetian senators who are embarking. In the distance is the Rialto. This picture was painted in 1840.

The water-colour drawings include several remarkable examples of Turner's different styles. We have instanced his "Westminster," "Clare Hall," and "Salisbury Chapter House" as examples of his early work, remarkable for their accuracy of drawing and elaboration of detail. In some of these early drawings, indeed, produced for publishers' engravings, we notice a certain hardness and mannerism, as in his Magdalen College and York Minster, Christchurch, Oxford, but they are still examples of truthfulness. Some of them appear to be drawn by a reed pen with a bluish wash. The Yorkshire series is wonderfully drawn, and includes such examples as Fountains Abbey (87); Dormitory and Transept, evening effect, St. Agatha's Abbey (88); York Minster, west front, a drawing full of delicate detail; Northam Castle (118), Kirkstall (119). "Norbury Park" is a delightful landscape sketch (91), and we notice his "London from the South," a fine view taken from a south-westerly direction, showing St. Paul's, Westminster Abbey in the distance. Cattle and dark foliage and the gleaming river running through marshy land compose the foreground—a scene powerful in its handling of masses of broad shade and atmosphere. Of his later style we notice his "Study of an Alpine Pass" (128), painted in 1838, is instructive as indicating the master's procedure in putting in lights and shadows and tones. The view of "Stonehenge," which Ruskin describes as the "standard of storm-drawing," is a marvellously powerful

landscape lit up by a violent thunderstorm, the lightning of which has killed a lamb and a shepherd. "Llanthony Abbey," "Warwick Castle," "Knaresborough" are others. Turner's Alpine studies include some of the finest works of the master's best period. "The Lake of Zurich," "The Rhigi," the "Blue" and the "Red Rhigi," as the sunrise and the sunset effects are called (152, 157), painted in 1840; "A Swiss Pass" (153), "Lake of Lucerne" (156), "The Splügen Pass" (159), &c., are all wonderful examples, many well known through Ruskin's poetical descriptions. The sunlight and haze, the rich colour, the chromatic harmonies of the actual scenes, have in these drawings been realised only as Turner could realise them.

In the Third Gallery are some very fine examples of Richard Wilson, Opie, George Romney, Reynolds, Gainsborough, Constable, Wilkie, and other, contemporary painters. It is needless to point to such charming and bewitching head as that of Romney's "Lady Hamilton as St. Cecilia" (164) as "Euphrosyne" (173). The beauty and fascination of the woman are seen at their best, a full face glancing sideways, in an oval canvas, her countenance relaxed by a pleasing smile. Then we have Sir Joshua Reynolds' "Boy in Contemplation," "Lady Betty Delme and Her Children" (170) "Portrait of Miss Palmer" (172), and "Mrs. Abington as Miss Prue" (181); a fine Constable "The Bridge Farm, Berg-holt" (166), a work of remarkable detail and freshness in the foliage; several examples of Gainsborough, notably his beautiful and well-known "Woodcutter's Home" (169), so fine in its grouping and warm tones, his "View in the Mall, St. James's Park" (168), his pensive "Miss Linley" (179). The noble composition "Landscape with Figures and Cattle" (171), lent by the Duke of Rutland; Sir David Wilkie's popular picture "The Rent Day," so often engraved; a charming landscape by Nasmyth (176); Clarkson Stanfield's grand picture "The Morning after the Wreck" (189); and David Roberts' equally splendid view of "The Grand Canal, Venice," are all well-known pictures. There are also one or two good examples of George Morland (182). Mr. G. A. Temple, F.S.A., and the Guildhall Committee have arranged the works chronologically, and the exhibition of original pictures, as well as the series of illustrations and etchings illustrating the "Liber Studiorum," the "Antiquities of Scotland," and other works are well worth inspection.

### ESTIMATES.—III.

#### EXCAVATION, DRAINAGE, ETC.

**P**RICED bills do not help the young estimator much. To take two or three priced bills of quantities for the same building will reveal extraordinary differences, arising from various circumstances—the position and facilities of the contractor, his nearness to the work, whether he has a large plant and staff of workmen, or is a man of small capital without resources; the prices also depend on whether the estimate is prepared with the aid of drawings or specifications, or simply from a bill of quantities, from the items of a day or measured account. A man may be an expert quantity taker, who has not mastered the fundamental elements of pricing; the two processes are different. The expert in prices must be a man naturally addicted to study and compare values, to analyse the composition of items; he must be able to arrive at a price by a calculation in detail. A mind so trained will be able to trace analogous conditions, will be able to generalise and compare. We should recommend the young estimator to master the contents of every trade list of materials

and goods, and these should be kept, classified and indexed, on some system for easy reference. The trade and cash discounts, railway rates, cost prices, &c., should be collected and indexed for reference, and for this purpose an alphabetical index or commonplace book ought to be kept. A book for each trade should be kept to enter prices, data, and information, always giving date. Note especially the time expended on every kind of labour, as, for example, the time taken by a labourer in digging a yard cube of clay or other material, how many yards he can do in a day, the time it will take a joiner to frame a door of a certain thickness per foot super., or the time it takes to do any unit of work.

Large quantities of material, like sand or ballast or bricks, can be procured at a cheaper rate than small supplies, and a difference of at least 10 per cent. in the cost may be made; but in every particular instance it is better to make inquiries and obtain quotations from reputable dealers and contractors.

The following have been given as fair suburban prices:—Horse, cart, and man per day 10s., or 1s. per hour; chain horse, per day 9s.; carting rubbish, including shoot, 2s. 6d. per load; dug material from foundations, &c., may be dug, carted, and shot at 3s. 6d. per yard measured in the hole. Sand may be procured from wharf by barge and carted by local contractor to site for about 1s. 9d. to 2s. per yard within two miles. The cost of unloading bricks and deliver into cart is about 1s. 9d. per thousand, or pay all canal fees, unload, and load, and deliver at about 4s. 6d. to 5s. per thousand.

But it is more reliable to obtain a price from merchants and manufacturers for carriage and delivery of materials and goods to nearest point to site, and if it is worth their while they will often be inclined to deliver without cost for dues. The timber merchant will often deliver timber and deals free from the docks, and the stone and iron merchants can perform the carriage cheaper than the builder.

The schedules of prices given by the vestries and district boards are useful, and we give a few useful items:—Concrete per cubic yard is in some of these printed scales given at 11s. The Kensington schedule for digging and filling-in with layers of earth not more than 6in. thick, well ramming same, removing and carting away superfluous earth, providing shoot for same, leaving road footpath clear at per cubic yard, is stated as follows:—

Not exceeding 8ft. average depth .....	s. d.
" " 10ft. " " .....	2 0
" " 15ft. " " .....	2 3
" " 20ft. " " .....	2 6
" " and so on. " " .....	2 9

For concrete including all staging, planking, wheeling, &c., as follows:—

Lime concrete composed of Thames ballast and Dorking lime mixed 6 to 1 at per cubic yard .....	s. d.
Concrete composed of Thames ballast, and has lime filled in under, over, and round brickwork, per cubic yard .....	8 0
Portland cement concrete mixed 6 to 1, at per cubic yard .....	8 6
	12 0

For pipe-drains, including opening ground to necessary widths and depths, provide and lay pipes, fill in trench, cart away surplus earth, with pipes of uniform thickness, socketed joints made good all round with Portland cement, properly bedded, and the inside cleaned out with half-disc block, as follows:—

6in. pipes, per foot run, not exceeding average depth of 8ft. ....	s. d.
ditto. 9ft. ....	2 0
ditto. 12ft. ....	2 6
ditto. 14ft. ....	3 0
&c. &c. ....	3 6
9in. pipes ditto. 8ft. ....	2 3
ditto. 9ft. ....	2 9
ditto. 12ft. ....	3 3
ditto. 15ft. ....	4 0
12in. pipes ditto. 8ft. ....	2 9
ditto. 9ft. ....	3 6
ditto. 12ft. ....	4 3
ditto. 15ft. ....	5 0



Providing, laying down, and jointing straight pipes, exclusive of digging:—

4in. pipe, at per foot run	s. d.
6in. ditto	0 6
9in. ditto	0 8
12in. ditto	1 2
12in. ditto	2 0

For curved and taper pipes one-half extra on above prices.

Extra only for single junctions left in straight run of pipes:—

6in. ....	s. d.
9in. ....	0 9
12in. ....	1 6
12in. ....	2 6

For double junctions the charge extra on single junctions for 6in. is 4d., for 9in. 8d., &c. These prices are low, as will be seen on reference to our prices given last week, and for small quantities an addition of one-half may be made.

For other materials, the same schedule puts stock bricks, delivered at works, at per 1,000.	£ s. d.
No. 2 Burhams	2 0 0
Blue lias lime, per bushel	2 15 0
Ground " "	0 1 0
Dorking " "	0 1 3
Portland cement " "	0 0 10
Portland cement " "	0 2 0
Sand, per yard	0 4 0

Pit sand delivered in London may be put at 6s. per yard, and Thames sand delivered within two miles of a wharf is sometimes priced at 5s. 6d. per yard, and ballast at 4s. 6d. per yard for the same distance, an addition of 1s. per yard being charged for every additional mile. A barge load of sand can be brought to a river wharf at 2s. 9d. per yard, and pit sand at 3s. to 5s. per yard, to which must be added unloading and carting.

Before pricing items of digging, it is necessary to find out whether the earth is to be carted away, and how far, as this carting away is often considerable, and makes an addition of 2s. 6d. a mile per load. The contractor may do better sometimes to let the carting away at per load to some carman at per yard cube, measured in the hole.

The presence of sand on the site will often save much carting away, as the sand and ballast can be used for concrete and brick-work, and before pricing items of excavation inquiries ought to be made as to the depth of the sand below the ground level. All above the sand has to be carted away; it may be half or two-thirds of the whole depth excavated. When sand occurs in the trenches and site considerable saving is effected, and the exact quantity of this should be ascertained before pricing, so that an allowance be made. Thus, in trenches say half-full of good sand, one half only of the quantity or of every yard would have to be carted away. The other portion will be a distinct gain. The sand would be valued at, say, 5s. 6d. per yard cube added to the saving of carting (say 2s. 6d. or 8s. per yard) so that there would be a great saving. It is better to provide that a certain sum shall be allowed by the contractor for every yard of sand found on site and used in the building.

Some useful data on excavation were given by Mr. Leaning in his valuable "Notes on Building Prices," published in the BUILDING NEWS, which are worth study by the student of prices. The hardness of the ground, the kind of labour available, depth, distance to deposit, whether basketed, wheeled, or carted, are important factors. Digging and earth-work in London are often sublet to an expert excavator who has his own appliances—such as pumps, cranes, &c.—and who can do the work better and cheaper than the builder, as the men work harder than the common labourer. The ordinary price for digging and carting is 3s. 6d. per yard. Sand, loose earth, rubbish, the cost may be put at 6d. per hour, or 2d. per cubic yard; this is the easiest kind of digging. For ordinary surface digging, the price is put at 4d. per cubic yard; for clay soil, not picked, 9d. per cubic yard; for hard clay or gravel requiring picking, 10d. per yard is given; for work

on trenches, 20 per cent. is to be added. Some of these prices are rather low. Other data relating to wheeling and filling are necessary to be remembered, but the figures given in textbooks vary much. One estimate is that a man will wheel 20 yards and deposit in a day 35 cubic yards of earth; another authority says three men will remove 30 cubic yards a distance of 20 yards in a day; the latter is nearer the mark; but all such figures are misleading, and depend on the soil, the kind of run, the wheeler, and other circumstances. A wheelbarrow holds one-tenth of a cubic yard, and a dobbin cart about three-quarters of a yard. Filling and ramming may be put at 6d. per cubic yard, and wheeling and depositing at about 2d.

We may now resume the items. It is necessary to say that for small quantities of drains a percentage may be added. The trade discount off list prices of 4in. and 6in. pipes varies from 10 to 45 per cent.—the tested pipes, such as Doulton's, being the best. We have given a few items; here follow a few others:—

60ft. run 4in. drain-pipe, jointed in cement, with puddled-clay joints, trenches 4ft. deep.

Taking the trench at 2ft. wide and 4ft. deep, we get 8ft. cube at a foot long.

8ft. = 8/27 cube yard, digging, filling, and ramming at, say, 11d.	s. d.
4in. drain-pipe, per ft. run	0 3½
Laying 1½d. cement ½d., clay ½d.	0 4
	0 2

Cost per foot

In this case we put digging at 5½d., including 20 per cent. for small quantity taken, added to filling and ramming at 5½d. = 11d. per cubic yard. For extra depth put ¾d. for each foot.

35ft. run 6in. drain, jointed in cement, puddled round with clay, 6ft. deep trenches.

12ft. cube digging at 11d.	s. d.
6in. drain per ft. run	0 5½
Laying 2½d., cement and clay ½d.	0 6
	0 3

1 2½

No. 6 Doulton's yard gully with cast-iron grating, bedded in cement concrete 18in. by 15in., including digging and connecting to drain.

To estimate this item, we must dissect it into its several parts. There is the digging and wheeling of earth to excavation, say 6ft. cube; concrete, say, deducting void, 2ft. 6in. Then add to this the price of gully-trap, say 6s. 9d., connecting same to drain, cement, profit, &c., say:—

6ft. cube digging and wheeling 6/27 cubic yard at 5½d.	s. d.
Cement-concrete bedding, say 2ft. 6in. cube, at 12s. 6d. per yard	0 1½
Gully-trap, price 6s. 9d.	6 9
Cement 1½d., labour ½ hour	0 3½
20 per cent. on digging and concrete for small quantity	0 2½
	8 5½

20ft. run. Strutting and planking to sides of trenches 6ft. deep and 4ft. wide.

Here one side is measured and doubled. The poling boards ("ends," as they are called) can be bought at about £6 12s. per fathom, or about ¾d. per foot super. To this add cost of waling pieces, 2½d. per foot run, and poles, 1½d. per foot. Or, say:—

240ft. super. 1½in. boarding, delivered at, say, 7s. 6d. per square	£ s. d.
80ft. run, two rows of 9 by 3in. waling, at 2½d. per ft.	0 18 0
50ft. run struts, 3ft. apart, 1½d. per ft.	0 16 8
	0 6 2

2 0 10

Allow 7½ per cent. for one month, in use for interest on capital and depreciation, on above sum, say

Also removing planks and struts, at 2s. 6d. per square	0 0 3
Cartage, say	0 2 0
	0 2 6

0 4 9

Cost per ft. super.

6ft. deep on half above superficial, per ft. run, say	0 0 0½
	0 0 4

For a larger quantity of strutting and

planking the price may be rather lower (see item, p. 466). Allow for strutting and planking to basement, 30ft. by 40ft. by 6ft. deep. Allow for this item, by a similar calculation, 1d. per foot superficial.

## THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary meeting of the Royal Institute of British Architects was held on Monday evening, Mr. H. L. Florence, Vice-President, in the chair. Mr. W. EMERSON, Hon. Secretary, announced the decease of Mr. Edmond Egan, of Loughton, Associate.

### THE APPLICATION OF COLOUR TO INTERIOR ORNAMENT IN RELIEF.

Two papers on this subject were read, the one by an architect, the second by a practical decorator. In the first, Mr. H. VAUGHAN LANCHESTER, who illustrated his remarks by some large examples of actual decoration executed by Mr. Fair, observed that the question of form and relief was so frequently of first importance that he should deal with the massing and treatment both of colour and form when applied to internal decoration.

#### MODELLED WORK

as a basis for colour treatment gave a solidity and strength that enabled the painting to be kept in a more delicate key than would otherwise be thought satisfactory. The relief also was helpful in connecting the work with the mouldings and forms around it in a way that no flat-painted work could do, and if the design of the whole interior were studied by architect and sculptor in conjunction, the result should be far beyond the very frequent method by which the architect left a space here labelled "Sculpture," or a panel there marked "Painting." The sculptor or painter naturally asked for as much freedom as possible, while the tendency of the architect's idea was towards formality and symmetry. Of the spaces the architect usually put at the disposal of the decorator,

#### THE FRIEZE

was the most interesting, and offered the greatest variety in its requirements; it might consist of simple repetition of somewhat severely conventional forms, or it might team with variety when it illustrated the great events connected with a place or a people. The frieze, however, was not always the most suitable form of decoration to adopt, and its comparatively uniform continuity of colour and modelling was not always what was most to be desired. A certain massing of either or both at intervals might, without cutting it up into disconnected panels, give the desirable suggestion of repetition to the frieze, and at the same time suggest a sense of support or connection between other portions of the whole design. This treatment suggested a greater degree of solidity and higher relief in the supporting or dividing portions, though the same end might be attained by giving them more severity of form. An uninterrupted frieze gave length to the surface on which it was placed by the horizontal stratified effect so obtained, and the more the frieze was cut up into sections, the less would the modification in proportion appear.

#### VAULTS AND CEILINGS

gave exceptional opportunities to the sculptor, though he could rarely put into them work having the same human and personal interest that the vertical surface of the wall allowed, as in most cases the decoration had to be of a more structural and conventional character. With a view to suggesting the effects that could best be aimed at in various cases, the author proceeded to consider

#### THE ACTUAL METHODS

of executing the work, and the most suitable colours and materials. The combination of relief with colour was not only valuable where the figure formed the basis of the design, but the sculptor could also deal in an interesting way with decoration based on landscape, architectural and other forms, varying according to the subject, and the dependence placed on the relief and on the colour. If the scheme of decoration were suitable, a delightful effect could be obtained by using colour very sparingly as mere suggestion—in ceilings for instance—where colouring should always be delicate, unless supported by very



strong architectural forms. Interesting effects might be obtained where it was desired to embody existing pictures or sculpture in the decoration, such works giving a note as to treatment and colour.

#### COLOURED PLASTER RELIEF.

Mr. F. LYNN JENKINS, in a second paper, also illustrated by many cartoons and examples of work, commented upon the present almost unhealthy craze for lavishly decorated buildings, remarking that each new hotel, restaurant, or place of amusement had to vie with, and, if possible, go one better in point of extravagant decoration than its predecessor, and the architect must often experience the greatest difficulty in complying with his client's demands; and sometimes at the expense of his own natural good judgment and taste, the necessity had arisen for a decorative material which should, above all, be durable and easily cleaned, varied, and rich in surface and texture, being permanently coloured to any key of brilliancy, and enriched with metals. These properties were embodied in the material known generally as coloured plaster relief work, and should prove almost sufficient reason for its production and use. With regard to the prevalent mode of decorating rooms in private houses, it was becoming more and more apparent how false a notion it was, and how extremely difficult it was to get any satisfactory effect by papering the walls and hanging pictures upon them. The revival of the old method of designing and making such decorations as were required as part and parcel of the scheme of the room was a movement the influence of which was bound to be widespread by reason of its truth of principle, and also because even the unanalytical mind would, he believed, grow to perceive its advantage without knowing why. The use of coloured relief for such purposes would often be found most serviceable. The author then described in detail the

#### MATERIAL AND METHOD OF ITS PRODUCTION,

and the plan adopted during the last three years in the working of reliefs by Mr. Gerald Moira and himself, working in collaboration, examples of their work being exhibited, including some work for the Passmore Edwards Free Library at Shoreditch, under Mr. H. T. Hare. The relief work in question could in no respect be considered according to the usual laws governing bas-reliefs, but should be modelled strictly with a view to the reception of colour. The quality of the colour depended so much on the texture of the surface underneath that it required not a little experience and many experiments to obtain good results. The peculiar properties of the material enabled the painter to get a brilliant transparency of colour on some parts to contrast with the density of others, so that there were practically no limitations to handicap him. This plastic material, not being like terracotta, fired, had the additional merit of giving exact reproduction, even to the impression of a thumb-print in the finished cast, and the objectionable glaze seen in much modern faience was entirely absent. The panels were easily removable from the wall if necessary, without damage to them. When the work was fixed complete in its position, it was carefully reconsidered with relation to its exact surroundings, and alterations could easily be effected if desired. Some special advantage was derived in coloured relief work by the collaboration of painter and sculptor. Each would exercise a wholesome restraint on the other beneficial to the work, while the joint imagination of two minds should instil a greater degree of interest.

Mr. J. M. BRYDON, in proposing a vote of thanks to Messrs. Lanchester and Jenkins, remarked that it had always been a problem with architects who were carrying out internal decorative work in houses, how to deal with colour. There was no difficulty nowadays in getting good reliefs and friezes in plaster; but the question was how to prevent the room getting dirty, and Mr. Lynn Jenkins had shown them how to obtain these decoratively coloured by the collaboration of two minds in the works. This was very well so far as it went; but architects frequently wished to suggest the application of colour to plaster work already executed; but they feared that the delicacy of modelling would be destroyed by the application of paint to the surface. He felt that all sculptured forms applied to architecture ought to be treated conventionally and with a certain reserve, and even severity, both of line and of colour, so that the work should, so

to speak, steady itself. As soon as naturalistic forms were introduced difficulties arose in treatment. From his point of view, some of the spandrels, panels, and friezes exhibited that evening in the round, and also in cartoons, were too restless for the architectural decoration of a room; but allowance should be made for the fact that they were merely sketches to small scale. In ancient buildings a magnificent effect was often obtained by the employment of gold applied to the ornament in relief, and no amount of colour was at all to be compared in effect with gilding. He would suggest that all figures should be conventionalised, that the colours employed should be reduced to very few, and that the backgrounds should be kept of one uniform tone, the result to be aimed at being a stately, broad, and majestic effect. Such a result had not yet been attained in modern work; nor did he think that it had been indicated that evening, although it had been most interesting to learn about the technique of the methods employed.

Mr. HAROLD RATHBONE, of Birkenhead, defended the high glaze adopted on his modern reproduction of Della Robbia ware, as rendering the material more permanent, and incidentally mentioned that he had not made a farthing by the revival, but had, on the contrary, sunk a large capital. He exhibited some specimens of the manufacture, and suggested it could be employed out of doors, in panels, as a contrast to brickwork. Some of the designs for friezes shown by Mr. Jenkins were, he thought, exceedingly clever, but lacking in simplicity and breadth of treatment.

Mr. E. W. MOUNTFORD seconded the vote of thanks, and pointed out that the friezes adversely criticised by Mr. Rathbone were only models to a third in scale of the executed work. He agreed with Mr. Brydon in his remarks as to the need for greater conventionality in the designs shown.

Mr. J. D. CRACE held that the friezes in modern Della Robbia ware shown would be more successful if the backgrounds had been kept uniform in tint. Too much emphasis had been laid that evening on technique; but this was, after all, of secondary importance and interest when compared with the need for definite expression in surface and line. Coloured work in fibrous plaster was not, as Mr. Lynn Jenkins seemed to think, a novelty: it had been known for more than thirty years. It was essential that the forms of coloured decoration should be sufficiently definite to be easily recognised at the distance from the spectator at which the work was intended ultimately to be seen.

The CHAIRMAN, in putting the vote of thanks, said that he should have liked to have seen work of this kind executed without any glaze, with an attempt to give something of the effect of old tapestry in the surfaces. Much of the work exhibited that evening was eminently suited for use in theatres and restaurants, but not in private houses. He saw many past Owen Jones students present, and had hoped that some would have given expression to the voices of architects on decoration; but they appeared to suffer from the shyness common to members of the profession.

Messrs. LANCHESTER and JENKINS briefly replied. The latter explained that it was not necessary to have any glaze in his relief plaster, but that an absolutely flat effect could be obtained. So far as they had been able to judge, after testing it under water, the material Mr. Moira and he were working in was very durable.

#### THE LONDON GOVERNMENT BILL AND THE R.I.B.A.

THE Council of the Royal Institute of British Architects, viewing with some apprehension certain clauses in the London Government Bill which affect the architectural profession, have respectfully drawn the attention of the First Lord of the Treasury to various points set out below, of which they urge earnest consideration. In the first place, they point out that the Royal Institute is the statutory body for the examination of district surveyors, and that the Metropolitan Fellows, all practising architects, number 295, whilst further there are 545 Associates, all engaged in the work of designing and building in London, many of these being principals.

On behalf, therefore, of a responsible and representative body, the Council of the Royal Institute most strongly urge:

1. That architects practising in London on

behalf of their clients the public would have great difficulty in complying with the by-laws made by forty different borough corporations, and that wide differences in the administration of any building laws must ensue where there is not one responsible head as at present.

2. That it is of the utmost importance for the proper carrying out of the Building Act that district surveyors should be independent surveyors, responsible only to a central authority, and not merely officials of a single corporation, and therefore subject to local control. And, further, that the supervision of buildings should continue with them, and not be deputed to building inspectors under the control of a borough surveyor or engineer.

3. That architects, having to submit their drawings for important and public buildings to the district surveyors, strongly object to subject themselves to the direction of anyone who is not a qualified and experienced architect and independent of all local influences.

4. That the administration of the London Building Act, 1894, having worked well for so many years, there is no reason for any alteration. For such a purpose London must be treated as a whole, and therefore the rules applying to the other town corporations, which are quite apart from, and independent of, each other, cannot apply to these London corporations, which are merely parts of a huge Metropolis.

5. That for the above reasons Clause 6 of the Bill be entirely omitted, and the powers under Clause 5 be strictly limited to matters which are local and not general.

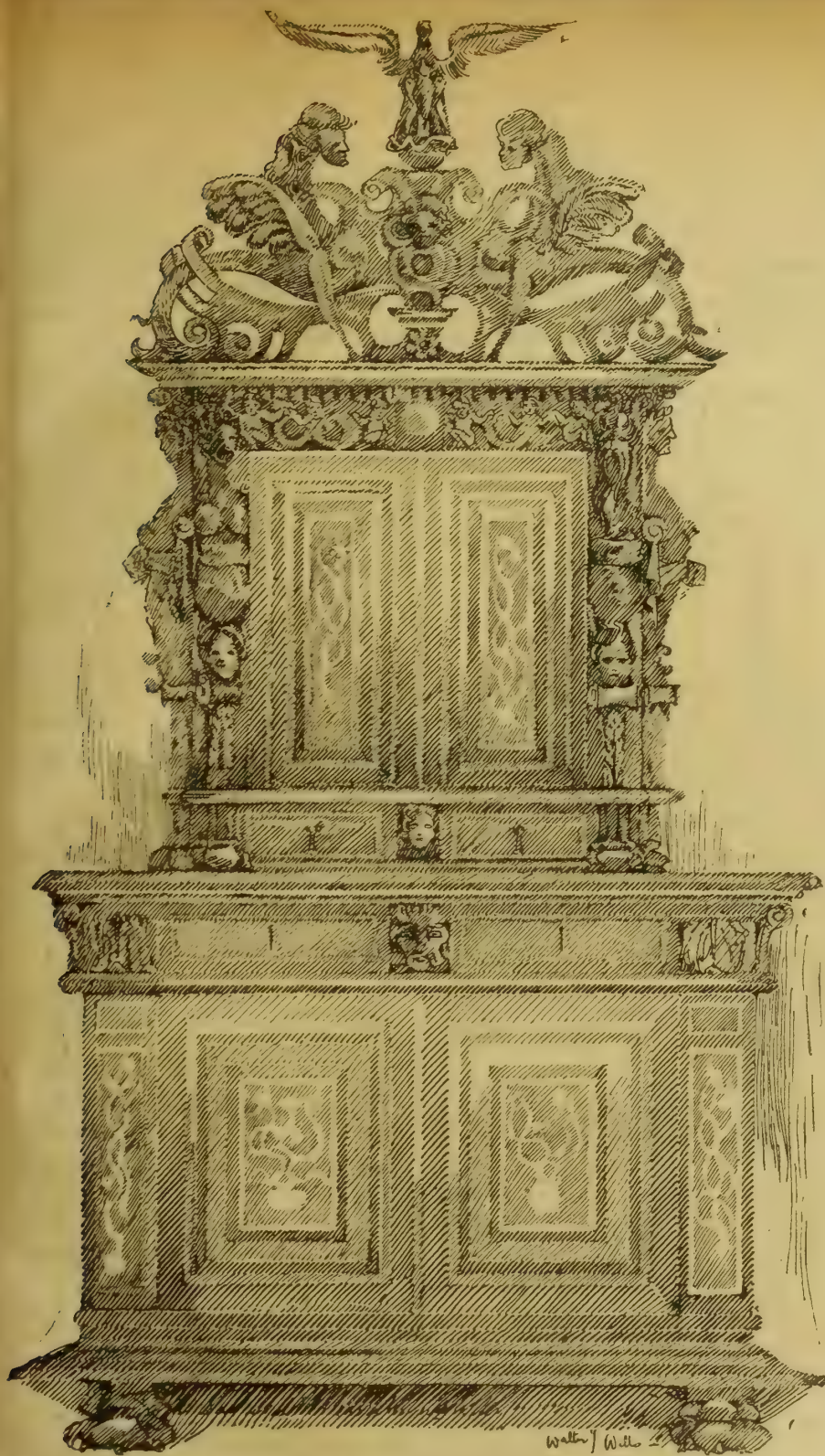
6. That architects acting for their clients the public already labour under great difficulties in consequence of the very varied character of the sanitary and other by-laws at present issued and enforced by the local authorities in the London area, and that the London County Council, as the central authority, be empowered to issue to each proposed corporation by-laws as to sanitary and other matters affecting buildings which shall be compulsory throughout the whole London area.

7. That no further splitting up of: he laws affecting buildings in the Metropolis be allowed, but that rather all these be made uniform throughout the whole area affected by the Bill.

#### IMPROVEMENTS AND WORKS IN THE CITY.

THE City engineer (Mr. D. J. Ross), in his annual report to the Corporation, states that negotiations had been continued to acquire the various interests in the premises required for the widening of the southern side of Fleet-street. Several claims had been settled, and one frontage set back to the new line. The remaining claims were ready for settlement. The premises 19 and 20, Fleet-street, nearly opposite St. Dunstan's Church, being about to be rebuilt, a favourable opportunity occurred for widening Fleet-street at its western end, and the London County Council had agreed to contribute £20,000 towards the cost of widening on the south side from the City boundary to Falcon-court, which the corporation had accepted. The improvement at the western end of Cheapside, Newgate-street, and the eastern end of Paternoster-row, had occupied attention, and many interests had been acquired. All remaining claims were under negotiation. Preparations had been made for completing the Basinghall-street improvement, commenced as far back as 1861. The question of making an improvement by opening a passageway between Draper's Gardens and Copthall Buildings had been before the Court for a considerable time, but, owing to legal difficulties, no progress had been made, and until those difficulties had been removed the matter remained in abeyance. The London County Council had declined to contribute to the widening of London-wall, on the ground that, as the land in Finsbury-circus, &c., had realised a higher price than it would have otherwise fetched owing to the intended widening, the Corporation were not entitled to compensation. With regard to the large area destroyed by the great fire in Cripplegate, when three and a half acres were demolished, the Corporation gave great attention to the question of effecting improvements. Many schemes and estimates for widening the existing thoroughfares and for forming new streets were prepared, but the London County Council had declined to contribute towards any of them. Failing in obtaining any contribution from the London County Council,





A FRENCH RENAISSANCE SIDEBOARD.

the Corporation, considering that any improvement, if carried out, would be of a Metropolitan and not a local nature, did not feel justified in proceeding by themselves. The result had been that the properties on the site had been rebuilt on the old lines of frontage, and no improvement effected. An arrangement had been made for widening Lothbury on the south side between Princes-street and the Old Jewry. The London County Council had agreed to contribute one-third of the cost of making the street 50ft. wide. The Corporation were forming a new street between Fenchurch-street and Crutched Friars 40ft. wide, the owner of the land paying £600 towards the cost, and, on the invitation of the London County Council, were contributing one-half the cost of widening Mansell-street, one of the direct approaches to the Tower Bridge. Claims amounting in the aggregate to about

£503,200 had been negotiated by the Improvements and Finance Committee during the past three years. The amount these claims were settled for was about £390,650, whilst surplus lands and other property to the value of about £96,800 had been disposed of. Beneath the City streets were 2,392 yards of subways. The lengths of gas, water, and hydraulic mains, and telegraph pneumatic tubes, and electric lighting conduits laid in them amounted to nearly ten and a half miles. Electric light and telegraph conduits contained about 440 miles of wires and cables.

## FRENCH RENAISSANCE SIDEBOARD.

**T**HIS bold and richly-elaborated example of marquetry is also strikingly carved. Its date is about 1560, and the Cabinet may now be

seen in the national collection at South Kensington Museum. The table top measures 3ft. from the floor. Two cupboard doors and two drawers occupy the lower body of the piece, while the same order is reversed in the upper portion, the total height being 7ft. 6in. to the apex of the carving from the floor. The mouldings are delicate and refined, with egg-and-tongue enrichments round the panels of the lower pair doors, and the central parts and pilasters are inlaid with foliations which are very good in their drawing.

## IRON CONSTRUCTION IN DRAINAGE WORK.—XI.\*

By T. E. COLEMAN, F.S.I.

[CONCLUDED.]

**I**T has already been mentioned that iron drainage construction is much more extensively adopted in America than in this country. To some extent it is due to the different local and climatic conditions which obtain, and which also necessitate certain important differences of sanitary practice in the general scheme of domestic drainage work.

In the United States both wrought and cast iron are largely used for drain-pipes; the soil, waste, and antisiphonage pipes being also constructed of wrought iron, cast iron, steel, or brass, according to requirements. All soil and waste pipes are as a rule fixed *inside* the building, the upper ends being carried directly through the roof into the open air, whilst the lower ends are connected to iron drain-pipes in the basement. This procedure is found advisable owing to the great extremes of temperature experienced in that country, for external soil and waste pipes would be liable to be frozen in winter, whilst the summer heat would cause excessive expansion of the pipes and joints. The branch wastes from baths, lavatories, &c. (after being properly trapped under the outlet, and provided with an antisiphonage pipe), are also frequently connected to an adjacent closet soil-pipe. At the same time the whole of the soil, waste, and drain pipes situated within the building are so arranged as to be readily accessible for examination at any time, due consideration being also given to the efficient trapping and ventilation of the system.

English sanitary practice, on the other hand, requires that all soil and waste pipes shall, as far as possible, be fixed on the *outside* of the building. By this means there is a lessened risk of sewer air entering the building through defective joints and pipes, whilst the degree of heat and cold usually experienced is such that no difficulty or inconvenience is caused if the pipes are properly fixed. Entire separation between soil and waste pipes is also insisted upon, and it is further required that all waste-pipes shall, if practicable, discharge in the open air into or over a trapped gully. Complete air disconnection is thus obtained between the waste-pipes and the drainage system.

The broad differences of practice have thus been briefly mentioned; but in both countries it is necessary that the construction of all drainage work shall comply with the by-laws and regulations made by the different local sanitary authorities or city boards of health.

The following summary of the principal provisions in the plumbing and drainage regulations enforced by the "Department of Buildings, City of New York," will serve as a typical illustration of the requirements of American sanitary authorities.

## CITY OF NEW YORK.—SUMMARY OF DRAINAGE REGULATIONS, ETC.—GENERAL CONDITIONS.

Complete plans and sections (drawn to scale) of all drainage and plumbing work to be executed must first be filed and approved by the "Department of Buildings."

Written notice must be given by the plumber when any work is begun, and from time to time when the same is ready for inspection. No part of the work shall be covered until it has been examined, tested, and approved by the inspector.

## MATERIALS AND WORKMANSHIP.

All materials must be of the best quality, free from defects, and the work executed in a thoroughly workmanlike manner.

All cast-iron pipes and fittings must be sound, cylindrical and smooth, free from cracks, sand-holes, &c., and of uniform thickness. The size, weight, and maker's name must be cast on each

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length of pipe, and must weigh not less than the following average weights per foot run :—

## CAST-IRON PIPES.

Diameter.	Weight per ft. run.	Diameter.	Weight per ft. run.
2in. ....	5½lb.	7in. ....	27lb.
3in. ....	9½lb.	8in. ....	33½lb.
4in. ....	13½lb.	10in. ....	45lb.
5in. ....	17½lb.	12in. ....	54lb.
6in. ....	20lb.		

The joints of all cast-iron pipes to be made gas-tight with picked oakum and fine soft molten pig lead. Each joint to have 12oz. of lead for every inch in diameter of the pipe.

All wrought-iron and steel pipes to be lap-welded and tested by the manufacturer. Each length to be galvanised, and to have the weight per foot run and maker's name stamped upon it.

The joints of all wrought-iron and steel pipes to be made gas-tight, with screwed joints properly made with red-lead. The fittings for waste and soil pipes to be heavy cast iron, recessed, and screwed drainage fittings, with smooth water-ways.

Wrought-iron and steel pipes shall not be less than the following average thickness and weight per lineal foot.

## WROUGHT-IRON AND STEEL PIPES.

Diameter.	Thickness.	Weight per foot run.
1½in. ....	14in. ....	2 68lb.
2in. ....	15in. ....	3 61lb.
2½in. ....	20in. ....	5 74lb.
3in. ....	21in. ....	7 54lb.
3½in. ....	22in. ....	9 00lb.
4in. ....	23in. ....	10 88lb.
4½in. ....	24in. ....	12 34lb.
5in. ....	25in. ....	14 50lb.
6in. ....	28in. ....	18 78lb.
7in. ....	30in. ....	23 27lb.
8in. ....	32in. ....	28 18lb.
9in. ....	34in. ....	33 70lb.
10in. ....	36in. ....	40 06lb.
11in. ....	37in. ....	45 02lb.
12in. ....	37in. ....	48 93lb.

All brass pipes for soil, waste, and vent-pipes must be of thoroughly annealed, seamless, drawn brass tubing of standard iron pipe gauge.

The connections for brass pipes, and also between brass pipes and traps or iron pipes, must not be made with slip joints or couplings. The screwed connections for brass pipe must be of the same size as iron pipe threads for the same size of pipe.

The following average thickness and weight per lineal foot will be required :

## BRASS PIPES.

Diameter.	Thickness.	Weight per foot run.
1½in. ....	14in. ....	2 84lb.
2in. ....	15in. ....	3 82lb.
2½in. ....	20in. ....	6 08lb.
3in. ....	21in. ....	7 92lb.
3½in. ....	22in. ....	9 54lb.
4in. ....	23in. ....	11 29lb.
4½in. ....	24in. ....	13 06lb.
5in. ....	25in. ....	15 37lb.
6in. ....	28in. ....	19 88lb.

Brass ferrules must be best quality, bell-shaped, extra heavy cast brass, not less than 4in. long, and not less than the following weights, viz :—

## CAST-BRASS FERRULES.

Diameter.	Weight.
2½in. ....	1½lb. each
3½in. ....	1½lb. "
4½in. ....	2½lb. "

Soldering nipples must be of heavy cast brass, or of drawn brass tubing of standard iron pipe gauge. When cast, they must be not less than the following weights, viz :—

## CAST-BRASS SOLDERING NIPPLES.

Diameter.	Weight.
1½in. ....	8oz. each
2in. ....	14oz. "
2½in. ....	1½lb. 6oz. "
3in. ....	2½lb. "
4in. ....	3½lb. "

The use of lead pipe is restricted to the short branches of soil, waste, ventilating, or anti-siphonage pipes, bends, traps, roof connections, and flushing pipes.

All lead waste, soil, ventilating, and flushing pipes must be of best quality drawn pipe, weighing not less than the following weights per lineal foot, viz :—

## LEAD PIPES.

Diameter.	Weight per foot run.
1½in. (for flush pipes only) ....	2½lb.
1¾in. ....	3½lb.
2in. ....	4½lb.
3in. ....	6½lb.
4in. ....	8½lb.
4½in. ....	8½lb.

All lead traps and bends must be of the same weights as their corresponding pipe branches.

The plumbing and drainage system of every building must be entirely separate from that of every other building. The sewer connections of

every building must be made directly in front of the building, unless permission is otherwise granted. When a proper foundation, consisting of a natural bed of earth, rock, &c., can be obtained the "house-sewer" can be of earthenware pipe.

*Note.*—The term "house-sewer" is applied to that portion of the main drain or sewer extending from a point 2ft. outside the outer face of the area wall or outer front vault to its connection with the public sewer. The term "house-drain" refers to that portion of the main horizontal drain and its branches inside the walls of the building, and extending to, and connecting with, the "house-sewer."

Where the ground is made or filled in, or where the pipes are less than 3ft. deep, or where there is danger of settlement, the "house-sewer" must be of extra heavy cast-iron pipe with lead caulked joints.

The "house-sewer" and "house-drain" must be not less than 4in. in diameter where water-closets discharge into them. Where rain-water discharges into them, the size of the "house-sewer" up to the rain-water connections must be in accordance with the following table, viz :—

## SIZE OF DRAINS RECEIVING RAIN-WATER.

Diameter.	Fall.	Maximum Drainage Area.
6in. ....	1in. per foot run	5,000ft. super.
	1in. " "	7,500ft. "
	1in. " "	6,500ft. "
7in. ....	1in. " "	10,300ft. "
	1in. " "	9,100ft. "
8in. ....	1in. " "	13,600ft. "
	1in. " "	11,600ft. "
9in. ....	1in. " "	17,400ft. "

The "house-drain" and its branches when underground must be of extra heavy cast iron, and when above ground must be of extra heavy cast iron, or galvanised wrought iron, or steel.

The "house-drain" must properly connect with the "house-sewer" at a point 2ft. outside of the outer front wall or area wall of the building. An arched or other proper opening must be provided for the drain in the wall to prevent damage by settlement.

The house drain and sewer must be run as direct as possible, with a fall of at least 1in. per foot run. All changes in direction to be made with proper fittings, and all connections made with Y branches and 1/4th and 1/8th bends.

If possible the house-drain must be above the cellar floor, and supported by brick piers at intervals of 10ft., or suspended or otherwise supported by heavy iron pipe-hangers, spaced not more than 10ft. apart. The use of pipe-hooks for supporting drains is prohibited.

An iron running trap must be placed on the house-drain near the wall of the house, and on the sewer side of all connections. If placed outside the house or below the cellar floor, it must be made accessible in a brick manhole fitted with an iron or flagstone cover. The house-trap must have two clean-outs with brass screw-cap ferrules caulked in. When fixed outside the house, it must be not less than 3ft. below the surface of the ground.

A fresh-air inlet must be connected with the house-drain just inside of the house-trap, and will be constructed of heavy cast iron where underground. Where possible it will extend to the outer air, and finish with a return bend at least 1ft. above ground, and 15ft. away from any window or furnace cold-air box. When this arrangement is not possible, the fresh-air inlet must open into the side of a box not less than 18in. square placed below the side-walk, at the curb. The bottom of the box must be 18in. below the underside of the fresh-air inlet-pipe. The box may be of cast-iron, or constructed of brick-work or flagstones in cement. It must be covered by a flagstone fitted with movable metal grating, leaded into the stone, having openings equal in area to the area of the fresh-air inlet-pipe.

For drains up to 4in. in diameter, the fresh-air inlet-pipe must be of the same diameter; for 5in. and 6in. drains it must be not less than 4in. in diameter; for 7in. and 8in. drains not less than 6in. in diameter; and for larger drains not less than 8in. in diameter.

All yards, courts, and areas must be drained, and when sewer-connected must have connections not less than 3in. in diameter.

When rain-water pipes are fixed inside buildings they must be constructed of cast-iron, wrought-iron, or steel, with roof connections, made gas and watertight by means of a heavy lead or copper drawn tubing wiped or soldered to a brass ferrule or nipple caulked or screwed

into the pipes. They must be trapped with cast-iron traps, so placed as to prevent freezing. Rainwater-pipes must not be used as soil, waste, or vent-pipes, nor shall soil, waste, or vent-pipes be utilised as rainwater-pipes.

Cellar drains will only be permitted when they can be connected to a trap with a permanent water-seal.

Sub-soil drains should discharge into a sump or receiving tank, the contents being lifted or discharged into the drainage system above the cellar bottom by some approved method. Where directly connected to a sewer, they must be cut off from the rest of the plumbing system by a brass flap-valve on the inlet to the catch-basin, whilst the trap on the drain from the catch-basin must be supplied with water, as required for cellar-drains.

## SOIL AND WASTE PIPES.

All main soil, waste, vent, or antisiphonage pipes must be of iron, steel, or brass. When they receive the discharge from fixtures on any floor above the first, they must be carried full bore to a height of at least 1ft. above the roof coping and well away from all shafts, windows, chimneys, or ventilating openings. When less than 4in. diameter, they must be enlarged to 4in. at a point not less than 12in. below the roof surface by an increaser not less than 9in. long.

No caps, cowls, or bends shall be affixed to the top of such pipes. In tenement-houses and lodging-houses wire baskets must be securely fastened into the opening of each pipe that is in an accessible position.

All pipes issuing from extensions or elsewhere, which would otherwise open within 30ft. of the window of any building, must be extended above the highest roof and well away from and above all windows.

All pipe lines must be supported at the base on brick piers, or by heavy iron hangers from the cellar ceiling beams, and throughout their length by heavy iron hangers, at intervals not exceeding 10ft. The whole of the pipes and traps should, where possible, be exposed to view, and should always be readily accessible for inspection and repairs.

No trap must be placed at the foot of main soil and waste pipes. Soil and waste pipes must not be less than the following sizes, viz :—

## SIZE OF SOIL AND WASTE-PIPES.

Description.	Minimum Diam.
Main soil-pipe .....	4in.
Main waste-pipe .....	3in.
Branch soil-pipe .....	4in.
Branch waste for laundry tubs .....	2in.
Branch waste for kitchen sink .....	2in.
Soil-pipe for w.c.'s on five or more floors ..	5in.
Waste-pipe for sinks on five or more floors ..	3in.

Branch soil and waste pipes must have a fall of at least 1in. per foot run. All traps must be protected from siphonage and back pressure, and the drainage system ventilated by special lines of vent-pipes.

## VENT-PIPES.

All vent-pipe lines and main branches must be of iron, steel, or brass. They must be increased in diameter and extended above the roof as required for waste-pipes. They may be connected with the adjoining soil or waste pipe line well above the highest fixture, but this will not be permitted when there are fixtures on more than six floors. All vent-pipe lines must be connected at the bottom with a soil or waste pipe or drain in such a manner as to prevent the accumulation of rust scale. Branch vent-pipes should be connected as near to the crown of the trap as possible.

Vent-pipes must not be less than the following sizes, viz :—

## SIZE OF VENT-PIPES.

Description.	Minimum Diameter.
Main vents and long branches .....	2in.
For w.c.'s on 3 or more floors .....	3in.
For other fixtures on less than 7 floors .....	2in.
Ditto. ditto. 7 to 8 " .....	3in.
Ditto. ditto. 9 to 15 " .....	4in.
Ditto. ditto. 16 to 21 " .....	5in.
Ditto. ditto. 22 floors and upwards .....	6in.
Branch vents for traps up to 2in. diam. ....	1½in.
Ditto. exceeding 2in. diam. ....	2in.

Earthenware traps for water-closets and slop-sinks must be ventilated from the branch soil or waste pipe just below the trap. Earthenware traps must have no vent-horns.

## PLUMBER'S TRAPS.

Every fixture must be trapped as close to the outlet as possible, and all traps must have a water seat of not less than 1½in. The discharge



from any fixture must not pass through more than one trap before reaching the house-drain.

All fixtures, except water-closets and urinals, must have strong metal strainers over the outlets, to prevent obstruction of the waste-pipe. Iron traps to water-closets and other fixtures must be porcelain-lined.

All accessible traps, except water-closet traps, must have brass screw cleaning eyes. The screw caps must be not less than  $\frac{1}{2}$  in. thick; whilst the body of the clean-out ferrule must be equal in weight and thickness to the caulking ferrule for the same size of pipe. Traps must be self-cleaning, and without interior mechanism. No mason's, cesspool, bell, pot, bottle, or D-trap is permitted.

Traps must not be less than the following sizes, viz. :—

#### SIZE OF PLUMBER'S TRAPS.

Description.	Minimum Diameter.
Traps for water-closets .....	4in.
" alop-sinks .....	2in.
" kitchen sinks .....	2in.
" wash trays .....	2in.
" urinals .....	2in.
" other fixtures .....	1 $\frac{1}{2}$ in.

Overflow pipes must in all cases be connected on the inlet side of traps.

All earthenware traps must have heavy brass floor-plates soldered to the lead bends, and bolted to the trap flange, and the joint made gas-tight with red or white lead. The use of rubber washers for floor connections is prohibited.

Safe waste-pipes must be of galvanised iron not less than  $\frac{1}{2}$  in. in diameter, and having lead branches of the same size, with strainers soldered thereto. Safe waste-pipes must not be directly connected to any part of the plumbing system, but must discharge over an open ordinarily-used sink or upon the cellar floor, and have brass flap-valves at their lower ends. The branches on vertical safe waste-pipe lines must be made with Y fittings, and carried up to the safe with as much pitch as possible.

#### FIXTURES.

Water-closets must be set on marble, slate, or tile, and the back and ends of the apartment made waterproof with some similar non-absorbent material. Closets must be set open and free from all inclosing woodwork, and provided with earthenware flushing rim-bowls. Pan, valve, plunger, and other water-closets having an unventilated space, or whose walls are not thoroughly washed at each discharge, will not be permitted.

Water-closets and urinals must be flushed from a separate cistern, the water from which is used for no other purpose. They must never be connected directly with, or flushed from, the water-supply pipes.

Iron water-closet cisterns and automatic urinal cisterns are prohibited. The copper lining of water-closet and urinal cisterns must not be lighter than 10oz. copper. The overflow from cisterns may discharge into the bowls of the closet, but must in no case connect with any part of the drainage system.

The flushing-pipes to water-closets must be not less than  $\frac{1}{2}$  in. diameter, and if of lead, must weigh not less than 2 $\frac{1}{2}$  lb. per foot run. Urinal flush-pipes must be not less than  $\frac{1}{2}$  in. diam., and where lead is used, must weigh not less than 2lb. per foot run.

Latrines, trough-closets, and similar appliances can only be used by special permission.

Urinals must be constructed of materials which are impervious and non-corrosive under the action of urine. The floor and walls of the apartment must also be lined with similar materials.

#### WATER SUPPLY.

All water-closets and other plumbing fixtures must be provided with an adequate supply of water. When the water pressure is insufficient to supply freely and continuously all fixtures, a one-supply tank must be provided of sufficient size to afford an ample supply of water at all times. The tank must be fixed in an approved manner, and provided with a cover to exclude dust, &c. The overflow-pipe must not be connected to any part of the plumbing system, but must discharge on to the roof where possible.

No service or supply pipes, tanks, flushing stems, or water-supplied fixtures should be placed where they will be exposed to frost. Where so placed they must be properly packed and boxed to prevent freezing.

#### TESTING.

The entire plumbing and drainage system within the building must be tested by the plumber, in the presence of a plumbing inspector, under a water or air test, as may be directed. All pipes must remain uncovered in every part until they have successfully passed the test. All openings must be securely closed, as required by the inspector, and the use of wood plugs for this purpose is not permitted.

The water test is applied by closing the lower end of the main house-drain and filling the pipes to the highest opening above the roof with water. Where any portions of the drainage system are separately tested there must be a head of water at least 6ft. above all parts of the work so tested, and special provision must be made for including all joints and connections in at least one test.

The air test is applied with a force pump and mercury column under 10lb. pressure, equivalent to a height of 20in. of mercury. Spring gauges are not permitted to be used.

When the work is finally completed and the traps of the fittings filled with water, the plumber must make a peppermint or smoke test in the presence of a plumbing inspector, and as may be directed by him. The materials and labour for the tests must be provided by the plumber. Where the peppermint test is used, 2oz. of oil of peppermint must be provided for each line of pipes up to five stories in height, and for every additional five stories in height (or fraction thereof) one additional ounce of peppermint must be provided for each line of pipes.

From the foregoing particulars respecting the plumbing and drainage regulations for New York it will be seen that the supervision exercised by the city authorities is of a very stringent and searching character. Considering the great height of many American buildings, and the fact that the soil, waste, and drain pipes are largely fixed inside the houses, such construction particularly calls for materials and workmanship of the highest class, so that the sanitary efficiency of the whole may, as far as possible, be permanently insured.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE twenty-first anniversary dinner of this deserving charity was held at the King's Hall, Holborn Restaurant, on Tuesday evening. The President, Mr. Alfred F. Randall (Messrs. Randall and Kirk, of Woolwich) occupied the chair, and was supported by over 290 friends and supporters of the institution. The usual loyal and patriotic toasts having been given, that of "The Navy, Army, and Reserve Forces" having been proposed by Mr. Downs and acknowledged by Major Marshall, the President proposed the toast of the evening, "The Builders' Clerks' Benevolent Institution." Prefacing his appeal with a few remarks as to the origin and object of the institution, the President explained that the charity was thirty-three years old, having been commenced in 1866 in a very small way by its founder, the late Mr. Thomas Peto Ward. The object then as now was the granting of pensions or temporary relief to decayed or distressed builders' clerks or their orphans, and for the maintenance and education of their orphans. That aim has been realised, and had been adhered to and carried out in a greater degree perhaps than its founder could have foreseen. In the first year (1868) that relief was given, the amount so expended was £12 15s., whereas last year the amount so distributed was £504, and to this should be added £102 working expenses, making a total spent of £606. The entire amount in relief since 1868 was no less a sum than £17,336, and this spoke volumes as to the necessity and usefulness of such an institution. Last year saw the largest sum paid in temporary relief, many most distressing cases presenting themselves to the committee, who made it an invariable rule to inquire without delay into the cases before them, and to afford relief promptly. He could speak from personal observation on this point, for at the meeting he attended two pressing appeals came before them, and two members of the committee at once volunteered to visit and deal with the cases the next morning. The institution not only offered relief to subscribers, but had given aid to those who had not paid a penny towards its funds, and also to the widows and orphans of non-subscribers. But those clerks who had subscribed were credited with ten votes at any election for each

guinea they had ever given. He was rather surprised to hear that some clerks preferred to subscribe to the Odd Fellows or kindred societies; but he could not see the advantage, for while from those societies they derived benefit only when they were ill, and when dead friends could draw some £10 or £12 to bury them, with that institution pensions and relief were given when a man was past his work, and the committee were empowered to pay as much as £10 for temporary relief. There were at present 21 pensioners, and two children at the Orphan Working School, and there was a vacancy for another duly elected builders' clerks' orphan. In appealing for liberal subscriptions, the president remarked that this was the coming-of-age dinner, while they had 21 pensioners, their office was at 21, New Bridge-street, the committee, with their treasurer and secretary numbered 21, and to any guest who entertained doubts in his mind as to the amount he should give that evening, he would call attention to the suggestive sequence of five twenty ones, which might be translated into shillings with great advantage to the institution. Mr. Costigan, in giving "The Architects and Surveyors," urged the claims of the institution on the profession, and Mr. Benjamin Tabberer, in his reply, said both contractors and surveyors were under a debt of gratitude to builders' clerks for their able service. The remaining toasts were "The Builders," proposed by Mr. W. Turnbull Tonkin, and responded to by Mr. Downs; the "Builders' Merchants," proposed by Mr. Joseph Randall (past president, and father of the chairman), who urged that the institution ought to be more liberally and widely supported by the builders' clerks themselves, of whom not a tithe of the 4,000 in London alone contributed to its funds, an appeal endorsed by Mr. Barrett in his response, and "The President" was given by Mr. Costigan, and acknowledged from the chair. In proposing the health of "The Past Presidents," Mr. Edwin Brooks, treasurer, referred to the great loss the institution had sustained by the death, by accident, of their indefatigable and genial secretary, Mr. H. J. Wheatley. He coupled with the toast the name of Mr. R. C. Foster, of Messrs. Foster and Dicksee, of Rugby, who, in responding, referred to the great assistance he had received during his occupancy of the presidential chair last year from Mr. Wheatley, who always worked very hard on behalf of the institution. At the close of the proceedings, Mr. John Austin, the secretary, read a long list of donations and subscriptions amounting to over £200, headed by £25 from the President.

#### PARIS: ITS COMING EXHIBITION.

MY last jottings, entitled "International Exhibitions: a Retrospect" (March 24), were simply a stringing together of some personal reminiscences of various international exhibitions; remembrances that had the perhaps questionable merit of extending over the lengthened period of nearly half a century. To-day, we will devote ourselves to present surroundings, more especially as to the way they suggest future success or non-success for next year's much-talked-of exhibition. Up to date, the long-suffering British taxpayer has found a distinct difficulty in learning anything official or definite about the coming show. True, a Royal Commission for the Paris Exhibition exists at St. Stephen's House, Westminster, S.W.; but intending exhibitors, or others interested, are unable to obtain there any really serviceable information. Hence, he being best served who serves himself, it so came about that the writer finds himself upon the site of the actual exhibition whilst penning these lines.

Before leaving England, an application was made for official permission to view the grounds; but Mr. Herbert Jekyll, the secretary to the Commission, promptly replied, that, with regret, he was "unable to forward a pass to visit the works, as the French authorities are extremely unwilling to grant passes to anyone for this purpose." This blunt refusal to permit an old exhibitor to scan the nakedness of the land looked distinctly ominous. But, nowadays, if one means towards a given end does not succeed, there generally is, and always ought to be, another string to one's bow, and so, armed with an introduction to our Ambassador at Paris from a popular member of Parliament, the voyage across the Channel was made.

Are fogs increasing in area? When a lad, I recollect it was generally supposed they were



confined to London. Nowadays they seem to be everywhere! Naturally, we left Southampton in a thick fog, so dense, indeed, that one could not see half-a-dozen yards ahead. Last summer, coming out of the Indian Ocean and turning northward around Cape Agulhas, we found Table Bay wrapped in a fog as opaque as one expects to find on the Thames in mid-November. And there, too, we had to lie all night ere we could go ashore at Cape Town—all on account of the fog! And so in this, one's most recent experience, after infinite delay, we came into Havre in a fog, reached St. Lazare Station in a fog, and found ourselves at Paris (just six hours' late) enveloped in fog. And, although this may be antipathetic—it seems to the unsophisticated eye—the French authorities themselves are pretty much in a fog, too, over this much-vaunted, but at the present time anything but promising-looking, Exhibition for A.D. 1900.

By the way, St. Lazare Station is known to many thousands of one's fellow-countrymen; but how many of those who hurry through its portals one way or the other ever give a thought as to whose honour the terminus is named? Was it S. Lazarus, of Constantinople, that devoted 9th-century ecclesiastical artist and priest who, we are credibly informed, after his hands were cruelly burnt off, was such an enthusiast that he continued to sketch clever pictures for the decoration of churches with his mauled stumps, somewhat after the fashion of the armless prodigy who, years ago, used to sit on City-road Bridge, E.C., and paint portraits with the brush held between his toes? Or, was it S. Lazarus, known as the Friend of our Lord? Probably this latter was the celebrity, for his story is incorporated with early French history—Lazarus, the Jew, it may be remembered, once lived at Marseilles; crossing, to reach there, the fitful Mediterranean, which sea the Italians cynically liken to a beautiful woman, for they say you can never depend upon either! There he ultimately became bishop, and so ascetic a one that he seldom walked abroad without carrying his own coffin with him upon his shoulders. Methinks, had he been here to-day in Paris—foggy as it is—the chances are he would have been a-coughing himself!

But to resume! At the British Embassy, it was announced our Ambassador was laid up with influenza, and Mr. Aston Lee, his right-hand, to whom I also held an introduction, was ill of the same complaint. Through the kindness of the Hon. Maurice Baring (whom I last met as a dear child of eight summers, and is now an Attaché as tall as a Life Guardsman) a letter was procured to Mr. George Spearman, the English official now in charge of Great Britain's interests at the coming Exhibition of 1900.

But here one's troubles only practically commenced! Exhibitors at Chicago will remember grimly the vexatious experiences endured, both before the opening and after the closing of the World's Fair, whenever an official's aid had to be secured. There, red tape tied up everything; and what with the Customs and each individual building being in bond by itself, the Columbian Guards anxious to show off their newly-acquired powers, and the powerlessness of the overwrought and utterly bewildered freight officials, life was hardly worth living. The worst of it all was, in those days—after floundering through acres of mud and experiencing perils galore whilst threading one's way over countless temporary railroad lines, and amidst moving freight-trains steaming and shunting in all directions—the right place found, it was generally a matter of the last straw breaking the camel's back. Yes! Nine times out of ten, the official's office gained, the sanctum would be seen closed, and a paper pinned upon its door reading "*Gone to Lunch*." With the Chicago officials, in truth, it was generally "*gone to lunch*"—morning, noon, and night!

If coming events cast their shadows before, things in the above respect at Paris are likely to be as bad next year as Chicago was in 1893! Our British Commission offices are at present situated at 27, Avenue de la Bourdonnais, a street flanking the Paris side of the Champ de Mars, the Avenue de Suffren being on the opposite one. It was in the latter thoroughfare, indeed, almost exactly opposite, that the late Sir Cunliffe Owen's offices stood in 1878. A prompt visit to Mr. Spearman's chambers resulted in the information that the gentleman in question would not be there that particular morning. Between eleven and twelve the next day was suggested by the good-natured but quite irresponsible assistant

in charge, as possibly a likely time to find him. The second visit proved equally unsuccessful; but on calling the third day the precious if not overworked official was run to earth, and being caught, he proved useless. He "knew nothing, and could do nothing!" he said. "But," he assured me, "there are at least 6,000 men at work upon the grounds," although as a matter of fact, with the naked eye I could not see 600. "This," he added, with impressive dignity, as he twisted his wax-ended moustache reflectively, "is going to be the largest thing the world has ever produced." One could not help looking wonderingly for a moment to see whether the man was really serious, and the response came naturally, as one glanced out of the window and viewed the landscape o'er, "Then where is it all going to be?" "Here," he said, somewhat grandiloquently, thinking, perhaps, from my appearance he was addressing a simple Englishman taking his first trip abroad, "in the Champ de Mars opposite, and in the Esplanade des Invalides." "But," was my natural retort, "the Champ de Mars means merely an area of some 3,000ft. by 1,500ft., and the other place measures only 1,500ft. by 800ft. at the outside, less than a third the size of the Champ de Mars even! The World's Fair at Jackson's Park, Chicago, was about two miles long and three quarters of a mile wide. When our American cousins come here they will simply laugh at you." "Well, well," he replied, qualifying himself, "I meant this would be the greatest exhibition Europe has ever seen!" This, no doubt, may prove to be the case; but from present appearances, it bids fair to be a very poor second—anyway as regards size—to Chicago. As to landscape gardening, Paris will have scarcely any room at all to show what she can do. Americans, on the other hand, at Chicago, had ample scope to excel themselves in that beautiful art.

There is nothing imposing about the offices of our British Commission in Paris. They consist of a couple of rooms immediately over Pitt's snug little "Star Bar," on the window of which a notice tells the thirsty world Bass and Co.'s Ale and Stout can be had within on draught. Just above are the Royal Arms, over which our British flag floats fitfully, and he who runs may read the announcement: "Commissariat Royal Britannique pour Exposition de 1900." At the side door are two notices, one reads: "Paris Exhibition 1900, British Commission au 1er Etage," and the other, opposite to it: "Grand et Petit Appartement. Logement à Louer." On the front of this six-storied stone building, incised in the ashlar face, occurs (tombstone fashion): "Bastouil Jne., architect, 1881." It is curious that so many ordinary and most commonplace new residences in Paris bear the names of their architects cut in conspicuous places upon them. Nearly opposite the Star "pub," (or rather "Royal Britannique" headquarters) stands the Eiffel Tower, in the midst of chaos, and looking uglier than ever in its dingy chocolate coat. Patches, a dozen yards square or so have just been coloured, respectively, white, blue, and orange, as samples for the general repainting. The latter tint, it is understood, has been finally adopted.

"What is already done on the Champ de Mars?" some reader may ask. The answer is, "Very little. At the top end of the place, facing the Ecole Militaire, one's old friend the Machinery Hall still stretches its full width (500 yards), and a number of iron girders have been erected parallel with the Avenues de la Bourdonnais and de Suffren. These will presumably carry the two main buildings. That, generally speaking, comprises all accomplished at present. Seen from the dreary height and waste upon the top of which the Palais of the Trocadéro stands (the stonework of the latter already very much the worse for wear), the space below looks practically a desert. Here and there a small group of workmen may be espied engaged in their labours; but any appearance of bustle or energetic labour is conspicuous by its absence.

The Swiss "sideshow," situated just outside the Champ de Mars, at the corner of the Avenues de Suffren and La Motte Picquet (close to the Big Wheel), appears to be the most advanced of anything. It is a labyrinth of skeleton wood-framing, reminding one just now of a back view of that old-time stirring spectacle, "The Seige of Gibraltar," shown nightly at Vauxhall Gardens in the '40's and early '50's, or of—more recently—(seen from the same point of

vantage)—the "Taking of Sebastopol by the Allies" at Belle Vue Gardens, Manchester.

Many may remember the steep fall of land from the Place du Trocadéro down to the Quay Debilly, the embankment that runs along the Seine side? All the small houses that fringed the slope between the latter and Rue Franklin above have been cleared away. The land has been made up to two levels, and thereupon a speculative company are building quite a colony of huge mansions. The site is, undoubtedly, most commanding; but in spite of the soil being of so shifty a character, these lofty stone edifices are going up with scarcely an apology for any foundations underneath them.

The works upon the Esplanade des Invalides are in a more advanced state than are those on the Champ de Mars, and excavations and iron girders are in evidence at every hand. The permanent buildings for the Fine Art Department are on the Paris (proper) side of the Seine, between the Champs Elysées and the river, and nearly opposite the Invalides. Built of very white stone, the piers are now up to the parapets. The French fashion of fixing unworked stone in block, of course, leaves considerably more masonry to do than would be the case with a building so far advanced in point of erection in England. A number of large Composite capitals, however, have been carved on the banker, instead of *in situ*—rather a departure from the usual French way of doing work. The blocks of stone carted on to these works are immense, much larger than anything usually seen in England. Immediately opposite the middle of the Esplanade des Invalides a new iron bridge has been thrown across the river, here 300ft. or thereabouts wide. It consists of a single span, and is considerably wider than is any other bridge at present spanning the Seine. The banks of this river are to be largely utilised for exhibition purposes, especially between the Pont des Invalides and the Pont de l'Alma. Within this area (upon the Quai d'Orsay side) the street of pavilions representing the various Great Powers is to be built. Great Britain will occupy the central place. It is to be hoped the mistake made with Victoria House at Chicago's World's Fair will not be repeated at Paris. At Chicago, the British Pavilion was the only representative house not open to visitors generally. Indeed, it was practically closed to everyone—a humiliation and characteristic example of our fellow-countrymen's exclusiveness, pointed to, unfortunately, by the finger of scorn by all the world. Every Englishman in Chicago, save and except those composing the actual Royal Commission itself, was heartily ashamed of the latter's action in that particular matter.

The underground railroad running by the Seine side will connect the Esplanade des Invalides with the Champ de Mars (a distance of about three-quarters of a mile), and seems to be making fair headway. These two quadrilateral exhibition spaces, inclining inwards on plan, are naturally much nearer each other at the Ecole Militaire and Invalides end than they are by the river. The respective entrances at the latter points are only a quarter of a mile apart, and are directly connected with each other by the Avenue de la Motte Picquet.

And now to summarise all in twenty-one words. Up to the present date, the works connected with the great French Exhibition are, as seen by an outsider, distinctly disappointing.

Rue de l'Arcade.

HARRY HEMS.

#### SELF-KEYED WOOD-BLOCK FLOORS.

MESSRS. B. WARD AND CO., of 15, Great George-street, S.W., are sending out an admirably-arranged specimen-card of their new system of self-keyed wood-floor blocks, which architects and builders will do well to send for. No discs, disc-keys, or wood or metal dowels are necessary with this system, each block being keyed *all round* to the adjoining blocks, in an ingenious and thoroughly effective fashion.

The flooring is manufactured in yellow deal, pitch pine, oak, maple, teak, and jarrah, and the work is laid in special mastic, and its durability guaranteed. A number of suitable designs are illustrated on the specimen-card. Messrs. B. Ward and Co. claim this is the cheapest *keyed* floor in the market.

The rural district council of St. Austell have instructed Mr. Andrew, C.E., to prepare plans for works of sewerage at Mevagissey.



## Building Intelligence.

**FELLING.**—St. Patrick's Church, Felling, near Newcastle-upon-Tyne, has been further beautified by the completion of one of the side chapels, and an altar has been erected, and will shortly be dedicated to "The Sacred Heart." The work throughout is executed in polished marble and alabaster, and includes a new pavement and altar-table surmounted by a reredos, and the side walls have been lined with coursed ashlar work of alabaster. The whole work has been specially designed and executed by Messrs. Tully and Sons, Ltd., of Newcastle-upon-Tyne, who also executed the alabaster pulpit erected in the same church some little time ago.

**KENDAL.**—The Roman Catholic schools in Gilligate were opened last week. Accommodation is provided for 500 children, who will be seated in dual desks. One of the classrooms is so arranged that it can be used as a stage for plays, it being raised 3ft. 6in. from the main schoolroom floor. There are separate entrances, cloak-rooms, and lavatories for the boys, girls, and infants. The schools are heated by hot water. The architect is Mr. John Stalker, M.S.A., of Kendal.

**NEWPORT, N.B.**—Last week the students' section of the Dundee Institute of Architecture visited the Vickers Cemetery, Newport, and inspected the Leng memorial chapel erected there. Mr. T. Martin Cappon, F.R.I.B.A., president of the institute and architect for the chapel, met the students and explained that the plan of the chapel was very similar to the smaller chapels very often attached to cathedrals in France. The plan shows a chapel proper and vestry, with cloister on one side. The style is Decorated Gothic, with a feeling of earlier work, great variety being introduced into the details of the leading features, all the windows, for example, differing in design. The apical end of chapel is divided into five bays by massive buttresses. The cloister is of three bays divided by buttresses and surmounted by crocketed gables. The interior, which is finished in Caen stone, with vaulted ceiling, is simpler in treatment. The side walls are divided into four bays by moulded responds, from which spring the vaulted ceiling, the space between window-sills and floor being left plain for the introduction of memorial tablets, brasses, &c. The floor is finished in mosaic, while the doors are of oak with wrought-iron hinges. The carving was executed by Mr. James Bremner, sculptor.

**NOTTINGHAM.**—New premises in Parliament-street to be used as carriage works and horse repository have been opened this week. The site comprises an area of 1,324 square yards, with frontages to Parliament-street and Lincoln-street. The provision on the ground floor is 67 standings and loose boxes, in addition to showroom for carriages and harness and offices, with electric hoist 16ft. by 8ft., to take carriages from this floor to the stores and workshops. The walls are lined with glazed bricks, and the fittings supplied by Messrs. Musgrave and Co. The cost of the alterations has been upwards of £10,000. Messrs. Brewill and Bailey, of Nottingham, were the architects, and Messrs. Dennett and Ingle, of the same city, the contractors.

**PERTH.**—The new Congregational Church was opened on Saturday. It is built of red stone, and is Decorated Gothic in character. The internal dimensions are 51ft. by 44ft., with a slight incline upon the floor. There are circled seats at each side underneath the gallery. Immediately behind the pulpit is erected an organ, built by Messrs. Wadsworth Brothers, of Manchester and Aberdeen. The choir platform, in front of the pulpit, is 6in. higher than the church floor. The gallery is of a horseshoe pattern, with passage running round each side. The woodwork throughout is of yellow pine, stained and varnished. The church is heated with hot-water pipes on the low-pressure system. The building is seated for 650. At the back are the vestry, session-house, 24ft. by 15ft., and over there is a hall seated for 300 people, with platform at one end. The architects were Messrs. Steel and Balfour, Glasgow; while Mr. George Henderson was the clerk of works.

**YATE.**—The parish church of Yate, Somerset, was reopened on Friday after restoration, carried out at a cost of £3,000. The 15th-century tower, left unfinished since the time of Henry VII., has

been completed. The plaster ceilings have been removed, and the oak wagon roofs uncovered and renovated. These roofs are of five or six distinct designs and periods. The porch has been partly taken down and rebuilt, and all the foundations and walls made secure. The contractors for the works are Messrs. Cornish and Gaymer, of North Walsham, who carried out the designs of Mr. W. D. Caroe, F.S.A., architect to the Ecclesiastical Commissioners.

### CHIPS.

The column recently erected in the village of Llanarmon to the memory of the late John Parry, anti-tithe and land reformer, was unveiled on Thursday afternoon in last week. The column, which is of red Aberdeen granite, standing 17ft. high, was erected by public subscription.

The Wesleyan Chapel at Burnham Market, Norfolk, was reopened last week after renovation, including reseating in pitch-pine, refooring, new pulpit, and windows. Mr. Carter, of Cromer, was the architect, and Messrs. Rolling and Southgate, of Rudham, were the builders.

Herr Paul Wallot, the architect of the new Parliament Building in Berlin, which is now being decorated, has resigned his appointment in consequence of the rejection by the Building Committee of a picture executed by Franz Stuck, of Munich, at a price of £1,500. Herr Wallot has been receiving a retaining fee equal to £500 a year for superintending the decorative work in the new building.

Enlargements of Charing Cross Station, estimated to cost £500,000, are contemplated by the South-Eastern Railway Company. Provided Parliamentary powers are obtained, it is proposed to construct on the western side of the station, on land now occupied by properties in Craven-street, two additional main lines, with direct outlets to Craven-street and the Embankment. It is also proposed to lay down two new lines for suburban traffic on the eastern side of the station.

The business at Tokenhouse-yard last week, although confined to two days only, was fairly brisk, a large number of properties of the smaller class being disposed of. There was a good demand for reversions and policies, whilst the only landed property placed upon the market was sold, this comprising a farm at Standon, in Hertfordshire, which realised nearly £17 per acre. Together the returns for the two days amounted to £37,711, which is below the corresponding holiday week of last year. The total sales for March amounted to £581,828, as against £817,000 for the same month of 1898, the difference being due to the short supply.

The Queen has again altered the date for laying the foundation-stone of the new museum buildings at South Kensington, for which Mr. Aston Webb, A.R.A., is the architect. The ceremony is now arranged to take place on Wednesday, May 17th.

On Saturday morning a fire occurred in the Dalmarock district of Glasgow, whereby damage was done to the amount of £3,500, and about 130 persons will be thrown temporarily out of employment. The outbreak took place in the Springfield Chair Company's works, a three-story brick building, which was destroyed. The machinery, valued at about £1,500, was ruined.

Mr. Alex. R. Stenning, F.S.I., has been appointed J.P. for the county of Sussex.

The new workhouse infirmary, Ford, Devonport, is being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke-flues, patent Manchester grates, and Shorland's patent exhaust roof ventilators and inlet tubes, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The east room of the Criterion Restaurant, Piccadilly-circus, was reopened on Friday, alterations which have been carried out in that and other parts of the building during the past nine months having been completed. A minstrel's gallery of gilt hammered iron has been constructed across the main vestibule, from which the music of the band can be heard in all the rooms on the ground and first floors. The vestibule itself has been enlarged and made into a lounge, while the east room has been reconstructed, the windows have been lowered to the level of the floor, balconies added, and the walls panelled with silk, alternating with mirrors. The west room has also been extended, remodelled, and decorated. A new entrance has been provided in Jermyn-street.

An accident at Pothick Bros.' granite quarries on Saturday resulted in the death of Mr. Sampson Gill, foreman of gangers, aged 75 years. Whilst a gang of men under his direction was removing a block of granite weighing 60 to 70 tons, the mass slipped, and before Mr. Gill could remove to a place of safety it had crushed him beneath it.

## Engineering Notes.

**BRISTOL.**—Extensive improvements are about to be carried out in the vicinity of the harbour at Bristol, including railway-lines on both sides of the Float and two swing bridges, by which Hotwells and the Ashton Gate district will be connected. Tenders are invited for the combined road and railway swing-bridge, which is to be thrown across the Avon from near Cumberland Basin to Ashton on the south-east side of the river. The bridge will have a carriage road 31ft. wide, with pavements on each side and new approaches from Cumberland-road and Cumberland Basin. From it a new road will be carried across the creek over the riverside portion of Bedminster Park, and will be continued with an easterly curve so as to join Coronation-road, and so connect Hotwells with West Bedminster. Another new road will connect the bridge with Ashton-road. The bridge, which is to be of steel, will be supported on masonry piers with timber extensions, and it will leave an opening of 85ft. when it swings. It will be moved by hydraulic power. There will be upper and lower floors, the public taking the top and the merchandise to and from the docks the bottom. The new approach road from Cumberland-road will cross the Canons' Marsh line by a steel bridge. The second bridge over the Avon will be for foot passengers only, and is now in course of construction. It will cross the river a little above Vauxhall Ferry.

### COMPETITIONS.

**EDINBURGH.**—MIDLOTHIAN COUNTY BUILDINGS. —The Midlothian County Council, who propose to rebuild the County Buildings in Parliament-square, Edinburgh, are inviting architects to submit competitive designs for the new buildings. The published conditions provide that only architects who have been in practice on their own account for not less than two years will be permitted to compete. The council reserve to themselves the ultimate decision as to the selection of an architect from among the competitors. They will, however, appoint "a neutral architect of standing" as assessor, and promise to give the fullest consideration to his advice. If from any cause the buildings are not proceeded with, and no drawings other than the competitive drawings have been prepared, the selected architect will receive a payment of £200 in full of all claims. In respect of the other competitive designs, two premiums will be paid—viz., £100 to the author of the design adjudged to be best by the architectural assessor, and £50 to the author of the design placed second by the architectural assessor. The drawings to be submitted are a plan of each floor, an elevation of each front, and two sections. These are to be to a uniform scale of 8ft. to the inch. In addition to these, competitors may send in drawings showing details of parts and special appliances made to a scale of 2ft. to the inch, and not more than two perspective drawings. Each competitor is to submit with his design a descriptive report and an estimate of the probable cost of the building. The estimates submitted by the competitors will be tested by an ordained surveyor appointed by the council. Any design estimated by him to cost more than £40,000 may be disqualified, and the council will consider the relative cost of the designs as estimated by him in the selection of an architect. Designs distinguished by a motto or device are to be lodged with Mr. A. G. G. Asher, W.S., county clerk, at his office in the County Buildings, Edinburgh, on or before Tuesday the 27th June, 1899, at 5 p.m. It is stipulated that any design will be excluded from the competition (a) if sent in after the hour and date named, (b) if in violation of the conditions, (c) if it do not substantially give the accommodation asked for, or (d) if the author of the design attempt to influence the decision of the council or of the assessor. The architect selected by the council will be employed to carry out the work at the rates of remuneration and under the conditions sanctioned by the Royal Institute of British Architects.

**SALFORD.**—In the competition for three chapels and other buildings at the proposed new cemetery at Agecroft, the town council of Salford have adopted the report of a committee, and have awarded the first premium of £50 to Messrs. Walter R. Sharp and Frederick Foster, of Morson Chambers, 28, Deansgate, Manchester, who have been appointed architects for the work



at the normal commission of 5 per cent. on the outlay, £3,830. The second premium of £30 was awarded to Mr. Henry Lord, John Dalton-street, Manchester, and the third of £20 to Mr. Alfred H. Mills, Temple Chambers, Brazen-nose-street, Manchester. The cemetery will be 45 acres in extent. The Local Government Board having sanctioned the borrowing by the Salford Town Council of the sum of £38,500 for the purchase of the barracks site, the council authorised the committee to advertise for competitive designs for covering the site in question with artisans' dwellings, shops, and a public hall. It was stated that it was intended to erect four, five, and six-roomed houses, the larger ones having baths, to open a recreation ground on the site, to widen Gloucester-street to 12 yards, and to have all new streets at that width, and new passages to be 9ft.

**WIGAN TECHNICAL COLLEGE.**—Out of the eight firms from London, Manchester, Liverpool, Wigan, and Blackburn invited to compete for this technical college, the plans submitted by Messrs. Briggs and Wostenholme, of Blackburn and Liverpool, have been selected, and the first portion of the scheme is to be proceeded with at once, at a cost of about £20,000. The complete scheme is to cost about £30,000. A special feature of the plan is a large lecture-hall to accommodate 700 persons. The structure will be Victorian in style, and is to be faced with pressed bricks and terracotta. The principal entrance is to be in Library-street, the building having frontages to four new streets recently formed in the centre of the town, where a considerable area has been cleared of old buildings to effect town improvements.

#### CHIPS.

Mr. Francis Sharpe, the eldest son of the late Mr. Edmund Sharpe, F.R.I.B.A., the author of "The Seven Periods of Gothic Architecture," died on Monday at Crosslands, Lancaster, aged 53 years.

Broad Oak House, Accrington, is to be rebuilt for Mr. G. M. Macalpine, under the joint direction of Mr. Watson, Bath-street, Glasgow, and Mr. Henry Ross, of Accrington.

The architectural class of the Glasgow School of Art, accompanied by Mr. Lindsay Miller and Mr. H. Campbell, architects, held their annual four days' Easter excursion at Oxford. Under the leadership of Mr. W. J. Anderson and Mr. W. R. Watson, the party made the round of the more important colleges, and, by permission of the Dean, were afforded access to every part of the cathedral buildings and facilities for sketching and measuring.

The death of Mr. James Southcott, formerly the head of the firm of Messrs. Southcott and Co., builders, of Southwood-lane, Highgate, occurred on Saturday at his residence in St. John's-terrace, Hove. Mr. Southcott, who was 77 years of age, was born at South Moulton, Devonshire, and came to London as a young man. About forty years ago he acquired the business of the late Mr. Coxhead, of Highgate, and from that time until his retirement into private life a few years ago was actively engaged in many ways in that suburb. He built many large houses in Hampstead-lane, The Grove, and on Wells Hill, and the Crouch End Board School, Hornsey. On his retirement he was succeeded by his only son, Mr. James Dagon Southcott.

The Ontario Society of Civil Engineers have now a Bill before the Ontario Legislature which is designed to close the ranks of that profession to all but duly-qualified persons. "If this Bill should pass," says our contemporary the *Canadian Architect*, "there will remain no argument for refusing to place the profession of architecture on the same footing."

The town council of Inverness, at their meeting on Monday, accepted the offer of Sir Robert Finlay, M.P., to restore, at his own expense, the old Town Cross, in connection with the Clachnacuddin Stone proposed to be placed at its foot.

On Friday Mr. F. H. Talloch, M.I.C.E., Local Government Board Inspector, held an inquiry in the Bournemouth Council-chamber relative to an application by the town council for sanction to borrow £650 for the provision of machinery for pumping water for use in the public gardens, and £5,000 for technical instruction purposes.

The Local Government Board have sanctioned a loan of £30,229 for eight miles of new tributary sewers at Leicester, being the first of four sections of new sewers to replace old defective ones in the oldest part of the town. The Board have sanctioned the scheme of sewer ventilation by shafts alone, without any grids, as recommended by the borough engineer, Mr. E. George Mawbey, M.I.C.E.

#### PROFESSIONAL AND TRADE SOCIETIES.

**BRISTOL SOCIETY OF ARCHITECTS.**—The monthly meeting of this society was held at the Fine Arts Academy, Clifton, on Monday evening, Mr. W. L. Bernard, F.R.I.B.A., the president, being in the chair. Mr. Edgar Singer, of Frome, read a paper on "Memorial Brasses and Enamels," and the lecture was illustrated by numerous rubbings of fine specimens of German, Flemish, and English brasses; the different varieties of enamels were explained, and specimens of Limoges, cloisonné, &c., exhibited. The voting papers for the election of officers and council for the ensuing session were opened, Mr. W. L. Bernard being again re-elected president. Messrs. Joseph Wood and Frank Wills were elected vice-presidents, and the hon. secretary and treasurer (Mr. H. Dare Bryan) was unanimously re-elected to fill these offices. The members of the council were Messrs. Bond, La Trobe, Oatley, W. S. Paul, Skinner, and J. Foster Wood.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—A meeting of this Association was held on the 5th inst. in the Royal Institution, Princes-street, Mr. Thomas Ross, president, in the chair. Mr. James Bruce, W.S., referred to the honour recently conferred upon Mr. McGibbon, an ex-president of the Association, by the University of St. Andrews, and moved that they express the sense of their high satisfaction that St. Andrews University had seen fit to confer the degree of LL.D. on Mr. McGibbon. The motion, which was seconded by Mr. Kerr, architect, was cordially agreed to. Mr. Campbell Irons then read a paper on the "Architectural Antiquities of Leith." The origin of Leith was wrapped in mystery. The first reliable mention of the port was in the foundation charter of the Abbey of Holyrood House, granted by David I. in 1128, in which it was stated that the first house built in Leith was erected in the twelfth century. The lecturer proceeded to give descriptions of such old buildings as Leith possessed, or still possesses, and related various anecdotes referring to the owners and occupiers of these.

**EDINBURGH ORDAINED SURVEYORS.**—A meeting of ordained surveyors was held in Dowell's Rooms on Friday night, Mr. P. Lawrence in the chair. The report of the committee appointed at the last general meeting was considered, and a draft constitution of a proposed society of ordained surveyors was submitted. It was stated that the proposed rules had been submitted to and approved by the Lord Provost, Magistrates, and Council, and by the Sheriff of Midlothian and Peebles. On the motion of Mr. R. Keir, seconded by Mr. A. Lawrie, it was resolved to form a society of ordained surveyors on the lines of the proposed rules, and on the motion of Mr. A. K. Smith, seconded by Mr. R. Murray, it was resolved that the first meeting of the society be held on the 20th April, when the rules should be fully approved, and office-bearers elected. The scheme received the unqualified approval and support of all present.

**GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.**—The students attending the architecture and building construction classes of this college recently visited Motherwell and Hamilton. The party numbered about forty, and Mr. Alexander Cullen, F.R.I.B.A., architect, acted as guide. The Co-operative Buildings, the Victoria Lodging House, now in process of construction, and the recently-opened Technical School in Airbles-street, all designed by Mr. Cullen, were visited. After dinner at the Brandon Hotel, the party walked to the new County Hospital, and afterwards saw a modern mansion, Ross House. At Hamilton Palace the party were shown over the interior. Lastly, three buildings in Hamilton were visited—the old Parish Church, designed by the Brothers Adam; the new Avon-street U.P. Church, by Mr. John B. Wilson, of Glasgow; and the Brandon Chambers, by Mr. Alex. Cullen.

**SANITARY INSPECTORS' ASSOCIATION.**—At a meeting of the association held on Saturday night at Carpenters' Hall, London Wall, E.C., a paper "On the Various Methods up to Date of Sewage Disposal" was read, which had been prepared by Mr. D. Balfour, C.E., of Newcastle-on-Tyne. The varying circumstances of different localities necessitated various methods for treating and disposing of sewage, and the most successful of the modern methods, the newest of which were either chemical or bacteriological, were explained. As a Royal Commission was investigating these

important questions, the lecturer would not offer comparison upon the best known, some of which were successfully working—Dibdin's at Sutton, Colonel Ducat's at Hendon, Mr. Donald Cameron's at Exeter; but the paper concluded with the opinion that as the outcome of the present investigation the objects contemplated by the Rivers Pollution Prevention Acts would soon be fully realised.

#### PARLIAMENTARY NOTES.

**THE ESTIMATES.**—In the House of Commons on Monday, the following votes were passed in Supply: £49,000 for works at Royal palaces and Marlborough House, £119,000 for Royal parks, £36,000 for Houses of Parliament buildings, £54,000 for miscellaneous legal buildings, Great Britain; £30,000 for art and science buildings, Great Britain; £31,000 for Diplomatic and Consular buildings and for the maintenance of certain cemeteries abroad; £348,000 for Customs, Inland Revenue, post office, and post office telegraph buildings in Great Britain, and certain post offices abroad, including furniture, fuel, and sundry miscellaneous services; and £266,000 for sundry public buildings in Great Britain.

#### WATER SUPPLY AND SANITARY MATTERS.

**ALTRINCHAM.**—The district council of Altrincham have accepted the scheme of Messrs. Hinnell and Murphy, C.E., of Manchester and Bolton, for a new outfall-sewer, storm-overflows, and sewage-purification works. The scheme involves an expenditure of £21,000, and provides for sedimentation-tanks and land filtration works for the purification of the sewage of their districts and parts of Bowden and Dunham. The existing system of sewage treatment is by broad irrigation on land, and has been in successful operation for 30 years; but, owing to the large increase of population, it has been necessary to extend the present works as provided for in the scheme mentioned.

A new theatre is being erected in Holloway-road, N., and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

A Local Government Board inquiry was held by Mr. W. O. E. Meade-King, M.I.C.E., at Looe Guildhall on Tuesday, for the purpose of hearing the application of the Looe Urban District Council for sanction to borrow £6,000 for purposes of obtaining a water supply, from plans by Messrs. S. W. Jenkin and J. Thomas.

The executive council of the Glasgow International Exhibition of 1901 decided, on Tuesday, to accept, for the erection of the industrial and machinery sections of the undertaking, the offer of Messrs. Shaw and Son, £68,425 8s. 7d. (being the lowest), for the whole work. This sum was £8,425 in excess of the amount named in the conditions of competition to the architects, and only £10,000 in excess of the actual cost of the similar buildings in the Exhibition of 1888.

In the Chancery Division, on Wednesday, Mr. Justice Stirling gave judgment in the action "Char-nock v. Court and others," a trade-union case arising out of a strike of joiners at Halifax. He found that the defendants, representatives of the union, had broken the law in paying the expenses of men, who had been brought from Ireland to take the place of the strikers, to go to other towns, and granted an injunction restraining them from so acting in the future. But as to the charge of illegal picketing at Halifax, he could not, on the evidence, say that anything beyond what was allowed by law had been done, and on this point the plaintiffs' case failed.

The parish church of Hetton, built in 1831, is now razed to the ground. The work of demolition commenced a month ago under the supervision of Mr. William Sparrow, who is also the contractor for the new building. The new church will be built of stone at a cost of upwards of £4,000. It will comprise a nave, chancel, and morning chapel, with a baptistry at the west-end, and will provide sitting accommodation for 700 worshippers.

At the Westminster Palace Hotel, on Wednesday, a Conference of the Association of Building Societies was held to consider the Small Houses Bill, introduced into the House of Commons by Mr. Chamberlain and the Attorney-General, and which empowers local authorities to advance money to enable persons to acquire the ownership of small houses in which they reside. Mr. Charles Binyon, chairman of the Association, presided, and there was a large attendance of delegates from most of the societies in the kingdom. It was agreed to request Mr. Chamberlain to receive a deputation, and to recommend the various Building and Friendly Societies throughout the country to ask their local members to oppose the second reading of the Bill.





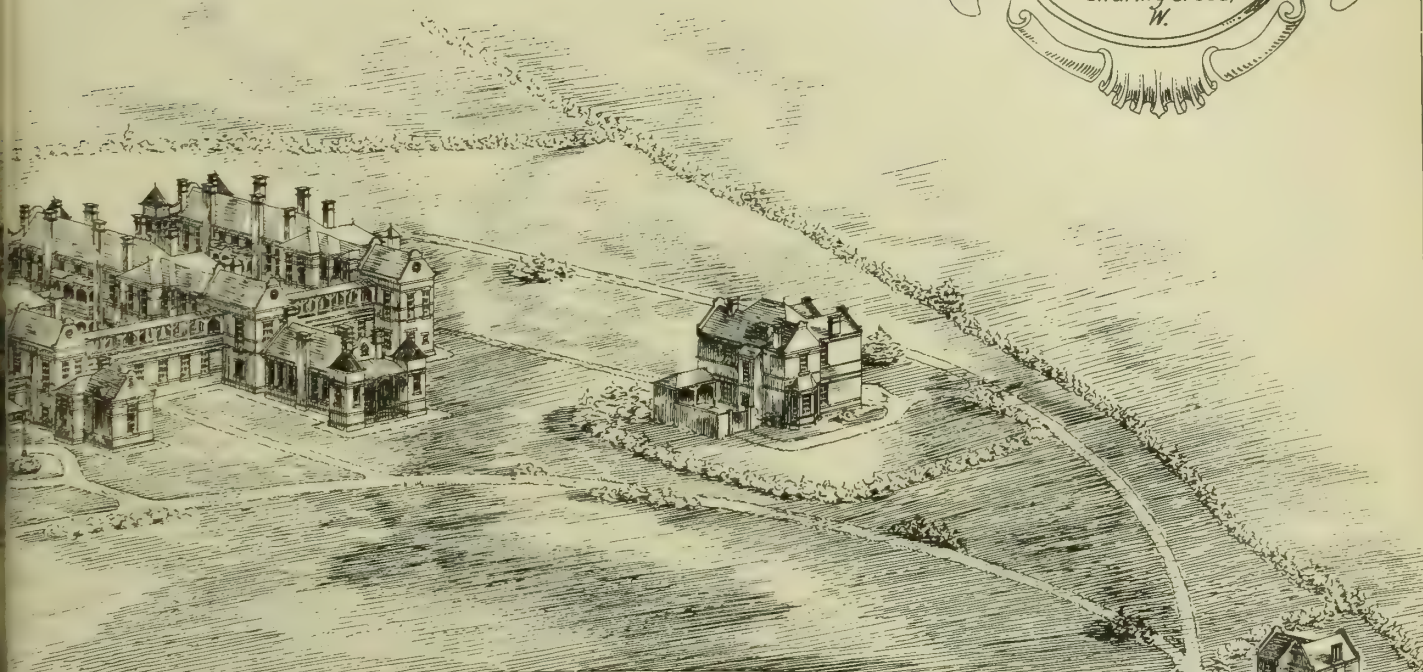


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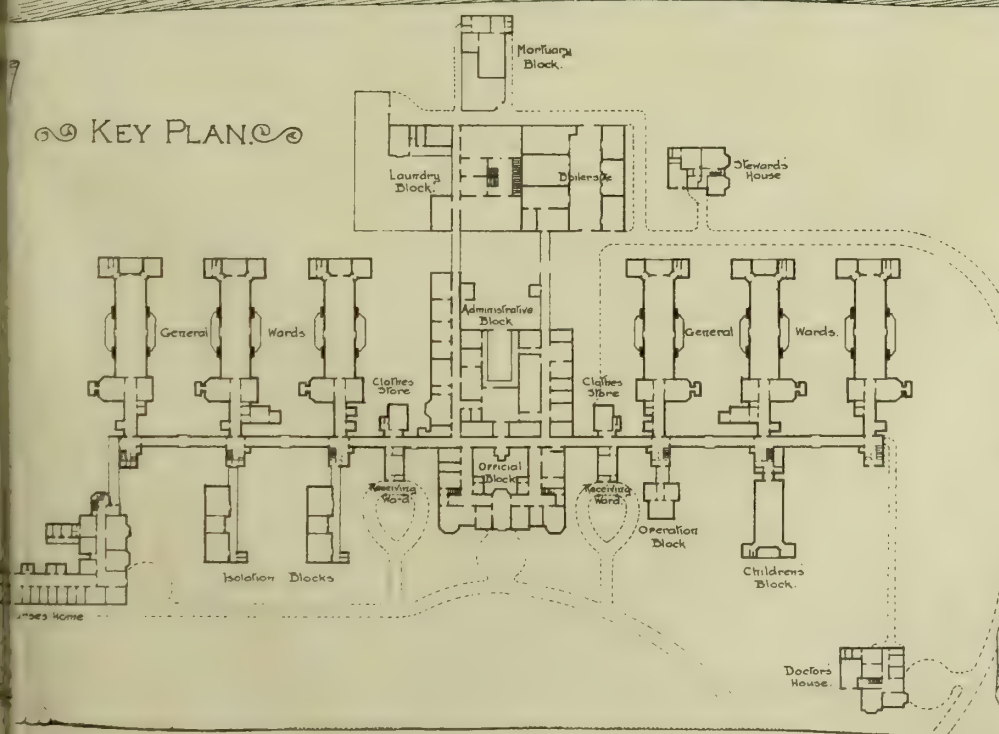




ON.



KEY PLAN.



John Gough, Architect.









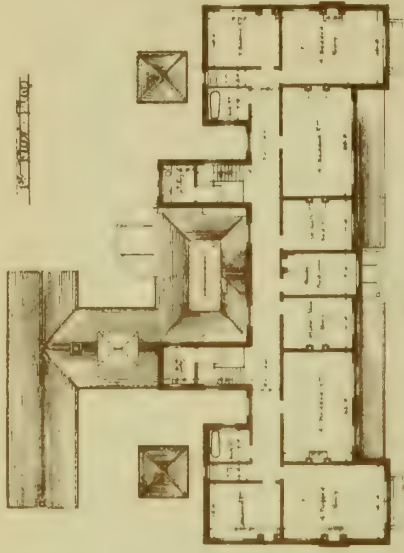


THE BUILDING DEWS, APRIL 14, 1899.

The Derbyshire Infirmary Convalescent Home,  
HOLBROOKE MOOR



GROUND FLOOR



FIRST FLOOR



PRESENTED BY MR G. HERBERT STRUTT.

HUNTER & WOODHOUSE ARCHTS

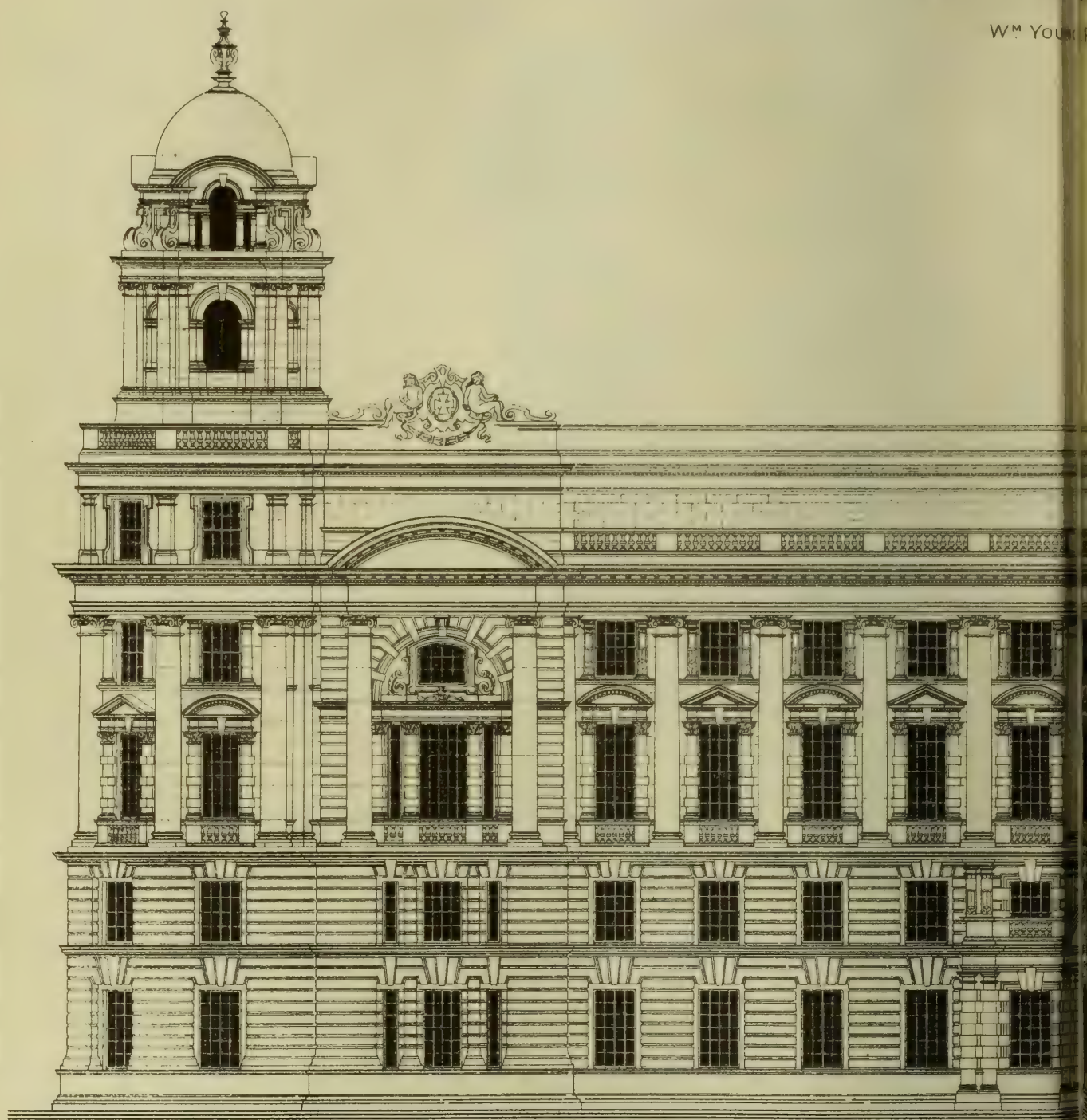






THE NEW WAF

WM YOUNG

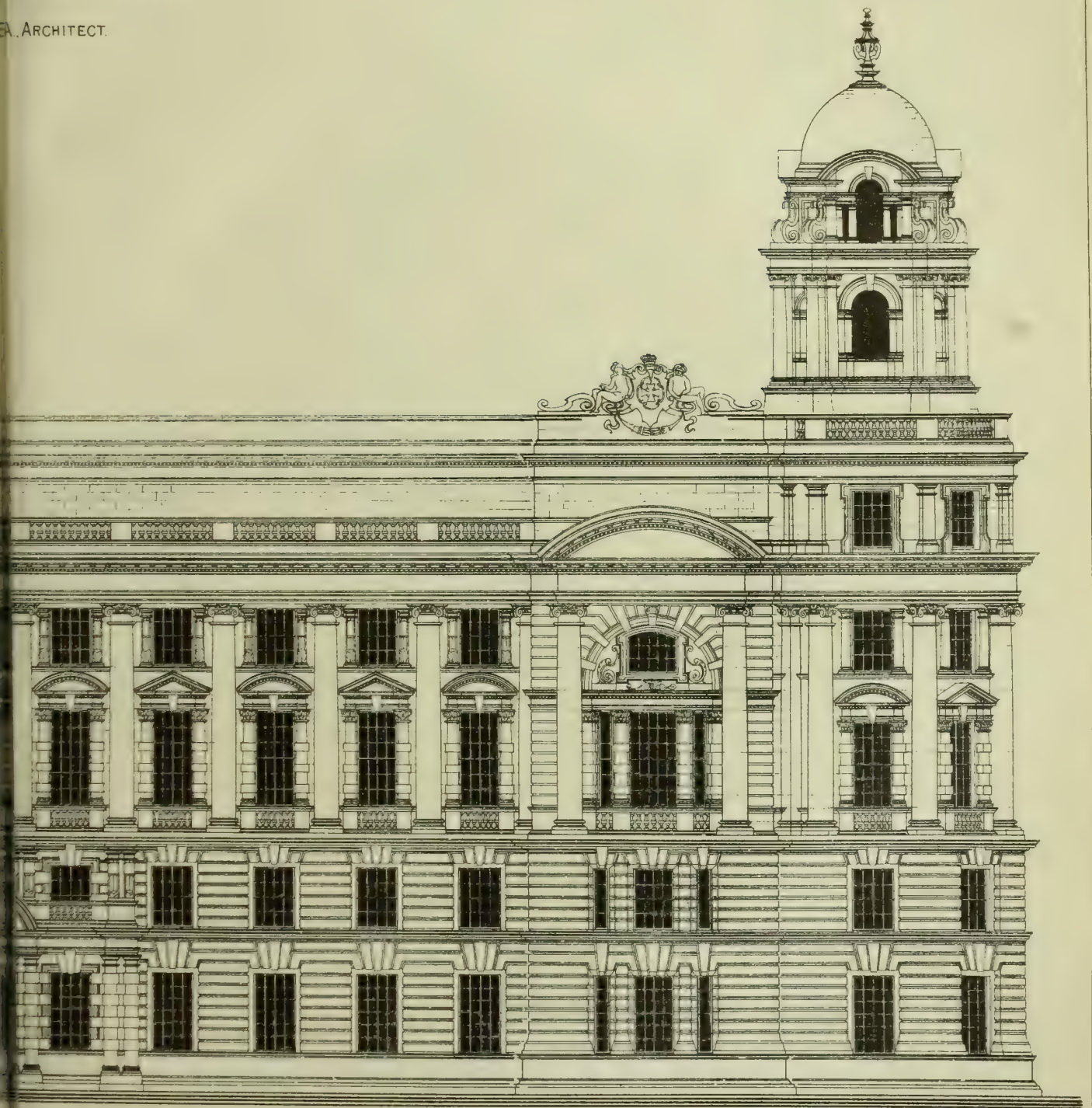




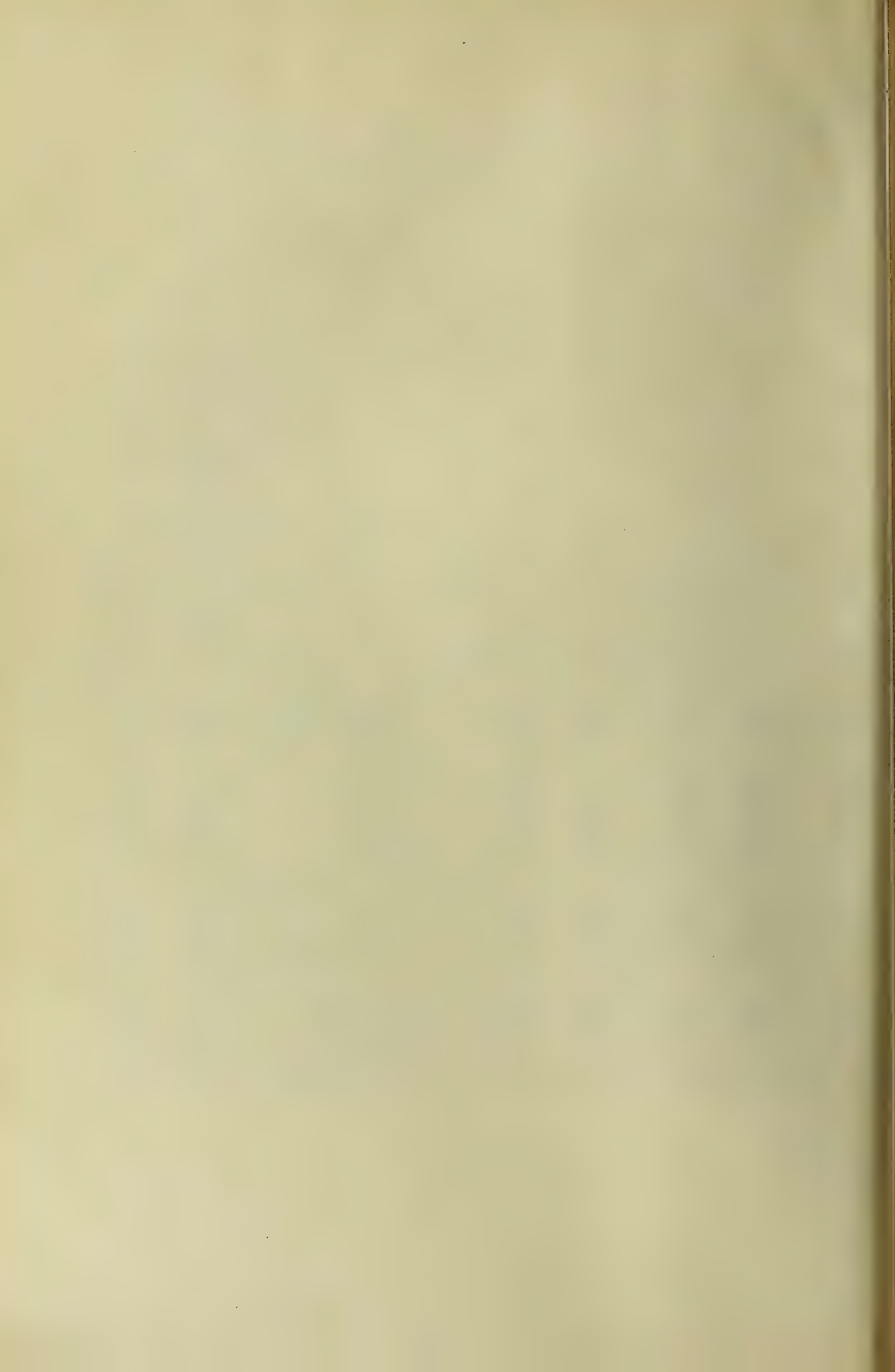
APRIL. 14, 1899.

CE, WHITEHALL.

EA. ARCHITECT.



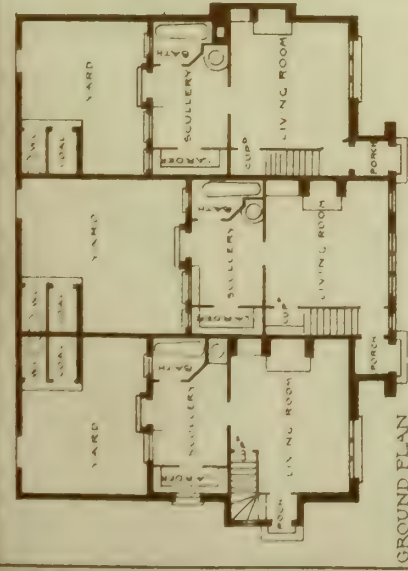




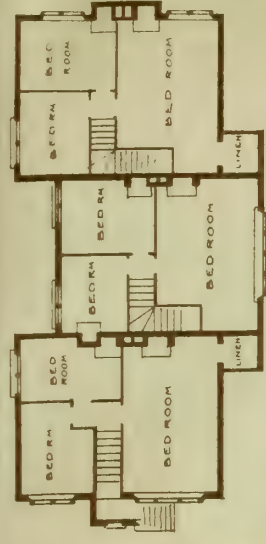


# A GROUP OF THREE WORKMENS COTTAGES PORT SUNLIGHT CHESHIRE MESSRS LEVER BROS LIMITED

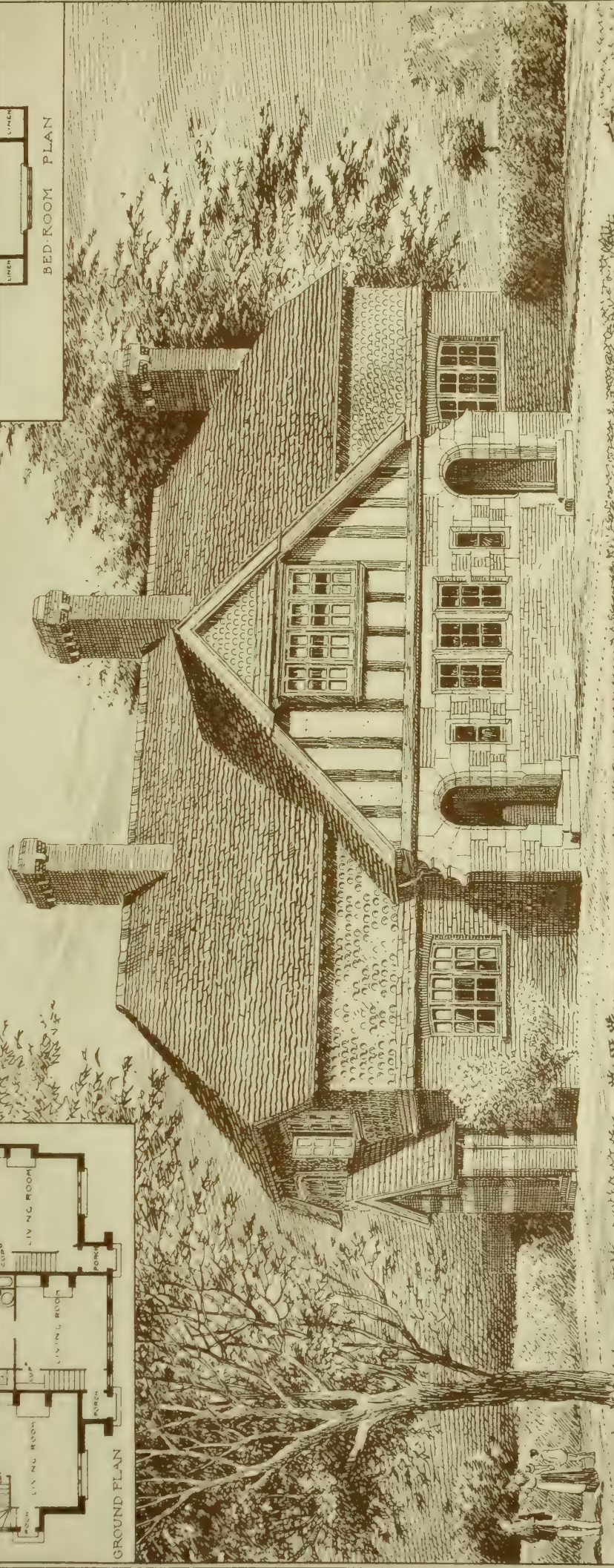
MAURICE B. ADAMS F.R.I.B.A. ARCHITECT



GROUND PLAN



BED ROOM PLAN













BOROUGH  
CONG





H. R. BURNS DICK ARCHT

OF WARRINGTON  
Proposed  
CLERKLY OFFICES  
COURTS &c









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## ILLUSTRATIONS.

CENTRAL LONDON ASYLUM AT HENDON.—THE NEW WAR OFFICE, WHITEHALL.—PROPOSED CONSTABULARY OFFICES AND COURTS FOR THE BOROUGH OF WARRINGTON.—DERBYSHIRE INFIRMARY CONVALESCENT HOME.—COTTAGES AT PORT SUNLIGHT.

## Our Illustrations.

## THE CENTRAL LONDON SICK ASYLUM AT HENDON.

THIS building, the design for which was selected in a limited competition, is being erected at Hendon, a short distance from the main Edgware road. Near the entrance gates on the right-hand side is the porter's lodge, and from here the road ascends to the higher ground on which the main buildings stand. These at present give accommodation for about 275 patients, but the whole of the administrative department has been designed, built, and fitted for an extension, if necessary, for nearly double that number. The main corridor with which all the wards and other buildings are connected, runs east and west. In the main central front of this, on the south side, is the official block, and behind this, on the north side, is placed the administrative. On either side of this block corridors lead north to the laundry, boilers, and workshops; beyond these, detached from the main buildings, being the mortuary, &c. On either side of the administrative, on the north side of the main corridor, are two two-story pavilions, and a store for patients' clothes. To the west of the administrative, and on the south side of the main corridor, is the nurses' home, a very important feature in the design, being attached to the main buildings by means of a covered way although distinct from it. This building contains rooms for nurses, probationers, matron, servants, &c., and forms a complete establishment for the female staff of the institution. To the east of this block are two one-story blocks for infectious cases and the receiving ward, and again on the other side of the official block is another receiving-ward, the operation block, and a large one-story block for children, and beyond this, but further south, is the doctor's house, detached from the main buildings. The steward's house has been placed at the back, commanding the stores department. The buildings are faced with red brick, relieved with white Suffolk brick bands, and Portland stone dressings, the roofs being covered with green slates. The main corridors are lined to a height of 4ft. 6in. with glazed brick with moulded capping, with Keene's cement above. Messrs. J. and H. Patteson's mosaic pavement is used for the floors, and the stairs and landings are all of granolithic and fireproof. The wards are finished in plaster, with a dado of Keene's cement, all angles being rounded. The floors are of fireproof construction, and finished with pitch-pine polished, and the whole of the joiners' work throughout is of pitch-pine varnished. In the administrative block, laundry block, &c., the floors are of granolithic, and in some cases wood block; and the rooms in mortuary, laundry, kitchens, &c., are lined to dado height with glazed brick. The

ventilation of the wards is on the latest and most approved lines, and the atmosphere of any ward can be changed and purified in a few minutes. The heating of the buildings is by hot water on the low-pressure system with radiators, the wards also having ventilating stoves. The buildings are to be lighted by electricity. Bed-lifts for patients are provided to all floors, and also lifts for coal service and other purposes. The main contract for the buildings is being carried out by Messrs. H. Willcock and Co., Darlington-street, Wolverhampton, from the designs and under the superintendence of the architects, Messrs. Giles, Gough, and Trollope, 28, Craven-street, Charing Cross, W.C. Mr. W. J. Creed being the superintending clerk of the works.

## THE NEW WAR OFFICE.

THE accompanying double-page plate furnishes a larger scale elevation of Mr. William Young's design now before Parliament for the New War Office in Whitehall. Last week we gave a general elevation to a smaller scale, showing how the facade will group with the Banqueting Hall by Inigo Jones. The plan and perspective view appeared in our pages for March 31. We shall publish other geometrical drawings of this great undertaking, and also some further illustrations of Mr. Brydon's buildings, to be built in Great George-street, extending from Parliament-street to the Park.

## CONSTABULARY OFFICES AND POLICE COURTS, WARRINGTON: SELECTED DESIGN.

THE design here illustrated was selected in open competition, the assessor being Mr. R. J. Bennett, F.R.I.B.A., of Manchester. The site is open on three sides, and is at present occupied by buildings formerly used as barracks, the armory having been converted into a technical school. The competitors were desired to retain this latter building if it would not interfere with a satisfactory arrangement of the new buildings. The author of this design, however, considered it absolutely essential that the site should be entirely cleared, and the plans will show how the ground is to be utilised. The accommodation comprises police-station with 20 cells, quarters for 13 resident constables, houses for inspector and sergeant, detective department and watch-committee room, police-court, coroner's court, and magistrate's, solicitors', witnesses' rooms, &c. It will be seen that the plan is largely influenced by the position of the cells, which occupy so much of the site. They are in a central position, and entirely inclosed from outside view, and are well arranged for access from the police-station entrance, through the charge-room, which affords perfect supervision over them. The police-court is immediately over the cells, so that direct communication is obtained between the latter and prisoners' dock. The parade-room affords means of communication between the cells and sergeant's house for the supply of food to prisoners undercover, and the single constables' quarters are also accessible from parade-room. The coroner's court is placed to the front overlooking Wilson Patten-street, and the public staircase is midway between the two courts. The benches of the two courts, together with the magistrates' coroners', and magistrate's clerks' rooms are all on the same level, being about 3ft. above the general level of first floor, and are reached from the principal entrance in Wilson Patten-street, as well as from the public corridor. The magistrates' staircase affords a speedy and direct means of communication between the coroner's court and mortuary. The cells and single constables' quarters are arranged with a view to future extension without interfering in any way with the working of the building generally. It is to be a brick building with terracotta dressings, the estimated cost being about £17,000. It is intended to make a commencement in the beginning of May. The architect is Mr. R. Burns Dick, of Northumberland-street, Newcastle-on-Tyne.

## HOLBROOK CONVALESCENT HOME.

THIS building, pleasantly situated on the top of the Derbyshire hills, with a south aspect, is built in local rock-faced stone with drafted angles and with slate roofs. Accommodation is provided for 14 men and 14 women, with dining-room, kitchen, washhouse, and matron's apartments. The buildings and about two acres of land are given by Mr. G. H. Strutt, in memory of his wife. The home is being erected by Messrs. Ford and Co., of Derby, from plans prepared by the

architects, Messrs. Hunter and Woodhouse, Belper, at a cost of over £5,000.

## A GROUP OF THREE COTTAGES FOR WORKMEN, PORT SUNLIGHT.

THESE cottage plans are self-explanatory, and the group forms part of the model village which Messrs. Lever Bros., Limited, are building in Cheshire, adjoining their great works, for their employees. We have already given several drawings since last January of a variety of these dwellings, which are very diverse in picturesque arrangement. This is the first block of three which we have shown. The upper part in the centre is in oak half-timbered framing and rough-cast. Local stone is sparingly used, and thin shaped Ruabon red bricks are employed for the walling; and tiles from the same makers, Messrs. Edwards and Co., are used for the roof and tile-hanging. Mr. Maurice B. Adams, F.R.I.B.A., is the architect of the cottages illustrated.

## CHIPS.

We regret to hear that Professor Henry Adams, M.Inst.C.E., M.S.A., has sustained a heavy bereavement by the death of his wife. Mrs. Adams, who was in her 48th year, died on Friday at their residence, The Cedars, Brockley Hill Park, Forest Hill.

A new Bible Christian chapel is being erected on the Swallowfield Estate, Wellington, Somerset, at a cost of about £2,200. The building, when completed, will seat 350 persons. Mr. F. W. Roberts, of Taunton, prepared the plans, and the chapel is being erected by Mr. Follett, of Wellington.

At Cromer a proposal to extend the gasworks by acquiring adjoining ground has been so strongly opposed by neighbouring landowners that the directors of the gas company have decided to remove the works to a site to the west of the town, adjoining the Midland and Great Northern Railway. Under the agreement with the landowners the company will have a site of over four acres in exchange for its site of three-quarters of an acre, and will be paid a sum of £2,000 towards the cost of removal. The contract for the construction of the new works, in accordance with plans and specifications prepared by the company's engineer, Mr. Percy Griffith, Assoc.M.Inst.C.E., has just been let to Messrs. R. Dempster and Sons, Limited, of Elland, and is to be completed by the end of the present year.

The east window of Kirkstall Church, Leeds, has been filled with stained glass in three lights, representing two Saints in Glory, St. Stephen and St. Paul, and a rearedos has also been erected on which are figures of the Twelve Apostles. The sanctuary has at the same time been decorated with a fresco representing the death of St. Stephen. The whole of the work has been designed by Mr. G. Ostrehan, of Sunbury-on-Thames.

Stained glass has been inserted into the east window of Holy Trinity Church, Batley Carr. The window is designed to portray the three Persons of the Trinity. Archangels and angels, bearing shields inscribed with the emblems of the Passion, fill up the chief forms in the tracery of the window. Messrs. Powell Brothers, of Park-square, Leeds, are the artists.

The Norwich Board of Guardians have referred to a committee the consideration of the desirability of providing more adequate accommodation in the workhouse infirmary. It is suggested that the building should be reconstructed at an estimated cost of £25,000.

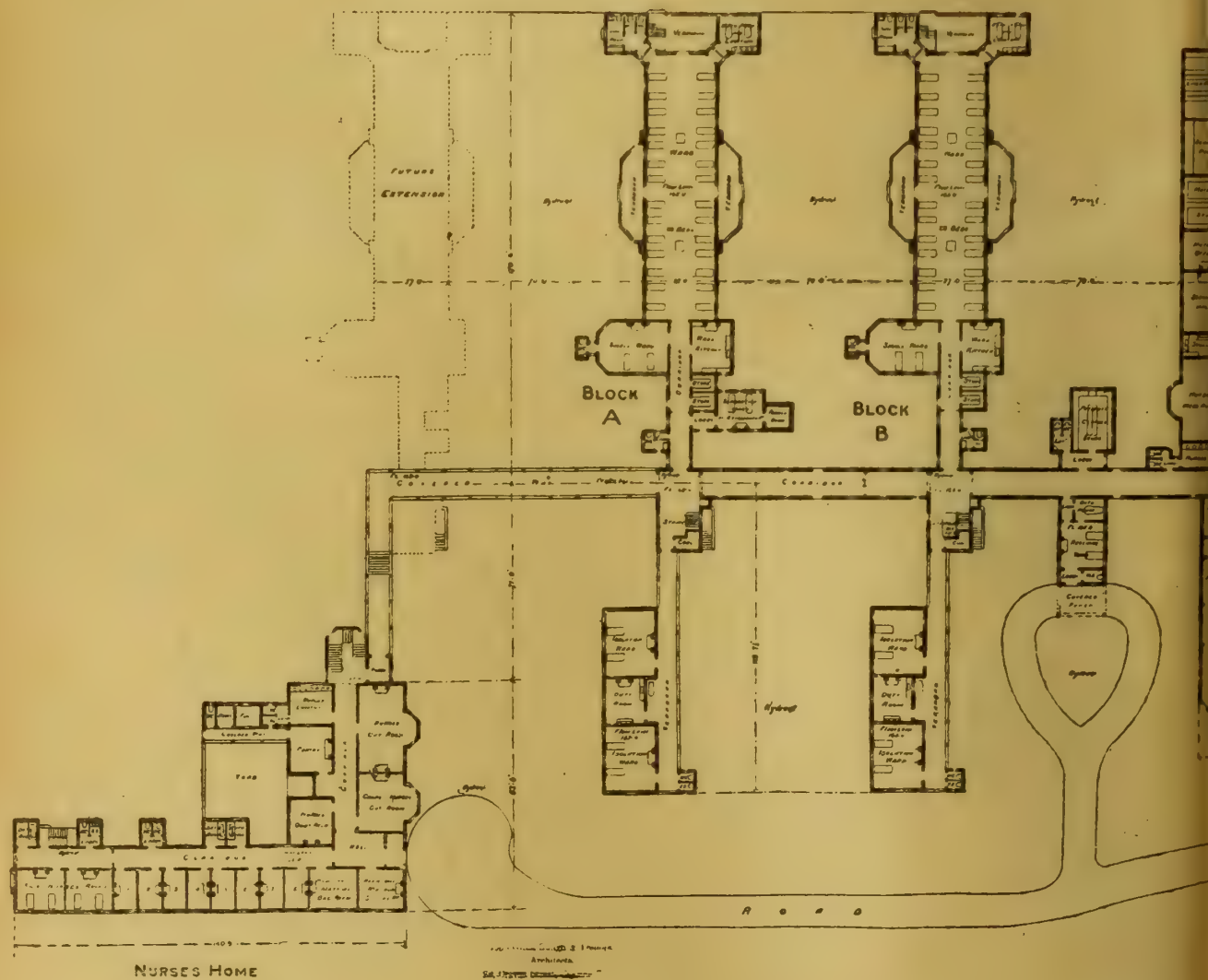
Mr. Coningsby Disraeli, M.P., is having Hughenden Manor considerably enlarged by the addition of a new wing, which will involve an expenditure of about £7,000. The Manor, which was erected by the Dormers, and extended by the elder John Norris about a century ago, is Tudor in style.

At Kew Gardens, on Good Friday, a new wing which has been added to the Temperance House was thrown open to the public. The wing completes the building. The architects, Messrs. Mackenzie and Moncur, of Edinburgh, have followed the plans of the original building, but alterations have been made in the internal structure, and the ventilation is carried out on improved principles.

The rural district councils of Chester-le-Street and Houghton-le-Spring have adopted plans by Messrs. D. Balfour and Sons, of Newcastle, for a steel overhead footbridge of 150ft. span, to be thrown across the River Wear from Coxgreen to Washington Staiths.

Mr. C. D. Taite, the electrical engineer to the Southport Corporation, has estimated that £55,000 will be required for the necessary extensions to the electricity estate during the next two years. The principal items in this outlay are rendered necessary by the provision of electric tramway plant and buildings.











## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLVI., XLIX., LI., LII., LIV., LV., LX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 6s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

RECEIVED.—W. I.—H. F.—C. G. and Co.—N. B. C.—O. L. (Liverpool).—M.—L. N. G.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Dodo," "Quadrant."

## Correspondence.

## THE NEXT PRESIDENT OF THE INSTITUTE.

To the Editor of the BUILDING NEWS.

SIR,—Can your readers be so sure that your correspondent, Mr. William Woodward, is justified in his conclusions? It would be an advantage to give the members a chance of voting for their president. The Council contrive everything, leaving only the payment of subscriptions to the general body. Let us have three names and no canvass, allowing each candidate to stand on his own reputation. At present everything is cut and dried beforehand, with the result that nobody takes the slightest interest in what is done, outside the members who always attend, and always make a point of speaking, no matter what the subject. Mr. William Emerson has been hon. sec. for a long time, but he is almost entirely unknown to the profession. Mr. Henry Louis Florence worked for years in the Architectural Association, served as President just 20 years ago, and 30 years ago he took the Soane Medallion with a fine set of drawings, and he since figured in the ranks of the Volunteers among the Artists. He is therefore more likely to be popular. These surely are but minor considerations, and if the Institute is to emerge from the shadow which some of us feel so keenly, we must have a man at the head of affairs whose works leave no doubt whatever that the R.I.B.A. is presided over by an architect of unqualified reputation and ability. I remember the shame

which I for one among many shared when Sir Horace Jones, the chosen of the then Council, was elected in opposition to George Edmund Street. I do not compare either of the present candidates with the late City Architect, of course; but if there is a man more qualified than anyone to take the office, with a view to the prosperity of the Royal Institute of British Architects, it surely is Mr. Aston Webb, A.R.A., who has vast undertakings in hand of architectural consequence. He is a business man, and knows the profession thoroughly. I only hope he will allow himself to be nominated.—I am, &c.,

A FRIEND OF ALL THREE.

SIR,—I am not surprised to see the letter printed in the BUILDING NEWS of April 7 on this subject, as I happen to have been informed of the wire-pulling which has been going on, and also to know something of the lithographed letters which have been recently circulated among the Conduit-street cosy coterie reputed to be managing matters under Royal patronage, nominally for the architectural profession, more particularly in the interest of the Institute Council. What puzzles me, however, is the question which people are asking as to why Mr. William Woodward should thus busy himself in advocating Mr. Florence's claims to the presidential chair. Not that I have the least objection to our esteemed vice-chairman, for whose personality I yield to none in admiration; indeed, in this respect, Mr. Florence would undoubtedly fittingly follow Professor Aitchison, whose *courage de rose* no one ever ventured to question. Money is much, gentlemanly bearing is more, but practical business-like conduct surpasses both of these qualities. Why should we shirk a contested election, and why should the Council always have its own way? Surely the introduction of a little spirit among the rank and file would tend to impart a more real interest in what is going on, serving to broaden the narrow limits which too long have dominated the mutual admiration of the Dinner Club, near Hanover-square. The object of this note, however, is not to attempt any undeserved disparagement or excite any invidious comparisons; but, in my humble opinion, Vice-President Gruning has a prior claim upon our suffrages, and, more than that, I believe he has many supporters who consider his claims far higher than those of either Mr. Wm. Emerson or Mr. Florence.—I am, &c.,

AN OLD LONDON CITY MEMBER.

SIR,—I do not agree with Mr. Woodward, whose letter in your issue of last Friday I have just seen. It seems a pity thus to thrust the private affairs of the Royal Institute of British Architects before outsiders, and by intruding in this manner your correspondent only renders the task of thwarting foregone conclusions all the more difficult. By rendering the position impossible for a candidate of eminence and disinterested character, Mr. Woodward injures the cause which he professes to aim at furthering.—I am, &c.,

F.R.I.B.A.

SIR,—Why have any architect as president? Years ago we fell back on a layman—Mr. Beresford Hope, while Earl de Grey was the first occupant of the chair. Why not elect Lord Grimthorpe or Mr. Harry Hems? If neither of them will serve, let us have a penny-in-the-slot machine.—I am, &c.,

THE YOUNG OBADIAH.

## ARCHITECTS AND LOCAL AUTHORITIES.

SIR,—In your last issue but one, giving the account of the discussion on "The Experience of Architects in their Relation to Local Authorities," at the Society of Architects, it would appear from your report of Mr. Ellis Marsland's remarks, that persons wishing to build outside the Metropolitan area must necessarily await the sanction of the local authority before commencing. I do not think this is so. Sec. 158 Public Health Act, 1875, imposes a duty on local authorities to approve or disapprove of plans, &c., within a month, but does not appear to require the person to delay operations till that time, any more than in the Metropolitan, and, indeed, the latter part of first paragraph of the section anticipates commencement before sanction, provided the by-laws are complied with, and I believe this point has already been settled in the courts. That being so, there should not be the misapprehension among architects that appears now to exist.—I am, &c.,

A. H. WORSLEY.

## Intercommunication.

## QUESTIONS.

[12224.]—Cape Colony.—Information is requested regarding the names and uses of the principal timbers in use for building purposes in Cape Colony. Also the uses and descriptions of the various building materials. Kindly mention any guide-books or other sources from which further information may be obtained, and oblige.—D. S. M.

[12225.]—Sunshine Calculator.—I understand there is a movable calendar to be had, by which one can calculate the amount of sunshine (in hours) the various elevations of a building should receive during the several months of the year. I should be obliged, if any reader knows of such a thing, if he will inform me.—T. R. P.

[12226.]—Removing Paint.—What will be the best way of getting paint off about 300 square yards of church seats? They are going to be stained, so it will not do to burn them off.—NOVICE.

[12227.]—French Concrete Piles.—Where can I get a book, or any information, on the French system of concrete piles, or will some reader of the BUILDING NEWS give details?—H. DOWLING.

## LEGAL INTELLIGENCE.

A PORTSMOUTH ARBITRATION.—Sir John Whitaker Ellis, who was appointed to act as arbitrator in a dispute between the Portsmouth Corporation and the owner of some land at Southsea, has given his award. On the municipal body taking over from a burial board a cemetery at Southsea, an agreement by the latter body to purchase land for the enlargement of the cemetery was repudiated by the corporation on the ground that the consent of the Home Secretary had not been obtained. Mr. Justice Byrne held that the contract was invalid, but this decision was reversed by the Court of Appeal. The price to have been paid for the land was £6,170, and the arbitrator has awarded the vendor £2,970 as damages for breach of contract, together with interest and costs.

IN RE G. FORESTER, OF CHESTER.—At the Law Association-rooms, Cook-street, Liverpool, on the 7th inst., a meeting was held of the creditors of Mr. George Forester, builder and contractor, of Boughton, Chester. The statement of assets showed total liabilities of £3,603, of which £1,728 was owing to trade creditors, and £1,875 to relatives and others, being cash advanced. The total assets were estimated at £1,085, leaving a deficiency of £2,520. There were several uncompleted contracts, including one for the building of a post-office at Douglas for the Government. The debtor was questioned as to how he accounted for so large a deficiency in eighteen months or two years' trading. He stated that it was due to pressure of creditors, and also to the fact that his stock, &c., which, when he purchased the business, was valued at £1,200 was now put down at only £500, though there had been no diminution. It was decided to wind up the estate in bankruptcy.

RE J. L. P. SANDERSON.—A first meeting of creditors was held on Saturday, before Mr. C. A. Pope, Assistant Receiver. The debtor was described as of Marble Arch Mansions, Oxford-street, brick manufacturer, carrying on business at the Ashstead Brickworks, and formerly as a tea dealer, under the style of J. Sanderson and Co. A statement of affairs was lodged, showing total liabilities £32,500, of which £19,190 are unsecured, and assets estimated at £2,293. No proposal was submitted on the debtor's behalf. An order of adjudication had already been made, and the matter was left in the hands of the Official Receiver as trustee.

WORKMEN'S COMPENSATION ACT.—At the Southwark County-court, on Tuesday, before Judge Addison, Q.C., William Robert Brown, a bricklayer's labourer, sued Mr. H. W. Brown, a builder and contractor, of Albert-road, Dalston, to recover £200, under the Workmen's Compensation Act, for injuries sustained. Plaintiff's counsel said that on Nov. 15 last his client, who was at work for the defendant, was ordered by a foreman to place a board in front of a steam exhaust pipe. After he had done so plaintiff was about to descend from the roof when he became enveloped in steam, with the result that he stepped through an unguarded skylight. He fell a distance of 24ft., and injured both legs in such a manner that one would probably have to be amputated. It was contended that the accident happened as the result of a negligent order by the foreman. His Honour gave judgment for the plaintiff for £100 and costs.

BRADFORD CORPORATION ARBITRATION.—Mr. B. Jackson, C.E., of Halifax, sat as umpire at Bradford on Monday, along with Mr. Charles Gott, C.E., as arbitrator for the Bradford Corporation, and Mr. Sam Jackson, C.E., for Mrs. Lofthouse, in arbitration proceedings regarding the value of some cottage property situate at the junction of Otley-road and Tenneyson-place, required by the Bradford Corporation for street improvements. Mr. J. J. Wright appeared for the claimant, and Mr. W. Waugh for the corporation. Mr. Wright's valuation was £1,360; Mr. Waugh's was £376.



## Our Office Table.

THE correspondence which has recently appeared in the daily journals with reference to the decoration of St. Paul's has resulted in the forwarding of a temperately worded protest to the Dean and Chapter. The memorial, which is signed by Earls Stanhope, Egerton, and Windsor, Lords Leconfield and Newton, Sir E. J. Poynter, Mr. Samuel Howe, and Mr. F. Cavendish Bontinck, M.P. (significantly enough, no architect's name appears in the list), reads as follows: "The decorations now proceeding under the dome of St. Paul's Cathedral having given rise to much criticism, we trust that the following appeal will meet with your favourable consideration. Although the members of the Royal Academy, the members of the Royal Institute of British Architects, and other recognised authorities have hitherto remained silent, there are strong grounds for believing that they, in common with many others, fear that—in the words of the late Dean Milman—the solemnity and the harmonious simplicity of the edifice may be disturbed under the present scheme. While recognising a general desire to enrich the interior of the building, we would venture to submit to the Dean and Chapter that the opinion of experts appointed by the above-named bodies should be taken as to whether the stencilling in red paint of the principal mouldings and cornices under the dome and the black lettering on the frieze are a form of decoration likely to impair the chief architectural features of the structure as originally conceived and carried out by Sir Christopher Wren."

DEAN GREGORY has promptly replied to the memorialists, stating that their appeal shall have the fullest consideration. "It is," he adds, "satisfactory to find that such distinguished and wealthy men take an interest in St. Paul's—an interest, however, which none of them evinced when we have been collecting funds for raising St. Paul's from the discreditable condition in which it was allowed to remain for a long period of years, and which was a disgrace to the Metropolis."

THE Liverpool Corporation have turned a deaf ear to the plans received by the Bishop of Liverpool, the Historic Society of Lancashire and Cheshire, and others, that the picturesque tower and spire of St. George's Church and building now in course of demolition should be retained, and by 43 votes to 25 rejected the motion of Councillor W. E. Willink, A.R.I.B.A., the President of the Liverpool Architectural Society, to refer the matter back to the committee. The fate of the tower, an unusually good example of work for 1820, was sealed on the ground that the space it occupies is required for widening the thoroughfare on which it stands, and which is now only 41ft. in width.

THE annual report of Sir Edward J. Poynter, P.R.A., in his capacity as director of the National Gallery and the Tate Gallery, furnishes information concerning the five pictures purchased during last year, and eighteen paintings received as bequests and donations, in addition to five that were handed over by the Council of the Royal Academy under the terms of the Chantrey bequest. The purchases consist of three specimens of the skill of Ambrogio de Predis, Hogarth's portrait of Mrs. Salter, and a painting by J. B. Simeon Chardin; whilst among the gifts and bequests are Mr. G. F. Watts's portrait of himself; the portrait of Mr. Gladstone, painted by the late Sir John Millais, and presented to the nation by Sir Charles Tennant, and another work by the same artist, "The Order of Release," given by Sir Henry Tate. Three bronzes were presented during the year, one being a bust of Sir Henry Tate, by Mr. Thomas Brock, presented by a body of subscribers, and fittingly placed in the gallery for which the nation is indebted to Sir Henry's munificence.

THE Dartford Rural District Council believe that the stringency of their building regulations hampers builders in the erection of cottages in many villages where there is an urgent need for more accommodation for families of the labouring classes. It was stated that, under the local by-laws and the pressure of ever-increasing rates, cottages could not be built in their district to let at less than 7s. a week, which was more than

farm-labourers could afford, the inevitable result being that much overcrowding existed. It was agreed by the council at their last meeting to apply to the Local Government Board for permission to rescind the by-laws, in order that a local builder may erect some detached wooden dwellings in the village of Eynesford, it being stated that these were expected to cost £150 a piece, and would be let at 3s. 6d. per week, while the insurance companies only made an extra charge in premiums of 2s. 6d. per cent. for wooden as against brick buildings. It was also unanimously resolved to ask permission to waive the necessity for carrying party-walls of cottages above the roof level.

THE Vicar of Stratford-on-Avon appeals for another £1,000 to defray the balance due on the restoration of the historic church of Holy Trinity, which is now open in its renovated condition. The work done has, he explains, included the entire remodelling of the organ, at a cost of £840; the introduction of new heating apparatus, and the relaying of the floor after filling in the old vaults, at a cost of £1,600; and the substitution for the old and uncomfortable pews of carved oak benches in the aisles and chairs in the nave, at a cost of £576. Including architect's charges and sundry smaller improvements, the total outlay has been £3,450, and the subscriptions received have only amounted to £1,831. The work has been carried out under the superintendence of Mr. G. F. Bodley, A.R.A.

MR. EDMUND S. TAYLOR writes from 19, Old-street, E.C., asking if nothing can be done to save that most interesting relic of the past, the Roman villa at Daranth, from being wantonly destroyed. "I am," he says, "continually receiving letters from those who have recently visited the villa, describing the vandalism which is now taking place there. The stream of visitors having slackened last year, I understood the ruins were to be covered in again, and the land once more devoted to agriculture. Although sad to think that in this enlightened country there should be no society or department of the State willing to step in and prevent this from taking place, still such action, at any rate, would, to a certain extent, have preserved the ruins for the delight and instruction of another generation who might care to bring them to light again. But instead of having been covered in, they are left unattended and at the mercy of anyone who likes to kick to pieces all that was so carefully and reverentially unearthed but a few years since."

In an article on the finishing of yellow pine, the *U.S. National Builder* deprecates the use of linseed-oil as a filler, as it causes the wood to grow darker continually, and suggests that if it is desired to retain the natural colour of pine, the wood should be first given a coat of white shellac, sandpapered lightly when dry with fine sandpaper, followed by two or three coats of the desired varnish or finish, allowing each coat ample time to dry before applying another. The first coats should be rubbed slightly with hair-cloth or curled hair—just enough to destroy the high gloss—and the last coat may either be flowed on, and allowed to remain as a bright varnish finish, or rubbed, as may be desired. If a smooth, dead finish is wanted, rub the last coat, when hard, with pulverised pumicestone and water, using for rubbing a piece of thick felt made for the purpose. For an egg-shell gloss, rub the last coat, when hard, with pulverised pumicestone and oil. For a polish, rub the last coat first with pulverised pumicestone and water, and then with pulverised rottenstone and water, and a still higher finish can be obtained by giving a further rubbing with furniture polish, used with a little pulverised rottenstone, applied with a piece of soft felt or flannel. Pine, being a close-grained wood, does not need any filling; but it should always receive a first coat of shellac, as above directed.

ONE of the most interesting features at the approaching Building Exhibition will be the Quarry collection of building stones and bricks. At least, a thousand specimens of building stone will be gathered together, and as such well-known firms as the Bath Stone Firms, Ltd., Messrs. John Freeman, Sons, and Co., Ltd., of Penryn, and others are contributing largely, there can be no doubt of the value of the exhibit to the architect and builder. We hope the collection may find a permanent home somewhere after the close of the exhibition.

## MEETINGS FOR THE ENSUING WEEK.

SATURDAY (TO-MORROW).—Perth Architectural Association. Visit to Free Middle Church, Tay Street.  
MONDAY.—Society of Arts. "Leather Manufacture," Cantor Lecture No. 1, by Prof. Henry R. Procter, F.I.C. 8 p.m.  
TUESDAY.—Society of Arts. "Inlaying," by Stephen Webb. 8 p.m.  
Institution of Civil Engineers. "Buenos Aires Harbour Works," by James Murray Dobson, M.Inst.C.E. 8 p.m.  
WEDNESDAY.—Society of Arts. "London's Water Supply," by Walter Hunter, M.Inst.C.E. 8 p.m.  
THURSDAY.—Institution of Civil Engineers. "Magnetism," by Prof. J. A. Ewing, M.A., B.Sc., F.R.S. 8 p.m.  
FRIDAY.—Royal Institution. "Earth Currents and Electric Traction," by Prof. A. W. Rücker, F.R.S. 9 p.m.  
Glasgow Architectural Craftsmen's Society. Annual Business Meeting. 8 p.m.

## Trade News.

### WAGES MOVEMENTS.

THE PLASTERERS' DISPUTE.—Since the abortive conference between the master builders and operative plasterers, held last Thursday, when the negotiations were broken off on account of the withdrawal by the men of the assurance previously given on the question of coercion, there has been no change in the situation, and the lock-out continues. The master plasterers decided at a meeting held at Bradford to form a national association of their own, independently of the master builders, and Mr. J. W. Sugden, of Bradford, was elected the first president.

ABERDEEN.—A mass meeting of the joiners on strike at Arbroath was held on Monday, when it was intimated that the masters had agreed to grant the advance of wages asked for by the men—from 7½d. to 8d. per hour—but had declined to sign the by-laws which had been in operation last year. The men agreed unanimously to remain on strike until the by-laws are signed by the masters.

EDINBURGH.—A large meeting of the joiners' section of the Edinburgh Builders' Association was held on Monday in the Building Trades' Exchange, Shandwick-place, to consider the demand of the operatives for an increase of ½d. per hour on their wages, and several alterations of the working by-laws. The meeting unanimously felt that the demand for a rise of wages was uncalled for, and that the state of trade did not warrant an advance; but that, in order to avoid friction between employers and the workmen, it agreed to refer the matter to arbitration on condition that the men continue at work until the arbiter gives his decision.

LEICESTER.—The demand of the bricklayers' labourers for an increase of wages from 6d. to 6½d. per hour having been refused, 750 of them have struck work, and to these must be added 60 navvies and general labourers. The stoppage of these men has brought out the bricklayers also, so that 1,500 men are now idle.

OLDHAM.—A largely attended meeting of the Oldham members of the National Amalgamated Society of Operative House Painters and Decorators was held on Tuesday night in the Unity Hall, the business for consideration being an offer by the masters to concede an advance of ½d. an hour, from 8d. to 8½d., from 1st July next. In the course of the afternoon, however, the masters had held a further meeting, and made an amended offer to concede the advance immediately, shops to be reopened next morning. The painters, who have been on strike, to the number of over 200, since April 1, unanimously agreed to accept the amended offer, satisfaction being expressed at the result.

PERTH.—The Perth glaziers came out on strike on Monday for an increase of wages. The men demand an increase of ½d. per hour on the present rate of wages, the current rate being 6½d.

WIGAN.—Mr. Alfred A. Hudson, barrister-at-law, has been appointed umpire by the Board of Trade to settle the disputes between the Carpenters' and Joiners' and the Slaters' and Tilers' Societies, and the Wigan Master Builders' Association.

Mr. Fred. J. Wood, county surveyor of East Sussex, has been appointed to the office of surveyor to the Committee of Visitors to the Hayward's Heath Asylum. He is also acting as surveyor to the committee appointed for the purpose of erecting a new asylum at Hellingly, Sussex.

The Fulham Vestry have under consideration a report by a committee recommending that the salaries of various officials be increased, including that of Mr. C. Botterill, the surveyor, where it is proposed to raise the amount from £325 to £400, rising to a maximum of £550.



## LIST OF COMPETITIONS OPEN.

Fleetwood—Board Schools, West-street (600 places)	10gs. (merged)	J. H. Kean, Clerk to Board, Fleetwood	April 19
Arbroath—Infectious Diseases Hospital (35 beds)	£20, £15, £10	W. K. Macdonald, Clerk, Arbroath, Forfarshire	" 24
Frome—Science and Art School	£25, £10	Geo. W. Bradbury, Clerk, Public Offices, Frome	" 29
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	£50, £20, £10	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate	" 30
Dover—Concert Pavilion for Promenade Pier (limit of cost £3,000; seating capacity 900 to 1,000)	£25	Ardlie Marsh, Secretary, Marine Parade, Dover	May 1
Stockton-on-Tees—Market Hall	£25, £15, £10	The Borough Engineer, Stockton-on-Tees	" 1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks	£31 (merged), £20, £10	The Borough Engineer, Salford	" 3
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds	June 1
Okehampton—Workhouse and Infirmary (90 inmates)	£50, £25	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton	" 1
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	" 9
St. Thomas—Boys' School (600 places) and Teachers' Residence	160gs., 75gs., 50gs.	J. Champion, Clerk, St. Thomas, near Exeter	—
Fulham, S.W.—Public Baths		Charles Botterill, A.M.I.C.E., Town Hall, Walham Green, S.W.	—
Edinburgh—Midlothian County Buildings, Parliament-square		A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Halifax—House and Shoeing Forge in Westgate	Powell Duffryn Steam Coal Co.	C. F. L. Horsfall & Son, Architects, Lord-street Chambers, Halifax	April 15
Aber—Forty Houses	Aberdeen School Board	Geo. Kenshole, Architect, Duffryn House, Ystrad Mynach	" 15
Macroom—Creamery	Directors of Morris and Sons	John Keleher, Hon. Sec., Ballyurane	" 15
Aberdeen—Public School at Mile End	Gallagher School Board	A. H. L. Mackinnon, Architect, 245, Union-street Aberdeen	" 15
Feltwell Fen—Repairing Engineer's House	Guardians of Whitechapel Union	W. Clement Williams, Architect, 29, Southgate, Halifax	" 15
Whitechapel—Additions, Tobacco Factory, Half-Moon-passage	John Way	John Haggaas, Architect, North-street, Keighley	" 15
Lochawe—Block of Workmen's Houses	Trinity House Corporation	B. J. Capell, 139, Whitechapel-road, E.	" 17
Hunslet—Ten Houses, Dewsbury-road	Alfred Miller	James and Morgan, Architects, Charles-street Chambers, Cardiff	" 17
Aberystwith—Alterations and Additions to St. George's Hotel, Portland-street	Canons Park Estate Company	T. H. Atkinson, Bolsover	" 17
Treharris—Baptist Chapel	Town Council	E. H. Back, M.S.A., Dartmouth	" 17
Cullen—Free Church	Hoddlesden Co-operative Society	Chas. A. Kent, Secretary, Trinity House, London, E.C.	" 17
Halifax—Sixteen Houses, Newstead Estate, Gibbet-lane	Great Western Railway Company	R. Frank Vallance, Borough Surveyor, Mansfield	" 17
Keighley—Offices, &c., Scott-street	Town Council	Charles Pertwee, Bank Chambers, Chelmsford	" 17
London, E.—Boiler Seating, South Grove Workhouse	Hoddlesden Co-operative Society	The Architect's Offices, 4, College Chambers, 249, High Holborn	" 17
Gelligaer—Headmaster's House	Guardians	Rees Jones, Borough Surveyor, Aberystwith	" 17
Whitwell—Eight Houses	H. W. Hayward	John B. Thornley, Architect, Market-street, Darwen	" 17
Dartmouth—Additions to the Start Bay Yacht Club	Loyal Strangers' Refuge Lodge	John Milne, Architect, Elgin	" 13
Penzance—Buoy Store, &c., Trinity Store	Rusbon U.D. School Board	G. K. Mills, Secretary, Paddington Station, London	" 18
Mansfield—Additions to the Forest Hospital, Southwell-road	J. Orton	John Morley, Architect, 22, St. Andrew-street, Cambridge	" 18
Chelmsford—Small House at Rainsford End	Leigh and Astley Joint Burial Board	Landsell and Harrison, Architects, 88, Bow-lane, Cheapside, E.C.	" 19
Edgware—Two Houses, Canons Park Estate	Junction Railway Co.	Philip Kerley, Architect, Exmouth	" 19
Aberystwith—Twenty Workmen's Houses	Lord Dunleath	J. Berry, Architect, 9, Queen-street, Huddersfield	" 19
Huddersden—Store	Buntingford Rural District Council	J. Morison and Son, Architects, King-street, Wrexham	" 19
Branderburgh—Villa in The Square	County Intermediate School Gvms.	A. and W. Reid and Wittet, Architects, Elgin	" 19
Cardiff—Stable	Lancashire and Yorkshire Ry. Co.	Geo. Thos. Wilson, Architect, 121, Durham-road, Blackhill	" 19
Cambridge—Police Station in St. Andrew's-street	School Board	Banks, Fairclough, and Stephens, Architects, Leigh	" 19
Chelsea, S.W.—Two Bath Turrets at Infirmary, Cale-street	Gasworks Committee	O. S. Holt, Secretary, London-road Station, Manchester	" 20
Exmouth—Additions to Imperial Hotel, Exmouth	Lancs. and Yorks. Railway Co.	E. A. Johnson, M.S.A., Abergavenny	" 20
Huddersfield—Three Houses in Cliffe-lane	H.M. Commissioners of Works	Henry Hobart, Architect, Dromore	" 20
Johnstown—Board School	Metropolitan Asylums Board	R. Watson, Solicitor, Coupar Angus	" 20
Elgin—Two Double Cottages, New Elgin-road	Donegal Railway Company	Ernest G. Thody, High-street, Buntingford	" 20
Consett—Two Houses and Shop, McDomsley-road	Vestry of St. Mary, Islington	William Buck, Architect, Horsham	" 20
Leigh—Cemetery Extension Works	Building Committee	H. Teather, Architect, 83, Wyle Cop, Shrewsbury	" 20
Oldham—Alterations to Clegg-street Station	Weybourne U.D. School Board	W. G. Gray and Sons, Architects, 23, George-street, Halifax	" 21
Abergavenny—Cottage Hospital and Dispensary, Hereford-rd.	Corporation	G. Moxon, Architect, 26, Church-street, Barnsley	" 21
Warrington—Cottages, Diaper Hill	Urban District Council	Clark and Moscrop, Architects, Darlington	" 21
Coupar Angus—Addition to Kettins Public School	Corporation	The Secretary, 125, Brighton-street, Seacombe	" 21
Buntingford—Isolation Hospital	Hugh G. Larmour	The City Surveyor, Town Hall, Manchester	" 21
Horsham—Alterations to Shelley Arms, Broadbridge Heath	School Board	J. Lane Fox, Architect, Bond-street, Dewsbury	" 22
Llanfyllin—School Buildings	School Board	F. W. Lockwood, Architect, 16, Waring-street, Belfast	" 22
Halifax—Rebuilding and Enlargement of St. Paul's Spiritual Church, Alma-street	London County Council	Fred. J. Wood, A.M.I.C.E., County Surveyor, County Hall, Lewes	" 22
Silkestone, Barnsley—Store and House	Corporation	W. R. Bryden, F.R.I.B.A., Architect, 1, George-street, Buxton	" 22
Applegarth—Addition to Farmhouse	Trustees	Wm. Swift, Architect, 38, Lemon-street, Truro	" 23
Seacombe—Welsh Congregational Chapel and Schoolroom	Wigton—Alterations and Additions to Westmorland House	Thomas Winn, Architect, 92, Albion-street, Leeds	" 23
Manchester—Bandstand at Oak-road Recreation Ground		F. G. Shilcock, Architect, Bourne	" 24
Dewsbury—Semi-Detached Villas, Northfield-road		M. Temple Wilson, Architect, Alnwick	" 24
Croesgarth—Dwelling-House		Edward Hazelhurst, Architect, 7A, Lawrence Pountney Hill, E.C.	" 24
Bexhill—Three Police Constables' Cottages		J. Thomson, Architect, Fife-Keith	" 24
Chinley—Isolation Hospital Buildings		The Engineer's Office, Hunt's Bank, Manchester	" 25
Malpas—Pair of Cottages		Houston and Houston, Architects, 5, York Buildings, Adelphi, W.C.	" 25
Leeds—Warehouse		W. H. Dinsley, Architect, Chorley, Lancashire	" 25
Bourne—Alterations to House, North-street		Arthur Andrew, Gas and Water Offices, Graves-street, Oldham	" 25
Low Buxton—Farmstead and Three Cottages		The Engineer's Office, Hunt's Bank, Manchester	" 25
Upper Norwood, S.W.—Public Library in Westlow Hill		Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	" 25
Drumlin—House, &c.		T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C.	" 26
Liverpool—Extension of the South Docks Goods Station and Alterations to Warehouse in Carl-street		William Sugden and Sons, F.R.I.B.A., Leek	" 26
Harrow—Boys' School at Greenhill		James Barton, M.I.C.E., Exchange Buildings, Dundalk	" 26
Horbury—U.M.F.C. Chapel and School		Patten Barber, M.I.C.E., Vestry Hall, Upper-street, Islington, N.	" 26
Oldham—Retort House, &c., Higginshaw Gas Station		T. Cook, M.S.A., 39, Victoria Buildings, Westminster	" 27
Low Moor—Alterations to Passenger Station		F. Andrews, Clerk, Holt, Norfolk	" 27
Hyde—Manchester Post Office		Woodhouse and Willoughby, Architects, 100, King-street, Manchester	" 28
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler House at South-Eastern Hospital, Hatfield-street		Stevenson and Burstall, Engineers, 35, Parliament-st., Westminster	" 28
Crewe—Liberal Club		Douglas and Minshull, Architects, Abbey-square, Chester	" 29
London-derry—Station Houses		Henry Hobart, Architect, Dromore, County Down	May 1
Holloway, N.—Corrugated Iron Shelters, Recreation Ground, Market-road		C. Morgan-Richardson, Cardigan	" 1
Bradford—Unitarian Mission Church		Director of Works Department, 21, Northumberland-avenue, W.C.	" 5
Kelling—Enlarging School		W. Clement Williams, Architect, 29, Southgate, Halifax	" 6
Barrow-in-Furness—New Technical School, and Alterations to Existing Building in Abbey-road		Alfred J. Dunn, A.R.I.B.A., 31, St. Michael's-square, Gloucester	" 6
Ashford, Kent—New Buildings at Gasworks		The Architect's Department, 13, Spring Gardens, S.W.	" 8
Chester—Public Baths, Union-street		The Borough Surveyor, Town Hall, Darlington	" 8
Lisburn—Four Houses		G. Fleetwood, 3, New Court, Lincoln's Inn, W.C.	" 13
Gwbert-on-Sea—Wings on Gwbert Hotel		E. R. Ridgway, Architect, Long Eaton	"
Altar—Royal Naval Reserve Buildings		C. A. Todd, Clarence Villa Hotel, Coxhoe	"
Halifax—Board Schools, Sunny Side		The Architect, Co-operative Wholesale Society, Manchester	"
Gloucester—School, Caretaker's House, &c., Hatherley-road		Jas. Young and Co., Architects, 62, Market-street, Bradford	"
Victoria Embankment Gardens and Battersea Park—Super-structure of, and Painting New Band Stands		J. Pickthorn, Market-street, Ashby-de-la-Zouch	"
Darlington—Electric Lighting Station		Settle and Farmer, Architects, Ulverston	"
Trowbridge, Wilts—Technical School		Morison and Son, Architects, King-street, Wrexham	"
Derby—Seven Cottages, Nottingham-road		Judson and Moore, York Chambers, Keighley	"
Coxhoe—Assembly Hall		G. W. Leighton, Architect, Princes-street, Ipswich	"
Rugeley—Bakery and Slaughter-House		H. Hardaker, Architect, Ivegate Chambers, New Ivegate, Bradford	"
Bradford—Warehouse		Jos. Graham, Architect, Bank-street, Carlisle	"
Ashby-de-la-Zouch—House and Stable, Tamworth-road			"
Ulverston—Alterations to Shop, King-street			"
Wrexham—Central Stores, Bridge-street			"
Keighley—Shop, &c., Cooke-lane			"
Felixstowe—Presbyterian Church			"
Manningham—Converting House into Shop, Whetley-lane			"
Wigton—Alterations and Additions to Westmorland House			"



## BUILDINGS—continued.

Lurgan—Licensed Premises .....	Valentine Harrison .....	W. J. Moore, Architect, Whitehall Buildings, Belfast .....	—
Ballynahinch—Teacher's Residence .....	Henry Hobart, Architect, Dromore .....	Geo. H. F. Prynn, F.R.I.B.A., 6, Queen Anne's-gate, Westminster .....	—
Elland—New Church .....	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....	J. H. Cooper, Architect, Lincoln .....	—
Ardnamurchan—Shop and House, Salen .....	James Graham .....	P. and J. W. Hayter, Surveyors, &c., Bank-street, Carlisle .....	—
Caistor—Congregational Schoolroom .....	G. W. Thomson .....	Empsall and Clarkson, Architects, 7, Exchange, Bradford .....	—
Ravenrook, Carlisle—Sixteen Dwelling Houses .....	Meltham Spinning Company .....	James W. Martin, Architect, Station Chambers, Clacton-on-Sea .....	—
Bradford—Alterations to Premises, Leeds-road .....	Francis O'Neill .....	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....	—
Clacton-on-Sea—Detached Residence, Marine-parade .....	—	E. M. Young, Architect, 90, Duke-street, Barrow-in-Furness .....	—
Ardnamurchan—Addition to Post-Office, Achacrae .....	—	W. Carter, Architect, Meltham, near Huddersfield .....	—
Barrow-in-Furness—Congregational Church .....	—	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....	—
Meltham—Circular Brick Chimney (50yds. high) at Brigg Mills .....	—	T. M. Lockwood and Sons, Architects, 80, Foregate-street, Chester .....	—
Ardnamurchan—House near Achacrae .....	—	W. J. Moore, Architect, Whitehall Buildings, Ann-st., Belfast .....	—
Chester—Four Shops, City-road .....	—	E. H. Lingen Barker, Architect, 146, St. Owen's-street, Hereford .....	—
Belfast—Shop and Dwelling-Houses, Falls-road .....	—	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....	—
Kingswood, Bristol—Additions to Holy Trinity Church .....	—	—	—
Ardnamurchan—Two Workmen's Houses at Glenborrodale .....	—	—	—

## ENGINEERING.

Tynemouth—Electricity Works .....	Corporation .....	Lacey, Clirehugh, and Sillar, 2, Queen Anne's-gate, Westminster .....	April 15
Brighton—Two Pumping-Engines, Boilers, &c. ....	Town Council .....	Francis J. Tillstone, Town Clerk, Town Hall, Brighton .....	17
Chingford—Disinfecting Apparatus at the Isolation Hospital .....	Walthamstow U.D.C. ....	E. J. Gowen, Clerk, Town Hall, Walthamstow .....	17
Bristol—Piers and Jetties, Ashton Swingbridge .....	Docks Committee .....	The Engineer's Office, Cumberland Basin, Bristol .....	17
Buxton—Arc Lamps and Posts, &c. ....	Urban District Council .....	Prof. Alexr. B. W. Kennedy, 17, Victoria-street, Westminster .....	17
Swinton—Pump .....	Urban District Council .....	R. Fowler, Engineer, Swinton, near Rotherham .....	18
Llanhilleth and Aberbeeg—Widening Line (1 mile 30 chains) .....	Great Western Railway Company .....	G. K. Mills, Secretary, Paddington Station, London .....	18
Ebafayad—Waterworks .....	Rural District Council .....	Geo. M. Jarman, Clerk, Rhayader, Mid-Wales .....	18
St. Helens—Tramways (6 miles) .....	Electric Supply Committee .....	Geo. J. C. Broom, M.I.C.E., Borough Engineer, St. Helens .....	19
Seaham Harbour and Hartlepool—Double-Line Railway (9mi.) .....	North-Eastern Railway Company .....	W. J. Cudworth, Engineer, Darlington .....	19
Newcastle-on-Tyne—Iron Arched Roof over Alley of Grainger Market (316ft. long, 56ft. span) .....	Finance Committee .....	The Property Office, Town Hall, Newcastle .....	20
Salford—Furifiers, &c., Liverpool-street Works .....	Gas Committee .....	The Gas Engineer, Gas Offices, Bloom-street, Salford .....	20
Peterborough—Electric Lighting Plant .....	Corporation .....	J. C. Gill, A.M.I.C.E., Municipal Offices, Peterborough .....	20
Keighley—Bridge at Aireworth .....	Corporation .....	W. H. Hopkinson, A.M.I.C.E., Borough Engineer, Keighley .....	20
South Shields—Extension of Electric Lighting Plant .....	Corporation .....	The Borough Electrical Engineer's Office, West Holborn, S. Shields .....	20
Belfast—Mechanical Stokers, &c. ....	Electric Committee .....	Victor A. H. McCowen, City Electrical Engineer, Belfast .....	20
Sutton and Howth—Electric Tramway .....	Great Northern Railway Co. ....	Professor Alex. B. W. Kennedy, 17, Victoria-street, S.W. ....	21
Sunderland—Electric Lighting of Infirmary, Hylton-road .....	Guardians .....	W. and T. R. Milburn, Architects, 20, Fawcett-street, Sunderland .....	21
Beigate—Steam Conduit at Isolation Hospital .....	Town Council .....	W. H. Prescott, C.E., Borough Surveyor, Market Hall, Redhill .....	24
Perth—Railway (6 miles), Comrie to St. Fillans .....	Locheamhead and St. Fillans Rly. ....	Crouch and Hogg, Engineers, 175, Hope-street, Glasgow .....	24
Ashton-under-Lyne—Penstocks (233), Sluices, &c. ....	Corporation .....	J. T. Earnshaw Borough Surveyor, Town Hall, Ashton-under-Lyne .....	24
Beigate—Laundry Machinery at Isolation Hospital .....	Town Council .....	W. H. Prescott, C.E., Borough Surveyor, Market Hall, Redhill .....	24
Troon—Concrete Sea-Wall (1,900 yards) .....	Commissioners .....	J. and H. V. Eaglesham, Engineers, Wellington Chambers, Ayr .....	25
Erith—Overhead Traveller (10-ton), Crossness Pumping Station .....	London County Council .....	The Engineer's Department, County Hall, Spring Gardens, S.W. ....	25
West Ham—Engines, &c. ....	Town Council .....	The Borough Electrical Engineer's Office, Abbey Mills, West Ham .....	25
Poplar, E.—Electrical Plant .....	Board of Works .....	Leonard Potts, Clerk, 117, High-street, Poplar, E. ....	25
Hereford—Bridge Repairs .....	Herefordshire County Council .....	A. Dryland, County Surveyor, Shire Hall, Hereford .....	25
Fimlico, S.W.—Tidal Flaps .....	London County Council .....	The Engineer's Department, County Hall, Spring Gardens, S.W. ....	25
New Cross, S.E.—Boilers, Pumps, Radiators, Steam Heaters, &c., at South-Eastern Hospital, Hatfield-street .....	Metropolitan Asylums Board .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ....	26
Gravesend—Pumping Machinery, &c. ....	Gravesend Waterworks Company .....	James Mansergh, Engineer, 5, Victoria-street, Westminster .....	27
London, W.—Removal and Reconstruction of Westbourne Terrace-road Bridge .....	Paddington Vestry .....	George Weston, Surveyor, Vestry Hall, Harrow-road, W. ....	May 1
Reigate—Electric Lighting Plant .....	Town Council .....	F. Hastings Medhurst, B.Sc., M.I.E.E., 13, Victoria-street, S.W. ....	1
Dartford, Kent—Sanitary Appliances, &c., at Darenth Asylum .....	Metropolitan Asylums Board .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ....	1
Morecambe—Steelwork of Tower, Calton Lodge Estate .....	Morecambe Tower Co. ....	R. T. Gifford Read, C.E., 1, Great Chapel-street, Westminster .....	1
Breamore—Bridge over River Avon .....	Hants County Council .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	1
New Ross and Waterford—Railways (13½ miles) .....	Dublin, Wicklow, & Wexford Ry. Co. ....	The Engineer of the Company, 1, Westland-row, Dublin .....	1
Abercromby—Steel-Rope Suspension Footbridge .....	Mountain Ash U.D.C. ....	John Williams, Surveyor, Town Hall, Mountain Ash .....	2
Epsom—Electric Lighting Plant .....	Urban District Council .....	W. C. C. Hawtayne, Consulting Eng., 9, Queen-street-place, E.C. ....	8
Egremont—Gas-holder and Tank .....	Wallasey Urban District Council .....	J. H. Crowther, Engineer, Great Float, near Birkenhead .....	18
Hampstead, N.W.—Electric Lighting Plant .....	Vestry of St. John .....	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead, N.W. ....	18
Shanghai—Electric Trolley Tramways (23 miles) .....	Municipal Council .....	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....	June 30

## FENCING AND WALLS.

Pontypool—Iron Wire Rope Fencing .....	W. Monmouthshire School Govrns. ....	G. H. Daniel, Engineer, Pontypool .....	April 17
Dalston, N.—Taking Down and Rebuilding Walls at Relief Offices, Mayfield-road .....	Hackney Union Guardians .....	W. A. Finch, Architect, 76, Finsbury Pavement, E.C. ....	21
Llangrwyne—Concrete Wall .....	Brecon County Council .....	H. Edgar Thomas, Clerk, County Hall, Brecon .....	May 6
London, S.E.—Boundary Railings, Gates, &c., Nelson Recreation Ground, Kipling-street .....	London County Council .....	The Architect's Department, 13, Spring Gardens, S.W. ....	8

## FURNITURE AND FITTINGS.

Coventry—Fitting and Furnishing Police Court .....	City Council .....	H. Quick, Architect, Hertford-street, Coventry .....	April 15
Dartford—Furniture at Nurses' House and Workhouse .....	Guardians .....	J. C. Hayward, Clerk, Sessions House, Dartford .....	24

## PAINTING.

Upton Park, E.—Schools .....	St. George-in-the-East Guardians .....	G. A. Wilson, Vestry Hall, Cable-street, E. ....	April 15
Wigan—Sewage Farm Buildings at Hoscar Moss .....	Corporation .....	The Borough Engineer, Rodney-street, Wigan .....	15
Oxford—Radcliffe Infirmary .....	Committee of Management .....	A. C. Virgo, Secretary, Oxford .....	19
Halifax—Tram Poles (400) .....	Tramways Committee .....	Edward R. S. Escott, C.E., Borough Engineer, Town Hall, Halifax .....	19
Manchester—Seven Libraries .....	Libraries Committee .....	The City Surveyor, Town Hall, Manchester .....	25
Leeds—Ten Houses, Grange-terrace .....	—	J. Hutton, 1, Cowper-street, New Leeds .....	—
Nelson—Interior of Borough Hotel .....	—	Thomas Horsfall, The Brewery, Brierfield .....	—

## ROADS AND STREETS.

Standish—Street Improvement Works .....	Urban District Council .....	Heaton, Ralph, & Heaton, Archts. and Surveyors, King-st., Wigan .....	April 15
Norwood, S.E.—Roads and Sewers, Grangewood Estate .....	—	Allen and Hoar, Surveyors, Inglewood House, West Hampstead .....	15
Mansfield—Forming and Making Rooth-street .....	Urban District Council .....	Vallance and Westwick, Surveyors, Mansfield .....	15
Branksome—Making-up and Kerbing Alexandra-road .....	Urban District Council .....	S. Newman, F.R.I.B.A., 3, Tennyson Bldgs., Ashley-rd., Branksome .....	17
Spennymoor—Paving and Kerbing .....	Urban District Council .....	G. W. Rogers, Surveyor, Silver-street, Spennymoor .....	17
Brentford—Making-up Church-alley .....	Urban District Council .....	Nowell Parr, Surveyor, Clifton House, Boston-road, Brentford .....	18
Tottenham—Paving (274 yards), Seven Sisters-road .....	Urban District Council .....	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham .....	18
Brentford—Paving and Kerbing, Twickenham-road .....	Guardians of Brentford Union .....	William Stephens, Clerk, Union Offices, Isleworth, W. ....	19
Berwick—Road Works (One Year) .....	Norham and Islandshires R.D.C. ....	J. Short, District Surveyor, Ord Cottage, Berwick .....	20
Cardiff—Roads and Sewers at Cathays Park .....	Corporation .....	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff .....	22
Batley—Paving and Flagging Whittaker-street .....	Town Council .....	O. J. Kirby, Borough Surveyor, Market-place, Batley .....	22
Waterloo—Street Works .....	Waterloo-with-Seaforth U.D.C. ....	F. Spencer Yates, A.M.I.C.E., Surveyor, Town Hall, Waterloo .....	24
Morley—Paving and Flagging Clough-street .....	—	W. E. Putman, A.M.I.C.E., Boro' Eng., Town Hall, Morley .....	24
Stoke Newington—Wood Paving (13,000 yards) at Manor-road and Lordship-park .....	Vestry .....	R. Brown, A.M.I.C.E., Surveyor, Vestry Offices, 126, Church-st., N. ....	25
Winford—Widening Road .....	Long Ashton R.D.C. ....	James Hawkins, District Surveyor, Brockley, near Bristol .....	25
Felixstowe—Making-up Cobbold, Ranelagh, & Gainsboro' Roads .....	Urban District Council .....	F. B. Jennings, Clerk, Town Hall, Felixstowe .....	25
Hull—Tramway Street Works .....	Corporation .....	A. E. White, City Engineer, Town Hall, Hull .....	26
Hellingly—Making New Road .....	East Sussex County Council .....	Fred J. Wood, County Surveyor, County Hall, Lewes .....	29
Haywards Heath—Making and Sewering Heath-road .....	Urban District Council .....	Edward Waugh, Clerk, Bolto-road, Haywards Heath .....	May 2
West Norwood—New Roadway at Schools, Elder-road .....	Lambeth Guardians .....	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E. ....	3

## SANITARY.

Elgin—Laying 12in. Sewer in Morriston-road .....	Acton A. Turriff, C.E., Burgh Surveyor, Elgin .....	April 15
Gravelly Hill—Alterations to Drains and Sanitary Fittings at the Workhouse .....	Cooper Whitwell, Architect, 23, Temple-row, Birmingham .....	17
Cockermouth—Surface-Water Drains and Water-Mains .....	John Fearon, Clerk, Cockermouth .....	17
Spennymoor—Relaying Sewers .....	G. W. Rogers, Surveyor, Silver-street, Spennymoor .....	17
Blackburn—Additions to Conveniences at Market House .....	W. Stubbs, A.M.I.C.E., Municipal Offices, Blackburn .....	19
Tottenham, N.—Sewers .....	P. E. Murphy, M.I.C.E., 712, High-road, Tottenham .....	18
Edinburgh—Pipe Sewer in Comiston-road .....	Thomas Hunter, W.S., Town Clerk, City Chambers, Edinburgh .....	18
Bexhill—Sewerage Works .....	G. Ball, A.M.I.C.E., Surveyor, Town Hall, Bexhill .....	20
Morley—Sewering Victoria-road .....	W. E. Putman, A.M.I.C.E., Borough Engineer, Town Hall, Morley .....	24
Croston—Sewers, &c. ....	F. E. Dixon, C.E., 49, Lune-street, Preston .....	24
Gorton—Sewering Corn-wall-street .....	Charles J. Lomax, A.M.I.C.E., 37, Cross-street, Manchester .....	28
Garlands—Drainage Works at the Asylum .....	John Little, Sanitary Engineer, Viaduct Chambers, Carlisle .....	29
Mountain Ash—Stoneware Pipe Sewers (6,300 yards) .....	James Mansergh, C.E., 5, Victoria-street, Westminster .....	May 1
Johannesburg—Sewerage Scheme .....	The Town Engineer's Office, Johannesburg .....	12



## STEEL AND IRON.

Market Harborough—Cast-Iron Socket and Spigot Pipes.....	Urban District Council.....	J. Fryer, Manager, Gas Offices, Market Harborough.....	April 15
Selkirk—Dry Sand Cast-Iron Pipes (1,530 tons).....	Commissioners of Police.....	J. and A. Leslie and Reid, C.E., 72A, George-street, Edinburgh.....	" 15
Todmorden—Cast-Iron Main Pipes.....	Gas Committee.....	Henry Hawkins, Gasworks, Millwood, Todmorden.....	" 17
Christiania—Rails, Trolleys, &c.....	Bermundsey Vestry.....	The Chief Engineer of the Ofoten State Railway, Narvik.....	" 17
London, S.E.—Galvanised-Iron Pails (2,000).....	Water Committee.....	Fredk. Ryall, Vestry Clerk, Town Hall, Spa-road, S.E.....	" 17
Tynemouth—Spigot and Socket Cast-Iron Pipes (400 tons).....	Great Western Railway Co.....	John F. Smyllie, Borough Surveyor, Tynemouth.....	" 18
London, W.—Steel Bridge Girders (120 tons).....	Urban District Council.....	G. K. Mills, Secretary, Paddington Station.....	" 18
Tottenham, N.—Sluice-Valve Hydrants (100).....	Gaslight Co.....	P. E. Murphy, M.I.C.E., 712, High-road, Tottenham.....	" 18
Shrewsbury—Cast-Iron Socket and Spigot Pipes.....	Gas and Electricity Committee.....	Wm. Belton, A.M.I.C.E., Secretary, Gas Works, Shrewsbury.....	" 19
Stockport—Cast-Iron Mains.....	Corporation.....	S. Meunier, Engineer, Stockport.....	" 19
Ashton-under-Lyne—Cast-Iron Pipes (76 tons).....		J. T. Earnshaw, A.M.I.C.E., Boro' Surv., Town Hall, Ashton-u-Lyne.....	" 24

## STORES.

Wigan—Cast Mains, &c.....	Gas Committee.....	Jos. Timmins, Engineer, Town Hall, Wigan.....	April 17
Garstang—Road Materials.....	Rural District Council.....	Chas. Thornton, Clerk, Garstang.....	" 17
London, S.E.—Wood Paving Blocks (550,000).....	Vestry of St. Mary, Newington.....	L. J. Dunham, Vestry Clerk, Vestry Hall, Walworth-road, S.E.....	" 18
Witney—Hartshill Stone (1,000 tons).....	Rural District Council.....	George Wallis, District Surveyor, Bampton, R.S.O., Oxon.....	" 19
London, E.C.—Permanent-Way Materials (250 miles).....	British South Africa Co.....	Sir Douglas Fox, & Sir Chas. Metcalfe, 28, Victoria-st., Westminster.....	" 18
Thame—Broken Granite (920 tons).....	Long Crendon R.D.C.....	Henry Howland, Surveyor, Chinnor-road, Thame.....	" 20
Dublin—Railway Stores (One Year).....	Dublin, Wicklow, Wexford Ry. Co.....	M. F. Keogh, Secretary, Westland-row, Dublin.....	" 20
Chorley—Road Materials (One Year).....	Chorley Rural District Council.....	John Whitfield, Clerk, 10, High-street, Chorley.....	" 20
Keighley—Granite Setts (1,000 tons).....	Corporation.....	W. H. Hopkinson, A.M.I.C.E., Borough Engineer.....	" 20
Selby—Road Materials (One Year).....	Rural District Council.....	E. Townend, Clerk, Council Offices, 1, Abbey-place, Selby.....	" 21
East Molesey—Limestone Asphalt, Portland Cement, Granite, Flints, Gravel, Granite Kerb and Setts, Pipes, &c. (One Year).....	Urban District Council.....	D. Cann, Clerk, Walton-road, East Molesey.....	" 21
Ashford—Granite (1,050 cubic yards).....	Urban District Council.....	William Terrill, Surveyor, North-street, Ashford, Kent.....	" 21
Long Ashton—Works and Materials.....	Rural District Council.....	James Hawkin, District Surveyor, Brockley, Bristol.....	" 24
Runcorn—Granite Macadam (2,000 tons).....	Rural District Council.....	John Ashton, Clerk, Runcorn.....	" 24
London, E.C.—Bridge Work, and Tools and Stores.....	Burma Railways Co.....	The Company's Offices, 76, Gresham-street, Old Broad-street, E.C.....	" 24
Tyldesley—Firebricks, &c.....	District Council.....	Chas. Austin, Manager, Council Office, Tyldesley.....	" 25
Hambleton—Road Materials, &c.....	Rural District Council.....	Ferdinand Smallpeice, Clerk, 138, High-street, Guildford.....	" 25
London, W.C.—Builders' Materials and Timber to Asylums and Hospitals.....	Metropolitan Asylums Board.....	T. Duncombe Mann, Norfolk House, Norfolk-street, Strand, W.C.....	" 27
Paddington, W.—Creosoted Yellow Deal Blocks (1,260,000).....	Vestry.....	The Surveyor's Offices, Vestry Hall, Harrow-road, W.....	May 1

## LATEST PRICES.

IRON, &c.			
	Per ton.	Per ton.	
Rolled-Iron Joists, Belgian.....	£8 0 0 to	£8 10 0	
Rolled-Steel Joists, English.....	8 10 0 "	7 0 0	
Wrought-Iron Girder Plates.....	5 15 0 "	6 10 0	
Bar Iron, good Flat.....	7 5 0 "	8 5 0	
Do., Lowmoor, Flat, Round, or Square.....	17 0 0 "	17 5 0	
Do., Welsh.....	5 15 0 "	5 17 6	
Boiler Plates, Iron—South Staffs.....	7 17 6 "	8 5 0	
Best Sheet-Pile.....	10 0 0 "	10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—	No. 18 to 20.	No. 22 to 24.	
8ft. to 8ft. long, inclusive gauge.....	£10 15 0	£11 0 0	
Best ditto.....	11 5 0	11 10 0	
Cast-Iron Columns.....	£8 5 0 to	£8 15 0	
Cast-Iron Stanchions.....	6 5 0 "	8 15 0	
Rolled-Iron Fencing Wire.....	8 5 0 "	9 5 0	
Rolled-Steel Fencing Wire.....	8 5 0 "	9 5 0	
" Galvanised.....	11 10 0 "	12 10 0	
Cast-Iron Sash Weights.....	4 2 6 "	4 5 0	
Cut Clasp Nails, Sin. to 6in.....	9 0 0 "	10 0 0	
Cut Floor Brads.....	8 15 0 "	9 15 0	
Wire Nails (Points de Paris)—	0 to 7 8 9 10 11 12 13 14 15	B.W.G. per cwt.	
9/6 10/6 10/8 11/3 12/ 13/ 14/ 15/ 15/9 17/9			
Cast-Iron Socket Pipes—			
3in. diameter.....	£6 2 6 to	£6 7 6	
4in. to 6in.....	5 17 6 "	6 2 6	
7in. to 24in. (all sizes).....	5 7 6 "	5 12 6	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lillieshall.....	105s. to 110s.		
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.—			
Gas-Tubes.....	75p.c.		
Water-Tubes.....	70		
Steam-Tubes.....	62½		
Galvanised Gas-Tubes.....	60		
Galvanised Water-Tubes.....	55		
Galvanised Steam-Tubes.....	45		

	10cwt. casks.	5cwt. casks.	
	Per ton.	Per ton.	
Zinc, English.....	£30 10 0 to	£31 10 0	
Do., Vieille Montagne.....	31 10 0 "	32 15 0	
Sheet Lead, 8lb. per sq. ft. super.....	16 5 0 "	17 5 0	
Pig Lead, in 1cwt. pigs.....	15 12 6 "	16 12 6	
Lead Shot, in 28lb. bags.....	19 5 0 "	20 5 0	
Copper Sheets, sheathing and rods.....	81 0 0 "	81 0 0	
Copper, British Cake and Ingot.....	71 0 0 "	72 0 0	
Tin, Straits.....	112 0 0 "	113 0 0	
Do., English Ingots.....	115 0 0 "	116 0 0	
Spelter, Silesian.....	27 0 0 "	28 0 0	

TIMBER.			
	per load	£13 10 0 to	£16 15 0
Teak, Burmah.....	11 15 0 "	15 15 0	
" Bangkok.....	4 7 6 "	6 5 0	
Quebec Pine, yellow.....	8 10 0 "	8 15 0	
" Pitch.....	3 5 0 "	4 0 0	
" Oak.....	3 10 0 "	5 10 0	
" Birch.....	4 12 6 "	5 15 0	
" Elm.....	4 0 0 "	5 5 0	
" Ash.....	3 5 0 "	4 0 0	
Danteis and Memel Oak.....	1 10 0 "	3 10 0	
Fir.....	3 15 0 "	6 5 0	
Wainscot, Riga p. log.....	4 10 0 "	5 10 0	
Lath, Danteis, p.f.....	4 0 0 "	6 10 0	
St. Petersburg.....	8 0 0 "	8 5 0	
Greenheart.....	4 0 0 "	15 0 0	
Box.....	0 1 9 "	0 2 0	
Sesquios, U.S.A. ...per cube foot			
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5½ "	0 0 7	
" Honduras.....	0 0 3½ "	0 0 4½	
" Mexican.....	0 0 2½ "	0 0 4	

Cedar, Cuba..... per super foot	£) 0 4 to £) 0 4½
" Honduras.....	" 0 0 3½ " 0 0 4½
Satinwood.....	" 0 0 9 " 0 1 9
Walnut, Italian.....	" 0 0 8 " 0 0 7
Deals, per St. Petersburg Standard, 120—12½ ft. by 1½ in. by 1½ in. :—	
Quebec, Pine, 1st.....	£18 15 0 to £25 5 0
" 2nd.....	13 15 0 " 17 0 0
" 3rd.....	6 15 0 " 10 0 0
Canada Spruce, 1st.....	8 5 0 " 10 5 0
" 2nd and 3rd.....	7 0 0 " 8 15 0
New Brunswick.....	7 0 0 " 7 15 0
Riga.....	8 5 0 " 10 5 0
St. Petersburg.....	11 15 0 " 14 5 0
Swedish.....	9 15 0 " 16 15 0
Finland.....	9 15 0 " 10 5 0
White Sea.....	10 15 0 " 13 0 0
Battens, all sorts.....	5 0 0 " 16 0 0
Flooring Boards, per square of lin. :—	
1st prepared.....	£0 12 0 " £0 15 9
2nd ditto.....	0 10 6 " 0 12 3
Other qualities.....	0 5 3 " 0 6 6
Staves, per standard M :—	
Quebec pipe.....	— " —
U.S. ditto.....	£35 0 0 " £42 10 0
Memel, cr. pipe.....	210 0 0 " 220 0 0
Memel, brack.....	190 0 0 " 190 0 0

## OILS.

Linseed..... per ton.	£17 10 0 to £18 0 0
Rapeseed, English pale.....	" 22 10 0 " 22 15 0
Do., brown.....	" 21 0 0 " 21 10 0
Cottonseed, refined.....	" 16 15 0 " 17 5 0
Olive, Spanish.....	" 30 0 0 " 32 0 0
Seal, pale.....	" 20 0 0 " 20 5 0
Cocoonut, Cochin.....	" 22 10 0 " 25 15 0
Do., Ceylon.....	" 25 10 0 " 25 15 0
Palm, Lagos.....	" 24 10 0 " 24 15 0
Oleum.....	" 18 15 0 " 19 15 0
Lubricating U.S..... per gal.	0 6 3 " 0 7 6
Petroleum, refined.....	0 6 3 " 0 6 6
Tar, Stockholm..... per barrel	1 0 0 " 1 5 0
Do., Archangel.....	0 15 0 " 0 18 0
Jurpetroleum, American..... per ton	28 15 0 " 29 0 0

## CHIPS.

A large clock has been erected in the parish church of Leighford, near Stafford, which chimes the quarters, strikes the hours, and has two dials facing west and south. It is fitted with all modern improvements, and is guaranteed to keep accurate time. Messrs. John Smith and Sons, Midland Clock Works, Derby, have carried out the work. The same firm are making a large chiming clock for Swansea parish church.

The Queen has intimated her intention of erecting a lych-gate at Dovercourt parish churchyard to the memory of the many gallant soldiers of her country buried there at the beginning of this century, and immediately following the Walcheren Expedition. It will be remembered that the German Emperor recently offered to fill one of the windows with stained-glass in memory of members of the German Legion buried in the churchyard.

At the vestry meeting for St. Mary's, Truro (a parochial church, now the south aisle of Mr. J. L. Pearson's cathedral), it was announced that an iron screen had been placed between the cathedral aisle and the parish church at a cost of £140, and an anonymous offer of £100 towards a reredos for the parish church according to a design by Mr. Frank L. Pearson, estimated to cost £300 in execution, was accepted.

The Church of the Virgin Mary, Elvetham, has been fitted with the latest improved small-tube hot-water heating apparatus and tubular exhaust ventilators by John King, Limited, engineers, Liverpool, employing their well-known special economical coil-heater.

The annual report of the medical officer of health for Ipswich states that the growth of the town continues to make satisfactory progress, and more than keeps pace with the increase in the population. The number of new dwellings added to the town during 1898 amounts to 360, against 321 built in the previous year. The bulk of the new houses erected are of the small villa or cottage type, but Dr. Ellistott reports that there is a great dearth of residences from £45 to £75, owing to which many private families intending to settle in the town are prevented from coming.

The Lord Mayor of Leeds opened, on Friday, a sale of work in St. George's Schools, Clarendon-road, in aid of the fund for the restoration of the church of that parish. The scheme will involve an expenditure of nearly £6,000, towards which £3,700 is in hand.

Plymouth Corporation has rejected, by 40 votes to 11, the recommendation of the water committee to award Mr. Sandeman, the water engineer, an honorarium of seven hundred guineas in recognition of his services at Burrator. Mr. Sandeman was elected six years ago at a salary of £250 per annum, to rise by yearly instalments of £25 until £350 was attained. His salary is now £400, and he has already received grants of 300 guineas and 100 guineas respectively; but the committee had promised a further grant on the completion of the Burrator reservoir, which has been constructed by corporation workmen without a contractor, at a cost of £183,000.

The admirers of the late Rev. Dr. Moulton, of the Leys School, Cambridge, having furnished the requisite funds, Mr. Adams Acton has been entrusted with a commission for a marble bust of the late Head Master and ex-President of the Conference, to be placed in Wesley's Chapel, City-road, E.C. The memorial is to be unveiled by Sir Henry Fowler at the reopening of the chapel on the second Tuesday in June.

The English church built by the Colonial and Continental Church Society, at Lucerne, to commemorate the Queen's Diamond Jubilee, is completed, and will be consecrated by the Bishop of London to-day (Friday).

Architects, surveyors, and builders using stationery, tracing paper, &c., will do well to send to Mr. Frederick Corse, Bedford Row House, Theobald's-road, W.C., for his "Handy Book at a Glance," which can be had gratis, and gives the sizes, prices, and qualities of all office measures.

At the Belfry Schoolroom, Overstrand, Lieut.-Colonel C. Smith, R.E., an inspector of the Local Government Board, held an inquiry on Wednesday week into the application of the rural district council of Erpingham for sanction to borrow £300 for works on sea defence, to be carried out from plans by Mr. A. E. Gray, C.E., of Norwich, and Mr. A. F. Scott, the surveyor to the rural district council.

At the last meeting of the Darwen Town Council, yesterday, it was decided that Belgrave-square, which has been an eyesore in the centre of the town for many years, should be laid out at a cost of £1,500.

The new clubhouse just erected at Upper Clifton, Bangor, County Down, for the Royal Ulster Yacht Club, of which the Marquis of Dufferin and Ava is the commodore, was formerly opened on Wednesday. It has been erected from designs by Mr. Vincent Craig.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### UNITY OR DIVISION OF AUTHORITY.

THE London Government Bill, with its proposal to create forty boroughs having their own separate jurisdictions, has caused a little flutter amongst the district surveyors of the Metropolis, and especially amongst that august body in Conduit-street to whom is intrusted the statutory authority of examining candidates for the office of surveyor. Many of these gentlemen have been suddenly awakened to the fact that the contemplated legislation will seriously affect their status and functions. They are now responsible only to a central authority; their qualifications and experience are of a high order, and entitle them to direct and supervise buildings of architectural pretensions, and they are experts in the requirements of the London Building Act. These qualifications enable them to take an independent position, and to administer the Act without prejudice, fear, or favour. Independent alike of local influences and vestry bias, they exercise a salutary control over building owners in the Metropolis. These undoubted advantages will be somewhat threatened if the Bill before Parliament becomes law in its present form. The general tendency of the measure will be to decentralise the powers now vested in the London County Council. The borough council will henceforth become an authority, and the district surveyor's position and powers will be curtailed. From a general survey of the provisions of the Bill as it affects building legislation, there seems some room for misgiving. Thus, under the second part of Schedule II., the borough councils will have the chief power in exercising authority in cases of offence under the Building Act. The Council will have the power to convict persons under section 170; the Council, in short, must obtain the conviction before it can be exercised. Under this exercise of authority we can fully appreciate the second point urged by the Council of the Institute, that "it is of the utmost importance for the proper carrying out of the Building Act that district surveyors should be independent surveyors responsible only to a central authority, and not merely officials of a single corporation, and therefore subject to local control." We all know the effect of local influence and prejudice exercised by borough corporations, and the same consequences are to be feared in the newly-formed councils, of which there will be forty. These bodies will possess in time an independence of their own, though scarcely so objectionable as the vestries. Being larger, they will possess wider sympathies no doubt; but, on the other hand, their powers will be greater for good or evil. According to one clause, No. 6 of the Bill, there will be rivalry in the exercise of powers between the London County Council and the borough councils. It is provided that the Committee of the Privy Council is to make a Provisional Order determining which of the powers under the London Building Act, or any amending Act, are to be exercised by the London County Council and borough councils respectively and the conditions under which they are to be exercised. The order also may embody such modifications of the London Building Act as may be thought expedient. The object of this clause is to transfer powers—to give to the borough council an opportunity to alter or revise the Building Act as they think best for their own interests. Every council, we may be sure, will avail themselves of this power as far as

they can, and in some respects the modifications made will be of service. The fear is, however, expressed that the unity of the Act will be whittled away, and that each borough will have its own regulations. We do not share this view; the central authority will prevent any needless alteration of the regulations, the London County Council will still exercise all that is essential for sound construction, the borough council being permitted only to make such provisions as may be necessary to protect existing local interests. The object of the clause is made clear in the last words, "and such provisions for the protection of existing interests as may appear expedient in giving effect to the determination." The district surveyor naturally resents any interference with his functions. The idea of building inspectors under the control of borough surveyors is more than he can stand. And from what class are these inspectors to be taken? No doubt the district surveyors will in most cases become the borough surveyors, and will want subordinates to act under them.

The chief question is how the new Bill will affect building in the Metropolis. Several points have been raised. It is asserted that architects practising in London will have much difficulty in complying with the by-laws of forty different corporations; that architects of important public buildings "object to subject themselves to the direction of anyone who is not a qualified and experienced architect, and independent of local influences." These are strong reasons. The architect would have to be posted up in the requirements of numerous borough councils, with no central authority to back him, and to submit his plans to officials who have a very imperfect knowledge of architectural requirements. These objections may be exaggerated; but the architect would rather deal with the district surveyor, amenable only to a central authority, and thoroughly qualified to consider his design on its individual merits, than with a divided authority largely influenced by local views and prejudices. Whether there is a sufficient cohesion to unite the various councils under the new scheme is not quite assured. The theory of the Bill is in itself good: it is to avoid the present friction between vestries and the Building Act, and to treat London as a whole, yet preserving to each district its local character. But the borough corporations must be regarded as parts of a huge Metropolis, not independent bodies, and so long as this can be secured by proper legislature and administrative machinery there is little to which objection can be taken.

The last points raised by the appeal refer to the great difficulty experienced by the very varied character of sanitary and other by-laws at present enforced within the London area, and it is hoped "that the London County Council will issue to each proposed corporation by-laws as to sanitary and other matters affecting buildings which shall be compulsory throughout the whole London area." We may mention here the London County Council have been engaged in drawing up a series of such by-laws relating to the construction of drains, soil, and waste-pipes that shall apply to the entire county of London. Every architect and builder knows how vexatious the alterations and requirements are imposed by the vestries, who have the chief control over drainage. In many cases what is required under one vestry is repudiated by another. Then as to the legal enforcement of some of these regulations, there is much doubt and perplexity. As to the splitting up of by-laws relating to buildings in the Metropolis objection is taken, and rightly. Any attempt in this direction would be fatal to any scheme of unification which should be the chief aim of the proposed legislation. Any alteration as to building regulations

would be a mistake. The clauses which most affect building are those we have referred to—5 and 6. So long as these clauses are restricted in their operation to the simple transference of powers, that none of the essential regulations of the London Building Act be independently altered by the councils, and that powers transferred should be limited to local matters only, there need not be much alarm. The Bill is mainly one dealing with administrative powers, in which there is room for amendment. Everyone who has had experience of building operations in London knows that there is room for improvement in the administration of the Act. Before the consolidation of the various enactments relating to streets and buildings in the present Building Act, there was much complexity and confusion. Much still remains to render the law as it stands easy of comprehension and application. There are several Amendment Acts: there is the Metropolis Management Amendment Act, which refers to roads, sewers, and drains; there is the Public Health (London) Act, 1891, referring to nuisances, regulation of closets, underground rooms, water provision, also various by-laws under the last Act, all of which have to be consulted by the architect if he hopes to keep clear of trouble. The vestries, too, exercise conflicting authority in matters of drainage and foundations. Many vestries and district boards have rules and by-laws of their own, which often cause much delay and friction. We have lately heard a good deal about the anomalies of the existing system of administering the law. Not long ago, at the Surveyors' Institution, a paper was read on "The London Building Act and the Official Supervision of Buildings," and the author pointed to the anomaly of having two surveyors—one responsible to the Council and the other serving the local authority, and both going over the same ground (?); and he proposed that the two officers should be rolled into one responsible to the local authority, as the borough surveyor is now. In short, the proposal was the transfer to the local authorities of the Metropolis of duties now discharged by the district surveyors. Administrative economy would, it was claimed, result from this transference. The Metropolitan vestries approved of the transfer. The present Bill is really based on these proposals, and is an endeavour to remedy the defects of the present overlapping. The district surveyor exercises no supervision outside the statutes which appoint him, and this is one of the admitted weaknesses of the present administration. The main thing is to simplify and expedite the administrative machinery. One of the chief instruments to accomplish this is supervision. The district surveyors are the most competent men to intrust with this work. We can hardly imagine the parish surveyor undertaking the supervision of important architectural buildings, or buildings in a dangerous condition. Perfect independence is necessary in carrying out these duties with any satisfaction, and for this purpose the surveyor with a central authority at his back has the advantage.

### ESTIMATES.—IV.

#### CONCRETE—BRICKWORK.

IN estimating bills of quantities, items for hoarding for buildings in town often appear. The kinds of hoarding are so numerous that it is difficult sometimes to ascertain without a section or sketch what is intended. Prices for hoarding are often guesses in consequence, and the only way is for the estimator to take out the quantities of the rough boarding, posts, rails, struts, and other items, and obtain the amount of cube feet of material and labour. Speculative contractors put down 10s. to 12s. per square



for the boarding, and for footway, with post and rail fence, 1s. 6d. to 2s. per foot run. We have shown how the value of concrete may be arrived at. Many builders assume that there is a lot of rubbish that can be used in the aggregate, and they price low accordingly. A layer of 12in. deep of concrete would be equal to one-third of the price of a cubic yard, and a 6in. layer would be one-sixth of the value of a cubic yard; add to these the price for levelling per cubic yard. A 6in. layer under paving would require twice as much labour in levelling as a layer of 12in.—i.e., per cube foot.

32 yards cube. Concrete composed of ground lime; Thames ballast 1 to 6, including wheeling, and filling in to foundations.

This may be put at 11s. 0d., including wheeling.

Taking 1 yard of lime at 14s. ....	£	s.	d.
4 yards of Thames ballast at 7s. 6d. ....	0	14	0
	2	5	6
Divide by 7) 2 19 6			
	0	8	4
Add labour.....	0	1	6
	0	9	10
Profit 10 per cent.....	0	0	10
	£0	10	8

Or, say, 11s. per yard.

If the same item includes Portland cement, 5 parts of ballast and 1 of sharp sand, add, say 2s.

The cost of a yard of Portland cement concrete, 1 of cement to 5 Thames ballast, may be found as follows:—

5 yards of ballast at 7s. 6d. ....	£	s.	d.
21 bushels of cement, at 35s. per ton ....	1	17	6
Allow for voids in ballast and cement, say 30 per cent., say .....	1	18	9
Divide by 6) 4 5 0			
	0	14	1
Add labour, &c. ....	0	1	7
	0	15	8

These prices are for materials brought to site. Add for wheeling and filling barrows.

50 yards super. Surface for paving, levelled and rammed, with 6in. layer of lime concrete, levelled and grouted with lime.

1 yard super. of lime and ballast concrete (one-sixth yard).....	£	s.	d.
Labour, levelling and ramming .....	0	1	10
Surface grouted with lime .....	0	0	3
Labour.....	0	0	4
	0	0	2
	0	2	7
10 per cent. profit .....	0	0	3
	0	2	10

22 yards super. 6in. lime concrete under paving. If the concrete is of rough core and ground lias lime levelled for paving, we may put 1s. 7d. per yard super. for this item; or the 6in. thickness may be regarded as the sixth of a cubic yard taken at, say, 9s. or 10s. per yard; and take one-sixth of this amount, say 1s. 6d. added to labour, spreading, say, 2d., making 1s. 8d. per yard in all.

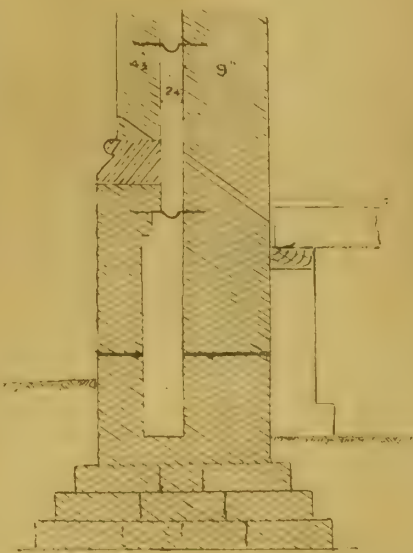
15 yards super. Concrete ground lime and pit ballast gauged 6 to 1 under paving 4in. thick, including levelling and ramming.

Price this at 1s. 8d. per yard; if with Portland cement and ballast, add 4d.

#### BRICKWORK.

There is an appreciable difference in the estimates given by authorities of the elements that go to make up a rod of brickwork which depends on the size of bricks or their number to a rod. Laxton estimates to a rod of brickwork 4,352 stocks, 1 cubic yard of lime, 3½ yards of sand. Gwilt gives the number of stocks at 4,500, 1½ hundred of lime (27c.ft. to the hundred), 2 loads of sand. Others estimate the number of bricks at 4,250 or even less. It is obvious these various estimates are owing to the size of bricks and degree of closeness of the joints. For ordinary purposes we may take the number of stocks as about 4,250 to 4,350.

A rule for ascertaining the price of brickwork with 15 per cent. profit, given by Laxton, is: "Multiply the prime cost of brick delivered by five, which will give the value per rod, to which add the price of labour and mortar." Thus, if brick cost £2 per thousand, then £2 × 5 = £10, to which add, say, £5 10s.



for labour and mortar, making £15 10s. per rod.

230 rods 20ft. reduced brickwork in mortar.

Considerable variation in the price of bricks exists, and, of course, much will depend on the quantity required, the cost of carriage, &c. Suppose the bricks to cost 40s. per thousand delivered, and the quantity of bricks at 4,250 to the rod. Suppose also the cost of grey lime to be 13s. 6d. per yard, and 3yd. of sand and wheeling at 7s. :—

4 250 bricks delivered at 40s. ....	£	s.	d.
1½yd. grey lime .....	8	10	0
3yds. sand and wheeling, at 7s. ....	0	16	10
Labour, including rough arches.....	1	1	0
	4	5	0
	14	12	10
10 per cent. profit .....	1	9	3
Per rod .....	16	2	1

If there are stone dressings or timber to any large extent, these should be deducted from the brickwork. Scaffolding is generally put at about 4s. or 5s. per rod.

35 rods reduced brickwork in mortar in best gault bricks.

If the bricks are 50s. per thousand delivered, the sum may be as follows:—

Bricks delivered at 50s. per 1,000 .....	£	s.	d.
1½yd. grey lime, per rod.....	10	12	6
3yds. sand and wheeling .....	0	16	0
Labour and profit, per rod .....	1	1	0
	5	0	0
	17	9	6

Laxton prices Kentish gault bricks at prime cost delivered at £18 8s. per rod.

Leaning gives an analysis of a rod of brickwork with one of ground lias lime to two of sand, allowing for one-third waste, and having 3in. mortar joints, as follows:—

3,900 bricks at 34s. per 1,000 .....	£	s.	d.
75c.ft. of sand at 6s. per yard .....	6	12	7
37½c.ft. of lias lime, 2½s. ton average .....	0	16	8
30 bushels = 8d. cube foot .....	1	5	0
Water .....	0	2	0
Labour building .....	2	15	0
Labour mixing mortar, 7½ yds. at 3s. 4½d. ....	0	9	3½
	12	0	0½

The following prices may be adopted in a suburban district where bricks can be delivered at 37s. 6d. per thousand. To the wharf charge, say, 30s., must be added unloading, carting and, stocking within the distance required, if two miles, say, 7s. 6d. For domestic work, where there are numerous flues, voids, and timber, 4,000 bricks may be

taken roughly from courses to the foot. The item is—

42 rods reduced brickwork in mortar—	£	s.	d.
4,000 stocks, at 37s. 6d. per 1,000.....	7	10	0
1½ yard greytone lime, at 13s. 6d. ....	1	0	6
3 yards sand, and wheeling, say 7s. ....	1	1	0
Labour, including rough arches .....	8	2	6
	12	14	0
Profit, 10 per cent. ....	1	5	0
	£13	19	5

Say, £14 per rod. The above may be taken as a competition price. It is rather low, 15 per cent. profit would not be too much for a good class of domestic brickwork.

To make an accurate estimate of a rod of brickwork, it is necessary to find the proportion of bricks to mortar or the number of bricks required. The thickness of the mortar joints, size of bricks, voids, &c., have to be determined to arrive at this result. Mr. Leaning, in his able "Notes on Prices," makes such a calculation. He takes a 1½ brick wall, with the usual sized bricks, 8½in. by 4½in. by 2½in., with ½in. mortar joints four courses of which, with the joints, making 12in. He calculates the cubic contents of beds, transverse joints, and longitudinal joints. These make 54c.ft. of mortar. If we deduct this quantity from 306c.ft. cube (in one rod) we get 252c.ft. cube of brick, and this divided by 8·52, the cube contents of a brick, gives 4,259 bricks as the quantity necessary for a rod with ½in. joints. By a similar calculation, it is found for a two-brick wall that 4,276 bricks are required to a rod. Large bricks make a considerable reduction, and, roughly, 3,000 may be taken. Waste in cutting and breakage is also to be taken into account, and five per cent. will be sufficient to cover these. Taking an average, the number of bricks for dwelling-house work may be put at 4,250 bricks per rod, after deducting for voids like smoke-flues.

Other allowances, such as the shrinking of lime and sand to one-third the bulk, are made, and the several elements in a rod of brickwork with ½in. mortar-joints may be stated as follows:—

4,250 bricks at, say, 40s. per 1,000.....	£	s.	d.
54c.ft. of sand, at 7s. per yard .....	8	10	0
27c.ft. of lime, allowing 2 to 1 at 12s. ....	0	14	0
per yard .....	0	12	0
Labour building .....	8	0	0
Mixing mortar, 2 cubic yards 3s. 4½d. and water .....	0	7	9
Cost per rod .....	13	3	9

If there are 3,900 bricks per rod with 3in. joints and 75c.ft. of sand, and 37½c.ft. of lime, and the other items as above, the cost will come to a trifle less. We now estimate the following item:—

26 rods of brickwork in cement, one of cement to three of sand:—

4,250 bricks at 40s. per 1,000.....	£	s.	d.
54c.ft. (2 c. yards) of sand at 7s. per yard .....	8	10	0
18c.ft. of Portland cement, at 1s. 8d. ....	1	7	0
Labour, building .....	3	15	0
Mixing 2 cubic yards at 3s. 4½d. ....	0	6	9
	14	12	9

These sums are without profit; they would also bear 15 per cent. for work in small quantities.

130ft. super. Extra brickwork in cement:—

This item is intended to give the extra value of cement to be substituted for ordinary mortar. We have to find out the quantity of cement required, and deduct the cost of lime in this quantity of feet reduced brickwork.

If a rod of brickwork requires 36 bushels of Portland cement, and the same of sand at 1 to 1, let us take, say, 20 bushels of cement for this quantity:—

20 bushels of cement at, say, 2s. ....	£	s.	d.
Deduct 2 yards lime at 13s. ....	2	0	0
	1	6	0
Extra labour .....	0	14	0
	0	12	0
	1	6	0
Profit 10 per cent. ....	0	2	6
	1	8	6

Or, say, 2½d. per foot.



The easiest way to obtain the "cost of extra only in cement" is to deduct the price of a rod of brickwork in mortar from a rod in cement. If we take, as before—

A rod of brickwork in cement at .....	£	s.	d.
Deduct price of rod in mortar.....	14	14	9
	13	8	9
	1	9	6

We may allow for ordinary work in cement both sides fair, 1s. per foot reduced.

82ft. super. half-brick walls built in cement:

Add this to the price of brickwork in mortar.

If the cost of a rod of reduced brickwork in mortar is .....	£	s.	d.
Add for cement extra, say .....	15	0	0
	2	10	0
	17	10	0

This is the rate of about 5d. per foot super., half-brick. Laxton puts for extra labour to half-brick walls in cement 1½d. per foot super.

65ft. super. Extra for brickwork worked fair both sides:—

The cost for working both sides fair is about 5s. per rod. Therefore, put this item down at about ½d. per foot super. extra labour.

96yds. super. Joints struck fair:—

This is a superior kind of jointing, and may be put down at about ¼d. per yard.

32ft. super. Rough cutting to gables, &c.:—

This is worth about 1d. to 2d. per foot.

This item may refer to many kinds of cutting, and can only be priced correctly by knowing what it applies to. The waste is sometimes considerable, and has to be taken into account in calculating the number of bricks required. In cutting bricks for closers there is waste, especially in buildings with a large number of openings. Then there are birdsmouth, splayed jambs, skewed backs, and all kinds of rakes. For the cutting to rake of gable at an angle, there would be several bricks cut to waste in every superficial foot of 1½ brick walling. The cost per foot for cutting and waste to a gable of ordinary pitch would be about ¾d., or, say, 1d. per super. foot.

12ft. super fair cuttings to rakes:—

Put this item at 2½d. or 3d. It will depend largely on the waste and the kind of cutting.

36ft. run. Labour rough cuttings to 4in. splays:—

Price this item at 2d. to 3d. per foot for good work.

62ft. super. Half-brick trimmer arches in cement and concrete filling to haunches:—

This item may be priced at from 5d. to 6d. per foot. We may add, say, ½d. or ¾d. to the price of half-brick cement wall for extra labour in the curved arch. If we put the price per foot reduced of a brick wall in cement, both sides worked fair at 12d., then this divided by 3, the value of half-brick arch, equals 4d.; and add to this the concrete levelled up to haunches about ¾d., we shall have 4¾d., say 5d., per foot.

22ft. super. Rough cutting to ramps in brickwork:—

This item may be put at about 1½d. per foot for labour.

15ft. run. Rough-cut bird's-mouth:—  
Say, 2d. per foot.

To correctly estimate the labour of cutting, it is necessary to ascertain the time it takes a bricklayer to do a similar piece of work, or how much he can do in a day or hour. The use of constants in fixing the value of labour is to be encouraged.

14ft. run. 4in. indent, cut, and pargetted:—  
This may be done at 4d. per foot run.

350ft. super. Facing in best Malms:—

This may be priced at 4¾d. per foot.

## THE ARCHITECTURAL ASSOCIATION.

THE fortnightly meeting of the Association was held on Friday evening, the President, Mr. G. H. Fellowes Prynne, F.R.I.B.A., in the chair. Various donations to the library having been announced by Mr. E. HOWLEY SIM, Hon. Sec., and acknowledged with thanks, the President called attention to the fact that Mr. A. W. Weedon, R.I., would recommence his Water-Colour Class on Saturday (to-morrow), the 22nd inst. Specimens of the work executed last session by students in the class were hung on the screen, and he strongly recommended all members who could afford the time to join this session, as they would find it most enjoyable and helpful employment.

### THE HOUSE LIST

of nominations for Officers and Council to serve in the ensuing session, 1899-1900, was read by Mr. SIM. The announcement that Mr. G. H. Fellowes Prynne had been nominated to serve for a second term of a year as President was greeted with a hearty round of cheering, and the names of the proposed vice-presidents, Mr. E. Howley Sim and Mr. Henry T. Hare were also cordially received.

### CARVING AND MODELLING AS APPLIED TO ARCHITECTURE.

A paper on this subject, illustrated by some eight-and-forty lantern slides, was read by Mr. F. W. POMEROY. The author remarked that the subject of sculpture in its relationships to architecture had been so exhaustively treated by many distinguished authors, that he felt it would be presumptuous on his part to attempt to treat upon it were it not for the reflection that sometimes a practical and homely view treated briefly served to refresh the minds of the advanced, and to start a new train of thought in the younger students. He would at the commencement express his indebtedness to a recent paper by Professor E. A. Gardner, who had given much time and thought to the Early Greek carvings and the methods then in use, and whose opinions agreed in the main with that of the lecturer's sculptor friends, and with the conclusions he himself had arrived at. The history of art in all ages and climates had been one of

### EVOLUTION RATHER THAN CREATION.

Its rise usually followed the formation of a settled government, and its decline rather resulted from the crushing effects of conquest or from the more natural internal decay following its greatest development. When a nation settled down into cities the handicrafts developed into arts, and from the ranks of the many artisans stepped forth the few artists. They had the builders, stonecutters, and carpenters, whose artistic development was architecture, sculpture, and painting. Architecture was the tree, the parent stem from which sprung sculpture, and through that nearly all the other arts. There was little doubt that the intention of the primitive artist was to imitate his living models as nearly as possible, and the development of ornament could be traced, if they permitted, from the aboriginal to the Assyrian and Greek art.

### CONVENTIONALISM: ITS VALUE AND PLACE.

The great merit of the early sculptors of the two nations just named was that they appreciated the difficulties of attempting to reproduce in granite or marble literal copies of floral or human forms, and they limited their efforts accordingly. Natural forms, to be admissible in their application to architecture, must be decorative—they must, in fact, be conventionally treated. "Conventionality" was subject to various interpretations; but he was referring to a convention that was the natural result of artistic feeling, where the artist had selected from the infinite variety of nature such forms as he felt himself capable of dealing with. This characteristic distinguished the first promise of artistic style from the crude attempts of the barbarian. The monumental simplicity of Egyptian carvings was a good example of the conventional in sculpture, and showed also the natural development of the sculptor's resources. Working in porphyry, basalt, and granite, severe simplicity was inevitable, and although infinite time and trouble were expended in carrying the work to a pitch of perfection, no attempt was shown to do more than the natural material allowed. The less obstinate and more even-textured marble encouraged the Greek sculptor to greater subtlety of execution; but he never permitted his technical

skill to carry him beyond the true sculptural limits. The invariable rule of the Greek carver was to work from a normal front plane, and cut inwards, and consequently this plane was never exceeded by projecting proportions. Mr. Pomeroy elucidated this point by exhibiting photographs of the colossal group of two lions from the Gate of the Citadel at Mycenæ; he pointed out that the masonic form was distinctly retained in these figures, the outline of the animals being cut in squarely, while little or no surface-carving had been attempted. The whole was a superb archaic work, and one which could not be surpassed in composition and dramatic force. It was

### EASIER TO TRACE IN AN UNFINISHED WORK

the methods employed in a craft than by examination of a completed object, and for this reason the lecturer drew attention to a clay model he had made, and also to two drawings on the blackboard, both illustrating a well-known unfinished statue which lay for centuries just below the quarries at Naxos, until it was removed quite recently to the National Museum at Athens. This statue would have been, if complete, a typical example of the first period of Greek sculpture; it represented the Archaic Apollo type, and was a nude male figure, standing up stiffly, with one leg advanced, but with both arms pinned down to the sides. The lower part of the legs and the feet had been lost. He wished to point out how an Early Greek artist set to work when he intended to make a statue of this type. The first noticeable point was the extreme flatness of the surface at the front, back, and sides so far as the original outline was left. This was most evident in the back. Taken vertically, there was a marked curve, but a rule laid horizontally against the back of the figure at any height would, as the lecturer demonstrated on the clay model, touch every point in the whole breadth from shoulder to shoulder or side to side. In front they saw about the same thing. At the sides there was a similar flat surface of the breadth of the arm; but the outline of the arm itself had been cut in parallel to the back and front plates from the side and parallel to the side planes from the front, so that almost rectangular pieces had been cut out. In order to explain the result, Mr. Pomeroy showed that he had cut through his clay model horizontally at three points, demonstrating from the torii thus formed that the section was contained by lines parallel to the back and front of the statue and others at right angles to these parallel to the sides. In fact, at most parts of the body the section presented, as could be seen by a glance at the divided model, a rectangular parallelogram, with a smaller rectangle attached at each side for arms. The corners, of course, were not left quite sharp, but they were not sufficiently worked off to disclose the rectangular shape. Now, when one considered the freeness of outlines taken vertically—that was to say, viewed from the front or side—and compared this with the two sets of straight lines at right angles to one taken in horizontal section, that was viewed from above or below, the conclusion was obvious. The outlines of the figures from the front or side must have been drawn freely; the horizontal section at any front was dependent for its outline on two parallel systems of lines at right angles to one another. In other words,

### THE PROCESS ADOPTED

was precisely that followed by a beginner in sculpture now or at any time when he set to work on a rectangular block of marble, and to hew a statue out of it. He first drew an outline in full face and in profile on the front and sides of the block. He then carried these outlines straight through, working from the front parallel to the sides, and from the sides parallel to the original front plane. When that process had been completed, the statue from front to side had the required outline, but in the horizontal section it was perfectly rectangular. When the arms and legs had been similarly outlined and cut in to the required depth, and the face had been a little shaped, the result was a statue in precisely the condition in which they saw that from Naxos, as represented before them by model and photographs. There could thus be hardly a doubt as to the process by which this unfinished statue had been produced, and an examination of a few well-known typical archaic figures would convince that the same rules of production could be applied generally to all works of early structure. Many archaic statues, it would be seen, were square in horizontal section; this was not, however, uni-



versally the case, but was especially characteristic of works of the Ionic and Island schools, and also in the female studies found in the Acropolis at Athens, which, for other reasons, he regarded as the Ionic type Atticised. On the other hand, they noticed a round, horizontal section, especially at the height of the waist, in the Hero of Samos now in the Louvre, and in the early Apollo figures from Boeotia and those from Orchomenos and from the Temple of Apollo at Ptoos. The squareness of shape so apparent in the unfinished statue was also to be observed, with the corners a little more rounded off, in a large number of finished statues, especially in those of the Ionic type to which the Naxian figure evidently belonged, so that they might infer that all were executed by the same process which they could trace in the uncompleted figure. A

#### SECOND EXAMPLE OF AN UNFINISHED STATUE

belonged to a very different period. It was one of a group which came from Rheneia, most of which seemed to be of 4th-century work. The figure under notice probably belonged to Greek sculpture of the finest period of execution, and so might teach them something as to

#### THE METHODS OF THE ARTISTS

of that period in carving out of a block of marble. In the first place, they noticed three small drill-holes over the brow, just in the middle of the statue, horizontally made in a piece of marble evidently left for the purpose, and intended to be worked off when the statue was finished. At the base were two corresponding drill-holes, one in a square hole left in between the feet, and another outside the left foot. These holes must, as any sculptor would see, have served for the adjustment of rod or line, fixed vertically down the front plane of the block along the middle of the figure to act as a guide to the sculptor. That it was so employed was quite clear from a line which Mr. Pomeroy pointed out on the photograph, down the body just behind where a rod thus fixed would have been placed, and which line did not correspond to the curve of the muscles, but actually bounded two easily distinguished different periods in the execution of the work, which could be readily divided into half a dozen stages of development. In the first stage, the rough rectangular block of marble was still left at the back across the whole breadth of the statue up to the shoulders, and was also left at the rear of the head and back to act as a support. In the second stage, the marble, from the feet to the middle of the shin, had been roughly worked off in large chips by the use of the chisel or punch and the hammer, the form of the limbs being only very roughly discernible. In a third stage, the portion of the figure from the middle of the shin up to the junction of the body and legs, the work was similar, but was carried deeper, the instrument here used being a smaller and sharper punch. A fourth stage began above the upper part of the process just described, and here the marble was being worked off by a series of irregular round holes about half to three-quarters of an inch in depth, and an inch or so in diameter at the top. These were scooped out with some rounded instrument, probably a round-nosed chisel or gouge; the work was certainly not that of a drill, which would have executed it with more accuracy and less labour. These round holes were gouged out as a convenient method of removing the bulk of the layer that was hard to be taken off; the sculptor was now approaching his final surface, and therefore was anxious to see more clearly what he was doing as he went on, and to be quite sure what depth his next process would attain. The fifth stage was visible upon the middle of the body and the left half of the front of the abdomen, where it was divided from stage four by the vertical line already noticed down the front of the statue. The whole surface was worked about half an inch deeper than stage three with the same punch, but sharper and more carefully used. The sixth stage was that most nearly approaching completion, covering the upper part of the chest and arms, the neck, head, and drapery. In the folds of the drapery the running drill was used; the rest of the surface was worked over in all directions by a fine claw chisel. The cut was still quite a free one, there being no signs of any appliance to guide the hand or eye of the sculptor except the vertical rod down the front of the block. Of the existence of a finished clay or plaster model from which points were taken by a mechanical process to help in its exact reproduction there was

#### NOT THE SLIGHTEST INDICATION

—a fact of great importance. There was no doubt that in Roman times, and possibly earlier, the use of "punctelli," or points, from a finished model or "proplasma," was employed just as it is in modern times; but it was not universal or even common in good Greek times. Whether a clay model was used at all by Greek sculptors was a different question. Arcesilaus, who was at Rome in the first century B.C., sold his *proplasmata* at high prices, and Pasiteles, who flourished at the same period, spoke of *plastie* as *matres statuarie*. He thought it was more than probable that Greek artists of the best period might have derived help in designing by the use of statues in clay. In fact, he had no doubt about the use of clay models by the Greeks. Phidias could not have made by his own hands a small part of the Parthenon sculptures; doubtless he made models, and employed a number of craftsmen to carry out the work in marble under his supervision. Mr. Pomeroy then passed on to his second subject: the

#### DEVELOPMENT OF MODELLING IN CLAY.

This art was common and customary from the earliest times, and the hardening by drying, baking, and burning led to its use for a variety of useful purposes. The process of working in clay could be considered among the Greeks, as among all other nations, under three heads—first, sun-dried clay; secondly, baked clay, but without a glaze, or terracotta; and thirdly, baked clay, with the addition of a glaze, or porcelain. Sun-dried clay was employed by the Greeks for internal decoration. The use of terracotta among the Greeks was very extensive. It supplied the most important parts, both of public and private buildings, such as bricks, roof-tiles, drains, columns, and other architectural members, the statues of deities for the temples and reduced copies of them, as well as votive figures. Clay was also used for wine-vats, pitchers, and cups, and many other domestic purposes. The desire of rendering terracotta less porous and of producing vessels capable of retaining liquids gave rise to the colouring of its surface with vitreous enamel or glaze. Ancient terracottas in figure work were distinguished from modern ones by their greater lightness and softness. The art of working in clay was of great antiquity, and was claimed both by the Corinthians and the Samians; but it was obvious that it preceded working in bronze or marble. Having referred at length to the teroatic figures, in which metals and clays, and even gold and ivory, were employed for different parts of the figure, the lecturer described the small terracotta figures made as ornaments and household gods by inferior artists, and in a rapid sketch alluded to the distinct treatment of various materials from Egyptian days through the Greeks and Romans, the Gothic and the Renaissance periods, up to the future time, urging that any treatment that brought out the full features of the material and craft must be the right one to adopt.

#### MODELLING IN CLAY OR SOFT WAX

was a system of building up by adding pieces of the material until the surface desired was arrived at. It might be worked with boxwood or ivory tools and shaped wire, but the fingers and thumb were the modeller's tools *par excellence*. The French artists had carried modelling to a very high pitch, amounting, in his judgment, to the loss from this work of the monumental dignity and repose so essential to all architectural work. There was indeed, he felt, in modern French work, notwithstanding its undeniable technical skill, a lack of the true sculptural feeling, and a restlessness which was much to be deprecated. Although we owed much of our training in modelling to French teaching, it behoved our sculptors to avoid falling into the trap set by working in a very facile material. Modelling might be used in architecture for a great variety of purposes—for preparing details of ornament, models for portions or the whole of a building—by which means a general idea of the general effect of light and shade could be definitely arrived at. The author here gave, with the aid of an assistant, a practical and most interesting demonstration of both carving and modelling on prepared clay surfaces raised upon a blackboard. In

#### SUMMING UP HIS CONCLUSIONS,

Mr. Pomeroy pointed out that the real carver naturally worked in a manner which was blocky and geometric, cutting from his front plane down-

wards. The modeller, on the other hand, worked from the back plane outwards, building up his design with finger and thumb piece by piece. The introduction of the pointing machine had caused sculptors to frequently practise altogether in the clay, and thereby lose sight of the true glyptic laws, although he would concede that the advantages secured by the use of this instrument were increased in a busy and impatient age. He urged that a close and careful study of nature by means of drawing was the best means of arriving at a full and proper understanding and appreciation of the great works of the past, and of providing real and living works in the future. The lantern-slides shown on the screen ranged through the whole land of ancient and modern sculpture, including Assyrian bas-reliefs, metopes, and portions of the Pan-Athenaic frieze at the Parthenon; Roman portraiture done by Greek sculptors, Mexican monuments and Indian carvings, works of the Italian Renaissance, including examples of Donatello, Ghiberti, Michel Angelo, Cellini, and Della Robbia; 16th French bas-reliefs by Jean Goujon, and English plaster from the 17th century to the present time, the series being brought to a fitting climax with Alfred Stevens's group of Truth and Falsehood from the Wellington Monument.

Mr. T. STIRLING LEE, in proposing a vote of thanks to the lecturer, endorsed his remarks as to the value an architect could derive from having a small scale model made of his proposed buildings and decorations. He would emphasise the point also that a sculptor was a carver, and not a modeller. In determining the depth of the plan of relief to be adopted, the sculptor needed to know the exact contour of the markings by which a panel or frieze would be inclosed, and the brighter the sunlight the deeper might be the carving; while, on the other hand, if the work were in shadow, the relief must be slighter.

Mr. W. H. SETH-SMITH seconded the motion, remarking that the employment of models was a great aid to the architect. There needed to be perfect sympathy between the designer and carver. In the employment of terracotta for building purposes great restraint had to be exercised by the architect.

The motion was supported by Mr. W. MILLAR, of Fulham-road, Mr. GANDY (who defended terracotta as a facing material), Mr. A. H. HART, Mr. E. HOWLEY SIM, Mr. T. BROAD, and the PRESIDENT; and the vote of thanks, having been passed by acclamation, was acknowledged by Mr. POMEROY.

#### PARIS JOTTINGS AND RECOLLECTIONS.

##### —III.

MY somewhat vague remembrances of the Great Exhibition of 1851, recorded in your issue for the 24th ultimo, have brought to hand several communications in which sundry recollections by others of that altogether unique gathering of the arts and crafts have been recalled. One reminds us that when the late William Morris, at the age of 17 years, visited it, he sat himself down upon the first seat he came to and steadily refused to go over the building, declining to see anything more wonderful in this wonder of the world than that it was "wonderfully ugly"! It is not all of us can afford to live without learning what others can do, and it is more than probable that Mr. Morris, in mature life, sincerely regretted the opportunities he thus lost, by stubbornness, during the somewhat prematurely "cock-sure" age of seventeen summers. A sturdy old veteran is John Webb Singer, of Frome, who has permanently forged himself an everlasting name upon the scroll of 19th-century art-workers, and who, in spite of his four-score years, is to-day as spry as are many youngsters of one-fourth his age. He writes: "My age affords me better opportunities for remembering the 1851 Great Exhibition than does that of most men. I paid it many visits from Frome; the first time (a few days after its opening) I took one of my children, a dot of six summers. The crowd was so intense I carried it everywhere on my shoulders, that the youngster might the better see what was to be seen. The only recollection left upon the then juvenile brain to-day, I find, are some silver owls, ornaments for a side table. My own mind seemed absorbed in wonder and admiration for Hardman's Mediaeval Court. I had only just begun—in those days—to work in metal, and had little idea then that I should live to see myself and sons with some couple of dozen forges for ironwork, a permanent



staff of something like two hundred craftsmen, and more prize medals than I can for the moment name. My next visit to the Great Exhibition of 1851 was mainly to assist my rector in taking up the entire adult population of our Somersetshire home. He took care of the women; the men were in my charge. We had two days there, and, as hardly any of them had ever been to London before, their experiences were as varied as curious. I remember one morning landing one-half of my party from a penny steamer at Old Hungerford Bridge—we had just previously paid a visit to the Tower—the other half followed by the next boat, the one I came by being too full to take the lot. We naturally wanted to wait on the pontoon for the arrival of the remainder; but this intention of ours the pier-master resented violently, and ultimately he rudely ordered us off the landing-stage. Looking at him sternly in the face, I said: "You see these men; they will do whatever I tell them. If you say another word in that offensive style I shall order you to be thrown into the Thames!" Never in this world was a bully brought quicker to learn good behaviour. He perfectly "crawled" to me!

Mr. Singer's interesting reminiscences and reference to Hungerford Bridge reminds me of my early schooldays, when Hungerford Market, its music-hall, and its penny ice shop were in full fling. That was during the time of the Crimean War (1854-6). It was the original Gatti (who afterwards died amazingly rich) who opened the first, and then only, penny ice-cream shop in London. His place was in the market on the right side going down from the Strand to the river. All that was then has passed away now; but the bridge, "a thing of beauty, and a joy for ever," still does good work at Clifton. It was so low down when it spanned the Thames, that its grace and beauty never fully displayed themselves. To-day, in its present elevated position across the Avon, in Bristol's exquisitely beautiful suburb, and amidst the loveliest surroundings conceivable, it stands the most beautiful bridge I know in the world. Clifton's Transatlantic namesake across the river in front of Niagara, joining, as by a thread, the United States with the Dominion of Canada, is, in my opinion, "not a patch" in comparison to it.

Time flies so quickly that one can hardly realise it is twenty-three years ago, that one hot day in June, I struggled up the steps at Montmartre, here on the heights over Paris (those last straws that break the camel's back), intent upon being present at the laying of the chief stone of the proposed great church of the Sacred Heart. Much work had already been done to the site prior to the religious ceremony, which, helped largely by a bright fine day, and the loveliest of clear skies overhead, was of a most imposing and impressive character. Fully two years later, I again scaled the steep ascent of Mont Martre. The following notes, made upon the spot on that occasion, duly recorded in the *BUILDING NEWS* (October 18, 1878), may, perhaps, be reproduced with interest. They run:—"Built by the Jesuits upon the summit of Montmartre, the church's position is a most commanding one, and the view of Paris and of the surrounding country superb. The work does not at present make much show, for although started fully three years ago, the crypt is only partially built. The style chosen is Romanesque, and the architect is M. Amédée, of Paris. The builders are M. Riffaud and Co., also of Paris, well-known contractors, who erected the Russian Church in Faubourg St. Honoré, and are now rebuilding the Hotel de Ville. The altitude of the church of the Sacred Heart is exactly 267ft, I am told, above the level of Paris." (One would think the elevation is very much higher?) "The length of the church will be 367ft., its width 200ft., and its height from floor to the ridge 100ft. The Campanile will be 207ft. high. It is computed it will take from ten to fifteen years longer to build this church. The architect has already supplied upwards of 2,000 detail drawings, and the size of every individual stone is given thereupon. For the pila alone (i.e., the foundations under the floor-line of the crypt) 150 detail drawings averaging 2ft. 1in. by 1ft. 9in. have been supplied. These foundations go down 111ft. beneath the crypt. . . . Although Sunday work in Paris is the general thing, no one is allowed to work on this church on that day. The Jesuit employers impose a fine of 500 francs upon the contractors for every infringement of this rule. . . . Most stonework in France is merely

bedded before fixing, then put in place, and moulded where it stands. The Church of the Sacred Heart, however, has all its stones fully masoned before delivery on the works in the quarries at Château Landon, near Fontainebleau. It is a hard material, quite unlike the general run of stone used in Paris. It is 'tooled' over the face, and so left finished. The crypt, scarcely half-up, will consist of 22 courses, averaging 1ft. 6in. high. Its roof will be of vaulted stone, and so will that of the church itself."

From the day the above lines were written until a week ago, although often in Paris during the interval, I have never once repeated my visit to the church. During those 21 years the works have continued to progress very slowly. The main portion of the fabric, however, may now be said to be practically finished. The central dome, surrounded by a bird-cage-like labyrinth of dirty and time-stained, but strongly-compiled, scaffolding, has exactly half its courses fixed. The rather ugly bell-tower at the south-east corner is not yet commenced. Otherwise, with these exceptions, the actual fabric of the church may be said to be built. An air of poverty and stagnation prevails, however, about the whole atmosphere. The clerk of works' office, and that of the general foreman of works (whose kindly attention and interest on my last visit is still remembered so pleasantly), are both shut up, forlorn-looking and forsaken. There does not appear to be a staff of more than a dozen workmen, all put together, engaged upon the whole edifice. The approaches to the imposing and superbly-situated west end, and to the south and north entrances, consist of flights of wooden steps, painted stone-colour, precisely as were the steps, in somewhat similar positions, at the Capitol at Albany (the most expensive State House in the world), itself the capital city of New York State, when last I saw them. Whilst the carved work generally (that small portion already executed) is strictly in character with the architectural features of the edifice, the large gargoyles, of which there are many, are too Gothic in conception, and do not look quite in place upon such a building.

Talking of gargoyles, I never visit Paris without thinking those upon the exterior of the Cathedral of Notre Dame are amongst the most effectively carved in all Christendom. There is rather a funny story connected with their creation. The *Architect*, in its issue for May 9, 1874, gave a double-page illustration of quite a number of these particular grotesques, and in the letterpress accompanying the drawings in question referred to the wonderful power and artistic skill displayed by the Mediæval carver, who had fashioned gargoyles of a spirited character scarcely within the ability of the modern craftsman to conceive or create. This, of course, was all very well in its way, but an unexplained sequel followed. A week or two later my old friend, Thomas Bromfield (poor old "Brommy" died about ten years ago), wrote to the publication in question, stating that so far from the gargoyles illustrated being ancient or "Early French" work, he had, under the direction of the late M. Viollet-le-Duc, architect for the cathedral's renovation, modelled and carved the whole series himself!

Stories of this kind are not exceptional. Exeter Cathedral's interior was restored by the late Sir G. Gilbert Scott, R.A. (A.D. 1870-77). One afternoon not long after the latter date, a stranger within its gates—evidently a travelling architectural student, was intent sketching the cresting that surmounts the canopy of one of the superb Early 15th-century altar tombs in Exon's Cathedral. "I shouldn't draw that if I were you—it's not worth it!" was my passing casual remark. "And pray what may you know about it?" was the somewhat cynical rejoinder. "Well," I retorted, "simply that I carved it myself less than twelve months ago!" As a matter of fact, the canopy in question (within the memory of that generally supposed reliable citizen, the oldest inhabitant) never possessed a terminal cresting at all until the late Sir Gilbert designed one. As soon as this was carved it was decorated, in unison with the old work immediately below, by Messrs. Clayton and Bell, so now it is quite impossible to tell the old from actual new work.

Although the exterior of Exeter's Cathedral looks old, and grey, and time-worn, of all the 70 pinnacles that bristle about its roofs there is not one of them to-day more than 30 years old. I recollect that three years earlier (in 1866) every

pinnacle—then all built of Beer stone—stood out of plumb. They—every man Jack of them—leaned over, more or less, towards the sun. Since then, by degrees, every one has been renewed in harder stone, and, to-day, all stand perpendicular.

The Exeter Cathedral pinnacles are by no means the only instance of stone being affected by the sun. The church of St. Peter, at Ermington, a village in South Devon, has a tall 15th-century western spire of stone. It leans considerably. The village story goes that many years ago, in the middle ages, a local maiden—a virgin—was married, and as she left the porch, after the ceremony, the steeple bowed in reverence at so unwonted an incident! It has kept so ever since. Needless to add, there are no spires with such a record in Paris!

The interior of the church of the Sacred Heart, it must be confessed, is disappointing. The whole is distinctly cold; its walls and groined roofs are of the same kind of stone as forms the exterior, but little relieved, here and there, by slight polished (Belgium) marble columns;—these latter constitute the minor shafts supporting unimportant arcades. Further, the outlines of all the windows, seen from the inside, are fully as ugly as are those of Lord Grimthorpe's "Five Sisters," and "10 half-crown, 18 shilling, and 9 sixpenny" windows in the transepts of St. Alban's Abbey. The vaulting over the choir is unhappy, in that it suggests the roof of a railway tunnel, or what one might assume the latter to be like could it be seen! The nave is painfully short—as much so as is the late Mr. W. Burges' nave at St. Finbar's new cathedral at Cork; and the nave of Hereford Cathedral has been, ever since its western bays fell down, exactly 113 years ago last Easter Monday.

In the four large concave spandrels that go to form the springers to the roof beneath the great central dome are carved in high relief in the solid vaulting as many colossal angels, each with its wings outstretched. Although the sentiment of these overshadowing celestial beings is at once artistic and religious, as a matter of fact these immense figures distinctly dwarf the surroundings. It has ever been so! The palace at Versailles has little of the charm of our own Hampton Court about it, and for why? The huge statues that adorn (1) the approach, on either side, to the former, seem to kill all behind. So too, again, at Cologne Cathedral. The great sculptured figures upon the piers of the nave arcades deceive the eye to such an extent that it is almost impossible to realise that from the line of floor to the under one of key of vaulting is a distance of 160ft. Yet, on the other hand, circumstances of necessity alter cases. The immense statue of Liberty, by M. Bartholdi, in New York Harbour is 213ft. high, and not a bit too big for its surroundings. Indeed, the query sometimes suggests itself as to whether it is large enough. It is the easiest thing in the world to miss seeing it when approaching New York in an Atlantic steamer from England. I speak, of course, in fine weather. It is my experience that, nowadays, New York Harbour is almost as much given up to fog as is our own Thames, and, as often as not, when hailing Sandy Hook, you can see nothing.

Again, in the grand high altar screen at Winchester cathedral, the quite recent addition of the crucified Christ upon the central cross is another instance of inadvertently overlooking scale, and the unfortunate results of such an omission. The western façade of this 15th-century example of Caen stonework consists, in the main, of a series of niches, in which are over a score of life-sized statues and nearly double that number smaller ones. These are niches clustered around a great central cross measuring, speaking roughly, about 18ft. by 10ft. The original idea of Cardinal Beauford undoubtedly was that as the worshipper approached the shrine, the figure of the emblem of salvation, the crucified Christ, should be the one great feature first seen, and that the occupants of the half a hundred and more niches should be accessories, altogether secondary in the general composition. As a matter of fact, a central figure, about the same size as those in the adjacent niches, now hangs suspended; but, being practically nude, it looks smaller. Hence it is positively less commanding than are the draped ones of the Blessed Virgin and St. John the Divine which stand on the north and south sides respectively. Thus much of the spirit of religious sentiment is lost in the grouping,



whereas a large statue, its clue taken from the dimensions of the existing old cross itself, would have given a majestic dignity and realisation to the whole, an impression, once seen, perhaps, never forgotten.

Truro Cathedral enjoys a questionable reputation for having the names of donors placed upon so many of its special gifts; but in this respect it is not in the running with the church of the Sacred Heart at Paris. The latter, may be, is not quite so bad as things, in this particular way, are at Chicago. I remember once going into a church in the latter city, where all along the plinth of the altar in large letters was writ something like the following:—"John Smith, pork-canner, gave this in memory of his wife, Sarah Smith, 1892." Almost everywhere in the "Basilique du Sacré-Cœur de Montmartre" are inscribed stones bearing the names of their respective donors; these names are legion. Happily they are not cut in, but merely painted in 1½ in. red letters; many are already fading, and probably all will be erased by the stern hand of Time during the next 20 or 30 years.

The present fittings in the new church are, of necessity, *pro tem*. Yet, even as such, they are painfully plain. The many altars are nearly all alike, and, like the seats and other furniture, are of varnished deal or pitch-pine. All is in the regulation school-board style—just the same sort of thing as one sees in the Board-School fitting-shop in the Strand, W.C.

In the chapels on the north side are one or two large and exceedingly fine marble statues, fixed (for the time being, of course) upon wooden pedestals.

The crypt is massive, but not impressive; the outlines of its windows, intensified, as they are, by the internal gloom, are, each and every one, disappointing. Where the hard, white light pouring in has, however, been softened by stained glass, as in the window at the west end of the north aisle, the artistic effect is decidedly pleasant. The floors are laid with a composition stone—false jointed apparently ("the dim, religious light" renders it difficult to be quite sure on this point)—in 2 ft. squares. This floor and other surroundings go far to help the idea that, instead of a crypt, one is in underground vaults beneath a railway station.

And now, in bringing this triplet of lazily-written papers to a close, the thought suggests itself, Where is the typically dressed Parisian *ouvrier* of a quarter of a century ago? The wearer of the blue blouse, the baggy canvas overall trousers, black alpaca cap, and wooden sabots? Once seen at every hand and corner, he is now a *rara avis* in the streets of Paris. Lack-a-day! this is indeed an age of advancement. Is it not a fact that all stations and conditions of men seem to aim at getting more like their "betters"—more or less—more than less!—every year? The very—

Cobbler who sits at our gate,  
Now pensively points his hog's bristle,  
Though the very same cobbler of late,  
O'er his work used to sing and to whistle!

Such, then, is the "March of Intellect," and with a vengeance!

And now, with a self-imposed task concluded, we gladly bid adieu to this wretched Parisian climate, and hie back, with genuine satisfaction, to the blue and sunny skies of England's fairest county—Devon!

However so humble,  
There's no place like home.

Rue de l'Arcade, Paris. HARRY HEMS.

P.S.—For "the piers are up to the parapets," in the last article (p. 506, col. 3, line 24), read "the walls are now up," &c.

## THE DRUIDS' ELECT.

FOLLOWING the pleasant custom of recent years, the annual *soirée* of the Architectural Association, to be held at St. George's Hall, Langham-place, W., this (Friday) evening, takes the form of a topical musical burlesque entitled "The Druids' Elect: an Episode of the Ancient Britons," written for the occasion by Messrs. G. B. Carvill (one of the hon. secretaries of the Association) and Gervase Bailey, the music being composed by Mr. Leonard Butler.

A preliminary performance, to which members of the Association and ladies were invited, was given in the same hall on Wednesday evening.

The story is somewhat different in character from that told at these entertainments during

recent years, the scene being laid in Britain *circa* 55 A.D., and the plot turning on the rivalries of two architects representing respectively Art and the Reform of the Profession, for a seat on a council, and the machinations of a wily old impostor who poses as Archdruid, and for a bribe from the Reformer decrees that the daughter of the representative of Art shall be sacrificed to the gods. The love of a young lieutenant for the daughter, and the revenge of the well-connected and elderly woman to whom the youth is already engaged, form elements in the development of the play, which is less richly besprinkled with topical allusions than has been usual in these A.A. burlesques. No attempt is made either in the make-up, gestures, or mannerisms of the leading characters to caricature well-known living architects—a feature which, if it detracts from the piquancy of the performance, is an improvement in taste and propriety on some of the earlier plays.

The principal characters are Lucius de Rougepot, né Griennius, the Archdruid, taken by Mr. Herbert Passmore, who is made up as a vulgar adventurer of commonplace type; Ashlar and Rubble, Ancient Britons, candidates for the Council, represented by Mr. Alfred Stalman and Mr. G. B. Carvill respectively; Owen Rent, First Druid, Mr. Frank Carvill; Rodesius, General in Command of the Roman Chartered Company's Forces, Mr. F. D. Clapham; Superfinus, a Roman Lieutenant, taken by Mr. S. Constanduros, whose handsome appearance and baritone voice well qualify him to undertake the part of the lover and hero of the play; Penialinus, a war correspondent, Architopius and Toplinus, young architectural students, all impressed into the Roman army of occupation, Messrs. Gervase Bailey, Frank Foster, and J. Hayes Wilson; Letitia, a Roman lady of uncertain age betrothed to Superfinus, Mrs. Alfred Stalman, who certainly did not look to carry the mature years her part demanded; five British maidens, the Misses Ada Yerbury, K. Rimell, Blanche Selig, Dolly Jennings, and Ethel Atkins; and Blodwen, Ashlar's daughter, Miss Sophie Tyler. Other eight ladies and a dozen gentlemen appear in subordinate parts in the chorus of Druids, Romans, and British maidens. Mr. G. B. Carvill is the stage manager.

The curtain rises on a scene representing sunrise in a forest, and after an opening chorus, "Oh, Light and Life," by Druids and girls, the men withdraw, and it is gleaned from the damsels' conversation that formerly the reigning Archdruid doomed once a year a maiden as a victim to the deities; but that all this has been changed since the arrival of Lucius de Rougepot, the new Archdruid and prophet, who has decreed that human sacrifices should cease—until the gods shall ask their own again. Rougepot had, it seemed, opportunely come into the forest bestriding a crocodile, and playing his lyre as an accompaniment to the chant "Wearing of the Grin," just when the old Archdruid died, and was at his own suggestion elected as successor. Just then Blodwen, the daughter of a leading architect, one Ashlar, comes in and says she has had a terrible dream, which, although it ended happily, has filled her with dread. A girl's suggestion that "The Morning Star," of which she sings in a tuneful lay, may be a lover hardly allays her fears. The Druids re-enter in procession chanting "We carry on the Priestcraft." There is, it appears, to be an election upon some council, a vacancy having occurred through the death of the lamented Stucco, and two well-known and most respected architects, Ashlar and Rubble, are said to be hard at work canvassing. Both the candidates come forward and protest against being supposed to do anything to influence the electors. Ashlar produces the *Antediluvian Advertiser and Neolithic News*, a professional journal of the period—incribed, by the way, upon a bearskin—containing an article on the respective merits of the candidates, in which the writer ingeniously sits upon the fence; but both he and Rubble, after scanning the leader, find that pressing engagements preclude them from reading it aloud. The Druids' discussion on election prospects and promises is interrupted by the entry of the Archdruid Rougepot, who imparts much more sensational news—viz., that an exploring party of the all-conquering Romans have landed under their general, Rodesius, and propose to introduce to Britain all the blessings of civilisation. While the archdruid is singing a song, "Limited," explaining the nature and objects of "The Roman Chartered

Company of Great Britain, Limited," his audience slip out behind his back until he is left alone. Soliloquising, he decides not to reveal his identity to the Romans, as it would spoil an otherwise passable plot; and besides—he reflects—he is very comfortable where he is. Ashlar coming in to consult him about his chances at the election, the wily one says he had a vision the previous night, when he was visited by fifty kings—sovereigns—from the East. Ashlar declines to give a bribe; but when a like suggestion is made to Rubble, the bait being now raised to eighty sovereigns, he promptly hands over the bags of money, the Archdruid explaining that although he cannot influence the election, he may be able to induce one of the candidates to retire from the candidature—if, for instance, Ashlar's daughter, Blodwen, were demanded as a sacrifice to the gods. The Roman general and a small detachment of his army here enter, and state that they have come to stay until after the election. Rodesius endorses the Archdruid's decree that the successful candidate shall give his greatest treasure, which Ashlar at once interprets as his daughter. Meanwhile Blodwen is indulging in a mild flirtation with Lieutenant Superfinus, who is engaged to Letitia, the middle-aged daughter of the Roman Emperor's cousin, and who, it appears, has instigated the proposed sacrifice from jealousy of the pretty daughter of the architect.

In the second act, a chorus of girls, after singing a "May Day" song, rebel against the system of sacrifice, and discuss the expediency of emigrating to a land where females' rights will be respected, where indeed women will reign, and bragging, cowardly man will only be allowed to live in slavery. Rubble and Rougepot also discuss the situation, which they agree has become serious, and they end by singing a duet, "We are sadly in need of resource." Blodwen mourns her fate, and Ashlar, in a stormy interview with Superfinus, says he would sacrifice a hundred daughters, did he possess them, to Art, to Duty, and to Heaven. While the young Lieutenant is puzzling over the problem, his betrothed, Letitia, appears upon the scene, and laughs to scorn his entreaty that she will get the emperor to interpose and stop the sacrifice. Rougepot is in the act of offering his heart and hand to the mortified Letitia, when a procession of Druids and Romans enter to the strains of the old chant, "We carry on the Priestcraft," and, prompted by Ashlar, Rodesius lays the foundation-stone of a temple. He afterwards explains that at Rome last year they founded an institute for the promotion of elementary knowledge among architects—a committee was formed, an Act passed making it compulsory to graduate, exams. were held, fees taken—but no students were passed. Rougepot dismisses the assembly till next evening, when the sacrifice is to take place. In the mean time Superfinus persuades Blodwen to fly with him, and to bring her father with her, but this proves unnecessary. Rodesius, in a well-turned parody of Marc Antony's oration, denounces de Rougepot, and his briber, Rubble, and extols the virtue of Ashlar. The Archdruid reveals himself as the long-lost Griennius, Letitia's earliest love, who disappeared after raising the wind with a new diving machine, and Superfinus, thus set free from an embarrassing engagement, intercedes with the populace for the life of the old impostor. Thus a happy issue is provided for all, and the curtain falls on a gratified assembly.

On Wednesday evening—the ladies' night—the body of St. George's Hall was packed with an appreciative and indeed enthusiastic audience, most of the songs being encored, and every pun and salient point received with applause. And after the fall of the curtain, in response to loud and repeated calls, the joint authors—Messrs. Carvill and Bailey—appeared before the footlights and bowed their acknowledgments. The play went off smoothly, and without a hitch, all the performers being letter perfect in their parts, and the burlesque must be pronounced the most successful yet given under the auspices of the Association.

The Local Government Board have given their consent to the extension of the boundaries of the borough of Harrogate. The new boundaries are to include Starbeck and the populous portions of Pannel, and also Bilton.

The death is announced of Mr. F. Sargent, a painter well known in his day for his pictures of the Houses of Lords and Commons, the Queen's Garden-party, and other similar popular subjects.



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## ILLUSTRATIONS.

GOVERNMENT BUILDINGS FOR THE STATES OF GUERNSEY.  
—GATEWAY OF ST. JOHN'S COLLEGE, CAMBRIDGE.—  
NEW GOVERNMENT OFFICES, PARLIAMENT STREET.—THE  
TERRISS THEATRE.—WESLEYAN METHODIST MISSION-  
HALL, EDINBURGH.—PLAN OF THE PARIS EXHIBITION.

## Our Illustrations.

## GUERNSEY STATES HALL.

THE chief difficulty in connection with this design was to produce anything like a symmetrical plan on so irregular a site. The centre of the building is occupied by the Great Hall or Salle d'Attente. On the south side of this hall are two chambers for the deputies, the Hall of Deliberation and the Hall of Election, with their necessary committee-rooms, retiring-rooms, &c. Upon the other side of the hall are the Courts of Justice, with their necessary accompaniments, and the rooms for the Bailiff of Guernsey and the Jurats. Immediately beneath the Halls of Deliberation and Election are offices of the solicitor-general, the attorney-general, and receiver-general. On the same floor are the offices of the Greffier, adjoining which is the Record Office, in which will be stored everything relating to the history of the island, including many magnificent illuminated charters dating back to the 12th century. The whole of the work has been designed with a view to the material to be used—the local grey granite, excepting the upper part of the tower and the inner portions of the large windows on the principal fronts, which will be of Portland stone. The estimated cost is £50,000. The architect is Mr. Ed. W. Mountford, of 17, Buckingham-street, Strand.

PUGIN STUDENTSHIP PRIZE DRAWINGS: GATEWAY,  
ST. JOHN'S COLLEGE, CAMBRIDGE.

THE college was founded by Lady Margaret, mother of Henry VII., in the year 1505. The gateway is built of brick with stone dressings. Over the archway is a statue of St. John the Evangelist, and below it the arms and supporters of the foundress; her badge, the rose and port-cullis crowned, and the daisy and "herb Margaret" are also displayed on the walls and vaulting.  
HENRY RUTHERFORD.

NEW GOVERNMENT OFFICES, PARLIAMENT STREET.

THESE illustrations are in continuation of those we have already given, and sufficiently explain themselves.

TERRISS THEATRE, ROTHERHITHE.

THE above theatre, the subject of our illustration, is now in course of construction in the Lower-road, Rotherhithe. The building is being erected from the plans of Mr. W. G. R. Sprague, the architect of many of the new theatres recently opened in the Metropolis. The elevation to the Lower-road is of stone and brick, and will present a very imposing frontage. The auditorium is about 65ft. by 58ft., the dress circle and gallery being constructed entirely without the usual obstructive columns, thus insuring an unimpeded view of the stage from all parts of the house. The auditorium, front block, and dressing-rooms are constructed of fire-resisting material throughout. The stage is about 70ft. wide by about 32ft. deep, with a height of about 60ft. This

portion is constructed of timber, but is separated from the auditorium and dressing-rooms by double asbestos fire-resisting curtain and iron doors. The internal decorations will be executed in fibrous plaster, and the style adopted will be French Renaissance, artistically decorated in gold and colour, in harmony with the prevailing shades of the draperies and upholstery. It is proposed to light the building by electricity, which will be introduced to form part of the scheme of decoration. Gas will also be provided as reserve in event of the failure of the electric light. The building will be heated by hot water, on the low-pressure system, and an efficient and ample hydrant installation is provided.

WESLEYAN METHODIST MISSION HALL, EARL GREY STREET, EDINBURGH.

BUILDING operations will shortly be commenced with the new halls and other premises for the Edinburgh Mission. A site was recently acquired at the corner of Early Grey-street and Wellington-place, the site being at present occupied by St. John's School and two blocks of comparatively new tenements of shops and dwelling-houses. The whole of this property will be demolished to make room for the new buildings now illustrated. A sum of nearly £20,000 having been paid for the existing buildings and ground, it was imperative that an income should be got to reduce the cost of the scheme, and with this object the street and basement floors were planned as business premises. Ten commodious shops with extensive cellage occupy these floor. The main entrance to the hall will be from Wellington-place by a wide corridor leading into a crush room on the mezzanine floor. A wide staircase leads to the large hall on first floor. This hall is planned to accommodate fully 1,700 persons. At one end is provided a large recess for platform and future organ-chamber, with retiring-rooms adjoining. Wide staircases at each side lead to the street as special exits. On the first floor there is also arranged a small hall seated to accommodate over 300 persons, with platform at one end, and classroom and lavatory accommodation at the other. The whole of the upper floors are arranged for classrooms, stores, and caretaker's house, and special regard has been paid to the entrances and exits from these, as well as from all other parts of the building. The shape of the ceiling of the large hall will be semi-elliptical, a form of roof which materially assists the acoustics. Externally the building has been designed in a free treatment of the French Renaissance, and when completed will add considerably to the architectural amenities of the district. The whole scheme has been designed by, and will be carried out under the supervision of Messrs. Dunn and Findlay, architects, Edinburgh. The total cost of the scheme will be £40,000.

GENERAL PLAN OF THE PARIS EXHIBITION, 1900.

THIS plan will interest intending exhibitors at Paris in 1900. We are indebted for it to Mr. Harry Hems, and it will elucidate his articles in the present and last number.

## COMPETITIONS.

BRADFORD—The Cartwright Memorial Hall competition is now pending. Mr. Alfred Waterhouse, R.A., is the professional referee. The drawings went in on the 14th inst., and no less than 115 sets of designs have been received.

FORMBY SEWERAGE SCHEME.—The author of the scheme placed first by the assessor is Mr. C. A. Atkinson, C.E., practising as Goodison, Atkinson, and Forde, of Liverpool. The estimated cost is £32,000. The sewage will be purified by bacteria and discharged into the sea without pumping.

HEXHAM.—For the new vagrant wards the board of guardians have adopted the plans submitted by Mr. T. Leslie Anderson, M.S.A., 4, Royal-arcade, Newcastle-on-Tyne, submitted under the *nom de plume* "Arcadian," and hand the author the premium of £20, subject to the approval of the Local Government Board and to the condition that the approved contractor shall be found who will carry out the work for £2,000.

In the list of adjudications in bankruptcy in Friday's *London Gazette*, the name appears of George Highton, of Klea-avenue, Clapham Common, S.W., late North Side, Clapham Common, S.W., and Bedford, architect and surveyor.

## THE BUILDING TRADES EXHIBITION.

THE Building Trades Exhibition at the Royal Agricultural Hall will open on Wednesday next, April 26th, and remain open till Saturday, May 6th.

The Exhibition will be opened at 12 noon on Wednesday by Professor Aitchison, R.A., President of the Royal Institute of British Architects, supported by the Duke of Westminster, K.G., Lord Welby, G.C.B. (Chairman London County Council), Sir Wm. Richmond, R.A., K.C.B., Sir Arthur Blomfield, A.R.A., Sir Arthur Arnold, Sir Alfred Hickman, M.P., Sir Wm. Arrol, M.P., Sir Edwin Galsworthy (Chairman Metropolitan Asylums Board), Sir Alex. Binnie (Engineer L.C.C.), Mr. Robert Vigers (President Surveyors' Institution), Mr. G. H. Fellowes-Prynn (President Architectural Association), Mr. J. W. Swan, F.R.S. (President Institute of Electrical Engineers), Mr. W. H. Preece, C.B., F.R.S. (President Institute of Civil Engineers), Mr. O. Claude Robson, M.Inst.C.E. (President Incorporated Association of Municipal and County Engineers), Mr. Alfred Waterhouse, R.A., Mr. T. Blashill (late Architect L.C.C.), Mr. G. F. Bodley, A.R.A., Mr. Chas. Barry, F.S.A., Mr. T. J. Bailey (Architect L.S.B.), Mr. W. Goscombe John, A.R.A. and the leading architects in London and the provinces.

Arrangements have been made for visits on different days from the following institutions:—The Surveyors' Institution, the Architectural Association, the Society of Architects, the Institute of Builders, the Municipal and County Engineers, and the Sanitary Inspectors' Association.

The General Section will be found in the Great Hall, the Electrical Section in the Minor Hall (adjoining main hall), and the Smoke-Abatement Section in King Edward's Hall, leading from the arcade. The committee of the Coal-Smoke Abatement Society offer a gold, silver, and bronze medal, together with certificates of merit, for the best domestic appliances for abating the smoke nuisance. As a whole, the Exhibition promises to be the best and most comprehensive ever held—even under Mr. Greville Montgomery's able management.

## CHIPS.

MR. G. W. Willcocks, Local Government Board inspector, held an inquiry at Southgate on the 13th inst. into the application of the urban district council for sanction to borrow £3,275 for the erection of 12 workmen's cottages at Winchmore Hill.

MR. W. A. Ducat, Local Government Board inspector, held an inquiry at Grimsby last week into an application by the town council for power to borrow £43,500 for purposes of electric lighting, and £1,038 for the formation of a new street connecting Guildford-street and Hilda-street.

MR. E. H. Whitford, of the borough engineer's staff, Plymouth, was successful at the recent examination for Associate Membership of the Institution of Civil Engineers.

THE Hambledon Schools, Henley-on-Thames, are being ventilated by means of Shorland's patent exhaust roof ventilators and special inlet panels, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

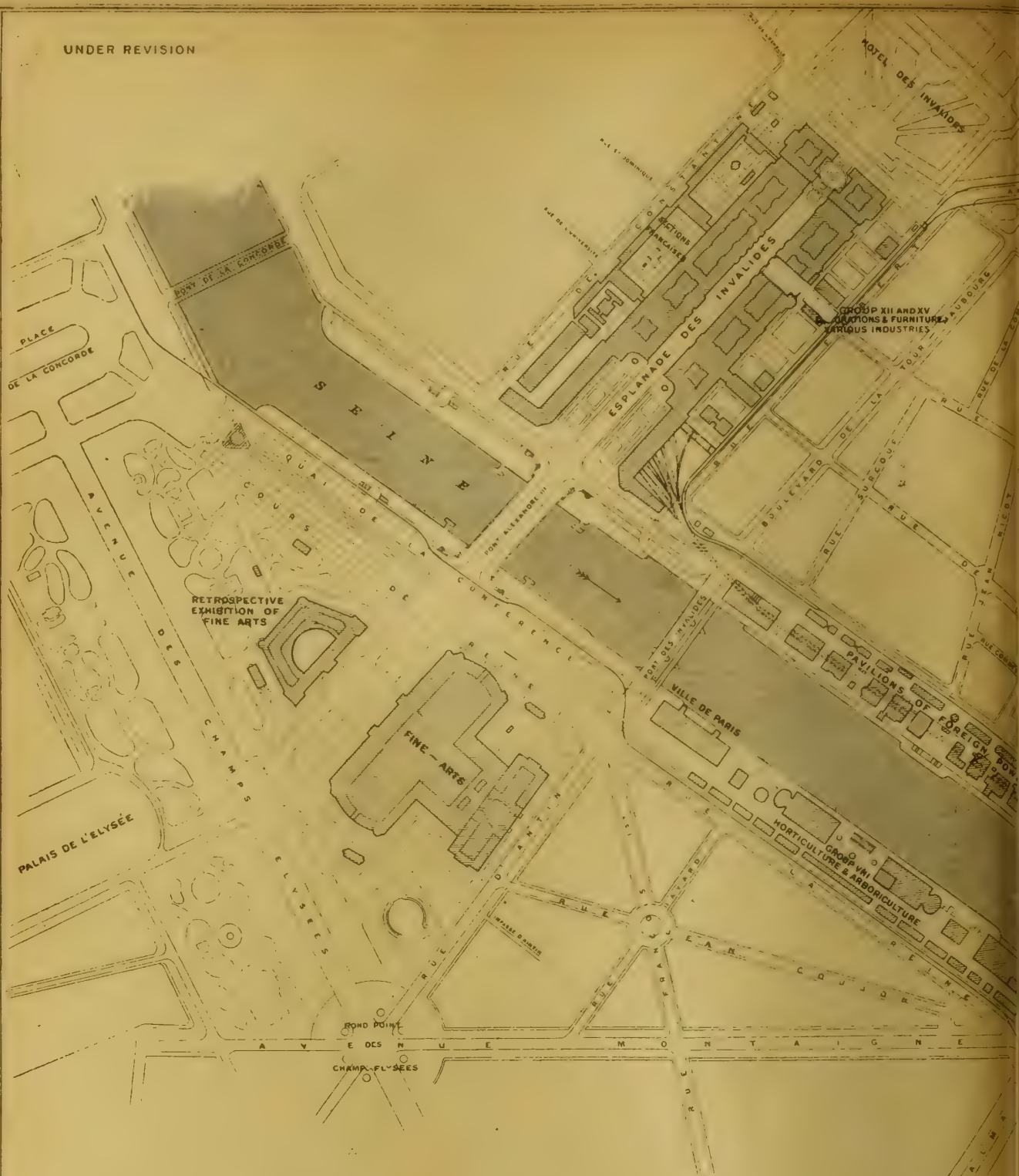
THE heating of St. John's Church, Inverness, having been very unsatisfactory for a long time, it was decided to place the matter in the hands of Messrs. John King, Limited, engineers, Liverpool, who recommended that the old apparatus be entirely removed, and that the church be fitted with their latest hot-water heating apparatus, which has been carried out, with the best results.

THE town council of Sheffield at their last meeting discussed at some length the alleged jerry-building existing in some parts of the city. The chairman of the Highways Committee admitted that their department was very much understaffed in the number of building inspectors, and that certain proposals would shortly be brought before the council for increasing the staff. In the course of the discussion it was mentioned that during 1898 plans were approved for 3,650 new houses, as against 1,906 plans submitted in the preceding twelve months.

AT a large and representative meeting of the master builders of Gateshead, held on Friday, in Mr. Morris's Hall, Cuthbert's-place, it was unanimously agreed to form an association, to be named "The Gateshead and District Master Builders' Association." The required officers, together with a strong committee, were duly elected. It was unanimously decided to continue to resist the demand made by the labourers for an advance.



UNDER REVISION



# GENERAL PLAN UNIVERSAL EXHIBITION 1900. PARIS.

NOTE, BRITISH  ALLOTMENTS

Scale of English Feet

0 100 200 300 400 500 1000 1500

Scale of Metres

0 10 20 30 40 50 100 150 200 250 300 350 400







## NATURAL VENTILATION.

IN a paper on "Hospital Construction," read by Dr. John W. Hayward before the Liverpool Architectural Society, the author deals with the subject of ventilation in a reasonable and natural manner. The author pleads for the free admission of fresh air without draught into the wards of hospitals, and goes on to speak of the removal of the foul air. Open windows may be relied upon to produce the change of air in summer time, and in winter the fire, when burning, draws off a large volume of air; though often this withdrawal is mainly from below the patient, whilst the foul air above him is not touched. To prevent this the firegrates should be supplied from independent sources, and by flues from the fresh-air chambers direct. In spring and autumn these sources of air replenishment fail: the air is too cold to be admitted by open windows, while the fires are not always wanted. The required abstraction of the foul air is then not possible by either of these means. Dr. Hayward quotes a writer in the "Encyclopædia Britannica," who says: "The foul air should be taken out at the highest part of the ward." These outlets, says the author, "should then be in the wards in or near the ceilings; and the best place for them is by the chimney breast, to lead into flues run up the chimney stack by the side of the smoke flue, as the Government Commissioners point out. There must be a separate flue from each ward; they should lead straight to the outer air, and be capped by a Boyle's abstractor." The author next enumerates the following grave objections to the plan of abstracting the foul air near the floor:—(1) It is opposed to Nature's law of atmospheric pressure, and therefore requires the use of special abstracting power by means of furnaces; (2) by drawing down the foul air it is breathed over again; (3) the fresh air supplied is often forced in overheated or burnt, and so made unhealthy; (4) the long, tortuous flues cannot be kept clean, and will become lurking-places for dust and germs.

Downward ventilation is, therefore, quite unsuitable for hospitals, and should never be used where there is infection. The lower air of the ward, the least impure, is drawn away, and is substituted by the upper breathed and impure stratum. The Government Commissioners also strongly object to the method of low ventilation. The heated air which passes upwards (naturally) should pass away, and they recommend exits should be provided for the spent air near the ceiling.

Referring to the position of fresh-air outlets, Dr. Hayward thinks the best way is that the fresh air be let in through the basement, and allowed to pass up through gratings in the corridor floors along the sides of the whole length of them, and then be let into the wards by special openings through the wall or by the doorway. With regard to the foul-air outlets, the writer says: "The mouths of the flues in the ward ceilings should be provided with valves as a safety against adverse circumstances, and their terminal ends outside should be protected by Boyle's air-pump ventilators, which, as well as the last length of the outlet flue, must have an area equal to only 4in. square for each single-bed ward, and must reach somewhat higher than the smoke-flues." These are the principles upon which all wards should be ventilated, and Dr. Hayward has shown clearly the advantages of natural ventilation as against the system of downward ventilation which has been advocated by some experts on the Continent and in America and England. Where infectious diseases are treated, the danger of rebreathing the vitiated and warmed air is a very serious objection. Dr. Hayward proceeds to show that by natural ventilation the air can be controlled and regulated in the average of twenty minutes, and it can also be so warmed as not to be felt as a draught. He does this very easily by referring to the laws of atmospheric pressure created by the difference between the outer heavier and the inner warmer and lighter air, which causes a current in a flue of 8ft. per second, and this speed can be increased by the vacuum produced by Boyle's abtractors. With properly-proportioned inlets and outlets, the atmospheric pressure is sufficient to carry on the necessary change of air with comfort and without draught.

The village parish church of St. Dennis, Cornwall, was reopened on the 6th inst., after restoration from plans by Messrs. Cowell and Cowell, of Plymouth.

## OBITUARY.]

The death took place, on Monday week, at Bournemouth, of Mr. D. P. FORDHAM, a member of the firm of architects Messrs. Douglas and Fordham, Abbey-square, Chester. The deceased, who was a draughtsman of exceptional ability, was a native of Essex, and received his professional training in York. On coming to Chester to extend his experience, he was engaged by Mr. John Douglas, was subsequently taken by that gentleman into partnership, and remained a member of that firm until about eighteen months ago, when he was overtaken by a lung affection, which necessitated his removal to a milder climate. He went to Bournemouth, but there succumbed to the disease. He was about 55 years of age, had never married, and his only survivor in the family is a sister. Mr. Fordham never took any part in public affairs, and the only professional local body with which he was connected was the Chester Archaeological Society.

## CHIPS.

Mr. Walter Emden, J.P., L.C.C. (President of the Society of Architects) has been appointed one of the committee in connection with the forthcoming Glasgow Exhibition.

The annual meeting of the Iron and Steel Institute will be held at the Institution of Civil Engineers, Great George-street, Westminster, on Thursday and Friday, the 4th and 5th May. The inaugural address will be delivered on the Thursday by Sir William Roberts Austen, who will also preside at the annual dinner of the institute to be held on the evening of that day at the Hotel Cecil.

St. Marychurch has hitherto had its drainage system laid in curved rather than straight lines. In response to communications from the Local Government Board, and acting under the advice of Mr. R. Hansford Worth, C.E., of Plymouth, the system is to be remodelled on modern principles at an estimated cost of £7,700. To inquire into the merits of the scheme Colonel Hepper, D.S.O., R.E., will sit at the town-hall on Thursday next, the 27th inst.

The urban district council of Nuneaton decided last week to purchase 60 acres of land at Hartsbill, at £100 per acre, as a site for new sewage outfall works.

A memorial window to the late Major-General Anderson, C.B., has just been completed in the south aisle of St. Cathbert's Church, Elinburgh. The window is a large one, situated in the upper tier. Conforming to the general selection of subjects for the series of windows, this window contains illustrations from the life of St. John. The principal group represents John and Mary returning from the Crucifixion. Below is a smaller group of St. John recognising the risen Lord as He appeared to him and St. Peter at the Sea of Tiberias. The accessories of the design are in Renaissance style suiting the church.

A new post-office in Fore-street, Ivybridge, was opened last week. Mr. Gilbert Sincok, of that town, was the architect, and Messrs. Daniel and Yabsley, also of Ivybridge, were the contractors.

Messrs. Beaven and Sons, of 35 and 36, Westgate-street, Gloucester, have opened a London office and showroom at 27, Victoria-street, Westminster, S.W. The various departments of their business are well represented, and in their showrooms will be found a thoroughly representative selection of all kinds of sanitary, &c., appliances, by the best makers, which will give architects and engineers the advantage of seeing the various specialities together and comparing their respective merits and prices. A staff of first-rate workmen will be kept in London.

The vestry of St. Dunstan in the West have authorised the sale of the western portion of the yard adjoining the church, and facing Fleet-street, for the sum of £4,500 to the directors of the Law Life Assurance Society, who will extend their offices over the site.

The tower and spire of the parish church of Steeple Gidding have been inspected by Messrs. Thompson and Co., Peterborough, and found to be in an exceedingly precarious condition. Mr. Heathcote has undertaken to defray the costs for the purely structural repairs, which will render the building safe. A further sum will be required for general restoration.

The congregation of the West Free Church, Broughty Ferry, are about to erect in Church-street, south of the Church, a new hall, 62ft. by 34ft., accommodating 400 people. The plans, which were selected in a limited competition, are by Messrs. James Maclaren and Sons, architects, Dundee.

A statue of the Queen, by Mr. W. H. Thornycroft, R.A., erected by the corporation of Durban to commemorate the Diamond Jubilee, was unveiled on Wednesday by Sir Walter Hely-Hutchinson, the Governor of Natal.

## PROFESSIONAL AND TRADE SOCIETIES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—The report of the Council for the official year 1898-99, to be submitted to the annual general meeting on Monday week, May 1, states that in the course of the year 25 Fellows have been elected, 31 Associates, one Hon. Fellow, one Hon. Associate, and one Hon. Corr. Member. The numbers in each class of subscribing members stand as follows: Fellows, 612; Associates, 1,003; Hon. Associates, 47. The losses by death to the Institute during the past year have comprised seven Fellows, nine Associates, four Hon. Associates, one Hon. Fellow, one Retired Fellow, and one Hon. Corr. Member, special reference being made to the decease of Professor T. Hayter Lewis and of Charles Garnier, a Royal Gold Medallist of the Institute. Preliminary and Intermediate Examinations were held in June and November, 1898, in London, Birmingham, Bristol, Manchester, and York, and Final Examinations in London. Of the candidates for the Preliminary Examination, 92 were exempted and 170 examined, of whom 104 passed, the remaining 66 being relegated to their studies. In the Intermediate Examination, 124 were examined, 85 passed, and 39 were relegated, and in the Final and Special Examinations 63 were examined; of these 31 passed, 32 being relegated. The Arthur Cates prizes, for the best sets of Testimonies of Study (supplemented by certain specified sheets of drawings) submitted by students for admission to the Final Examinations, have been awarded to Mr. Albert Herbert for the June examination, and to Mr. H. Inigo Triggs for the November examination. The Ashpitel prize has not been awarded this year. The sanction of the Privy Council to the alterations in by-laws 9, 15, 30, and 31 was given at the Council Chamber, Whitehall, on the 19th May. The revised schedule of professional charges, entitled "The Professional Practice as to the Charges of Architects," was finally agreed upon and adopted at a special general meeting of the Institute held on the 27th June. Since the issue of the last annual report the Aberdeen Society of Architects has been admitted to alliance with the Royal Institute. The Council have taken public action with regard to the new Vauxhall Bridge and the London Government Bill. The competitions committee have had several meetings, and action has been taken with regard to the following competitions:—International Fisheries Exhibition, Aberdeen; Glasgow International Exhibition; Royal Institution, Liverpool; Tavistock-road, Plymouth; Fire Station, Bradford; Wolverhampton Workhouse; Godalming Municipal Buildings; Swindon Union Workhouse extension; Grammar School House, Doncaster; Wandsworth and Clapham Union. Special committees of the Institute are at present sitting to consider respectively the following subjects: the holding of the Institute Examinations in the Colonies; proposals by the Association of Technical Institutions that certain certificates of the Science and Art Department should exempt from portions of the Preliminary and Intermediate Examinations; the administration of building by-laws in rural districts. At the request of the Court of Common Council of the City of London, the Council have nominated six architects to send in designs for the new Sessions House, Old Bailey. The Council announce that since the 31st December they have been enabled to invest £1,500 in Tasmanian Government 3½ per cent. stock.

Mr. W. Emerson, for many years past hon. secretary, has been nominated by the council of the Royal Institute of British Architects as the President for the ensuing two years.

The board schools for the Californian district, Ipswich, have just been enlarged from plans by Mr. T. W. Cotman, of that town; Mr. A. Gayford, also of Ipswich, was the builder.

The science and art schools at Helston, built at the sole cost of Mr. J. Passmore Edwards, will be opened by the donor on Thursday, May 18.

The town council of Bodmin have decided to apply to the Local Government Board for sanction to borrow £3,000 for public improvements, including cattle market at Westheath, £1,500; Guildhall alteration, £543; public garden on old brewery site, £550; and purchase of freehold of free library, £200.

Professor Banister Fletcher, F.R.I.B.A., lectures this evening at University Buildings, Dublin, on "Sanitary Building Construction."

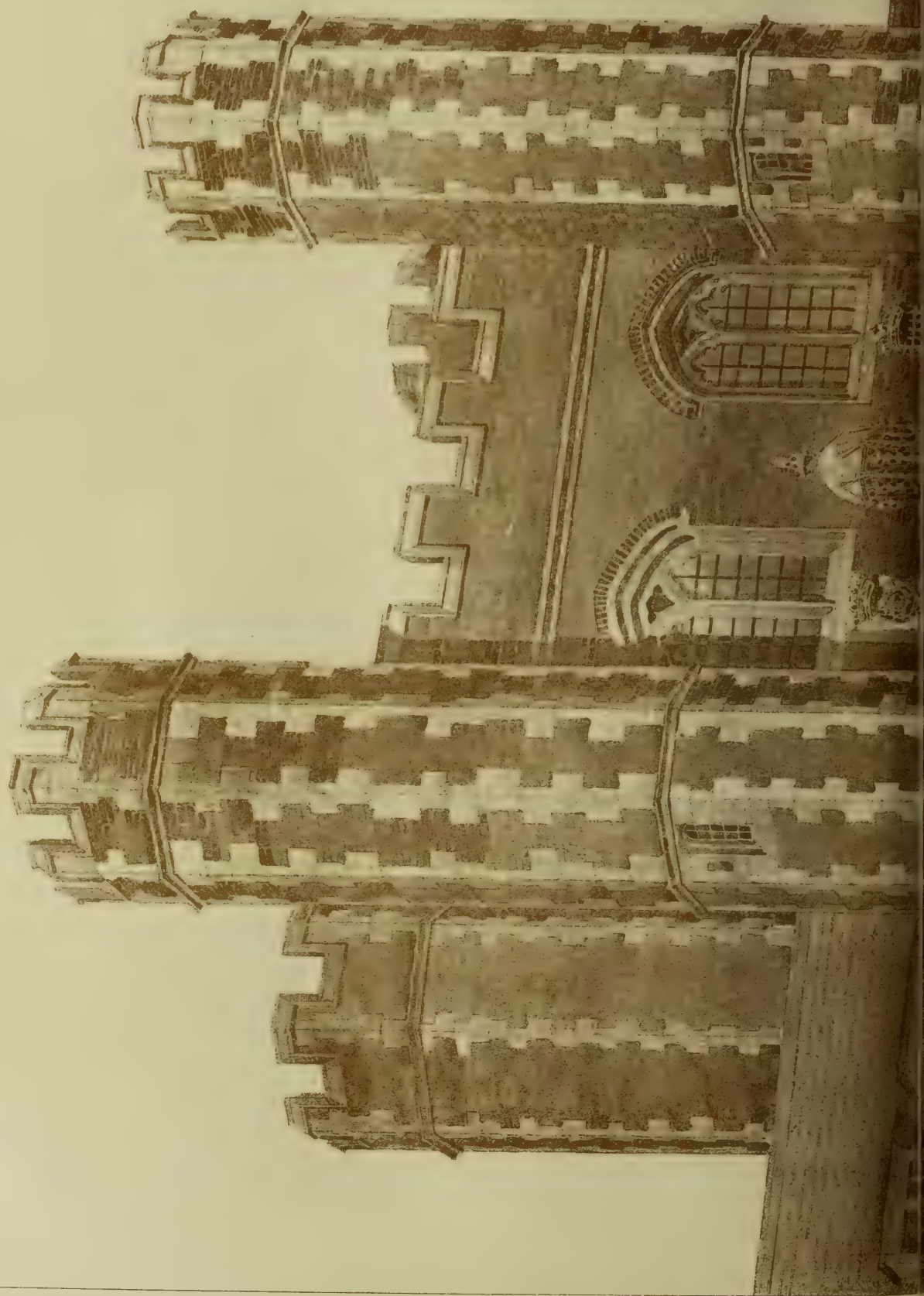




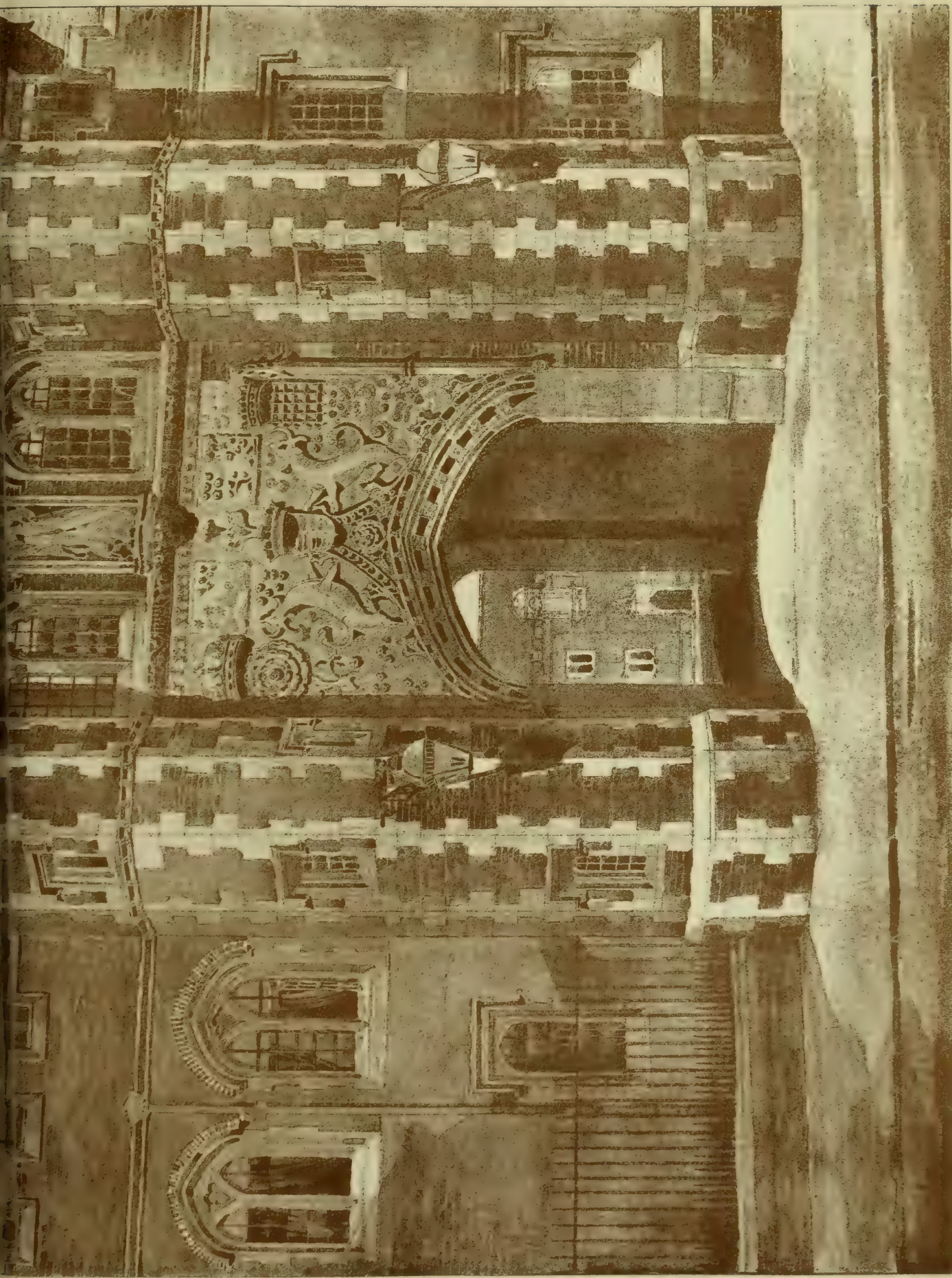


THE BUILDING PRESS, APRIL 21, 1889.

• PUCIN STUDENTSHIP PRIZE DRAWING • DRAWN BY HARVEY RUTHERFORD







GATEWAY OF ST JOHN'S COLLEGE CAMBRIDGE.

PHOTO TINT





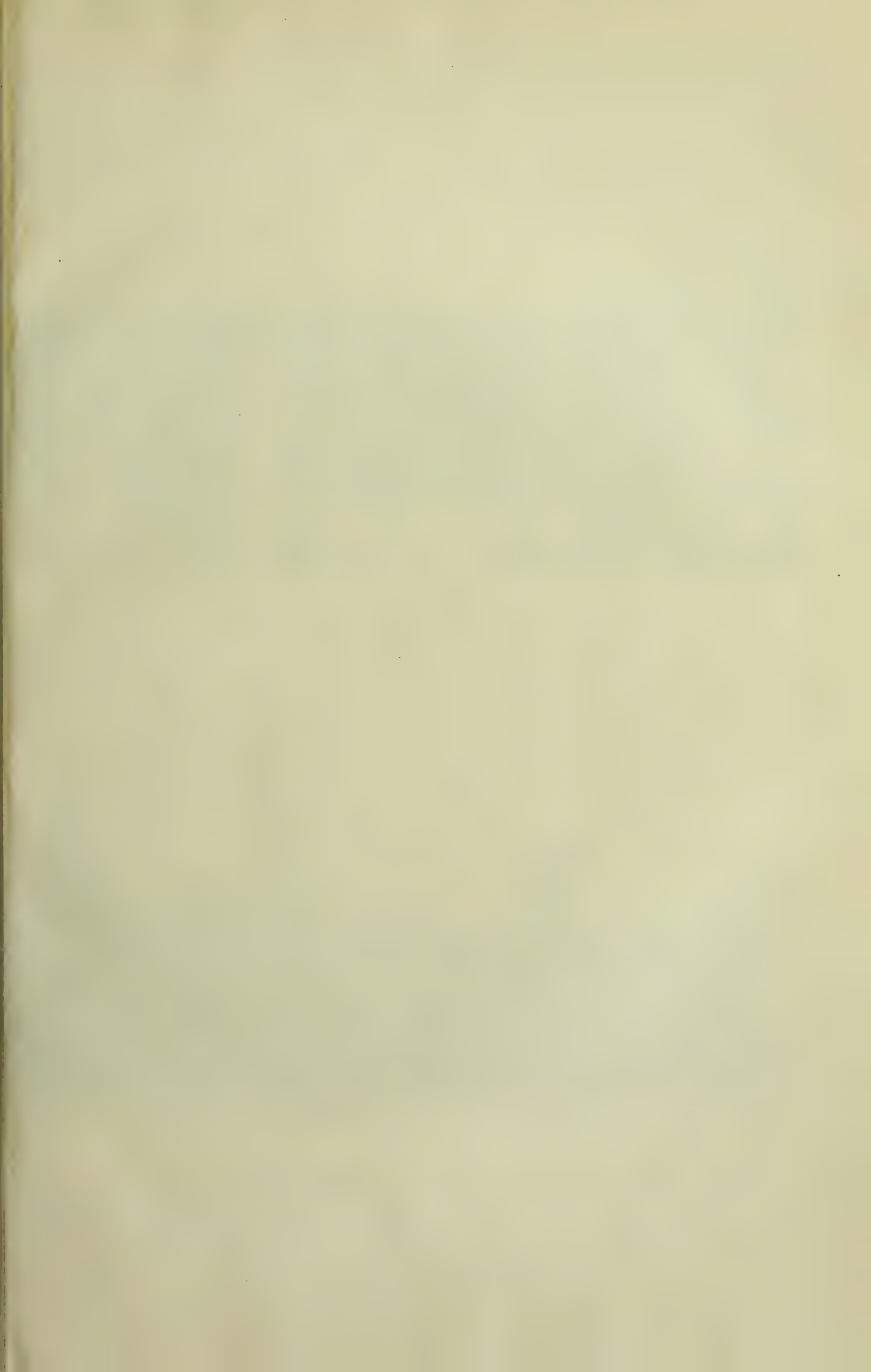








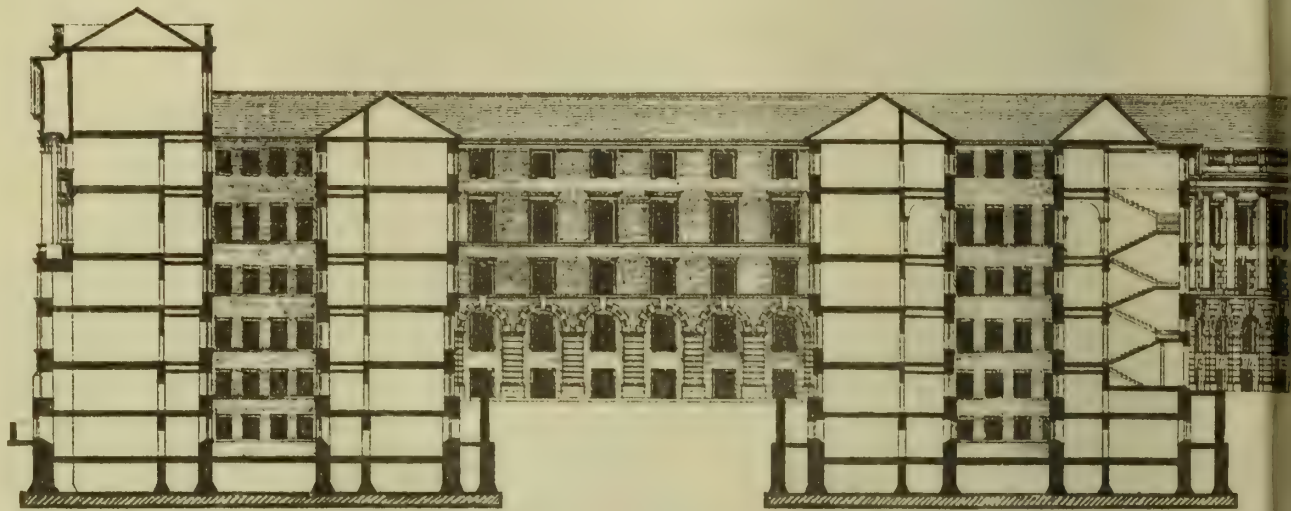






NEW GOVERNMENT OFFICES

J. M. BRYD

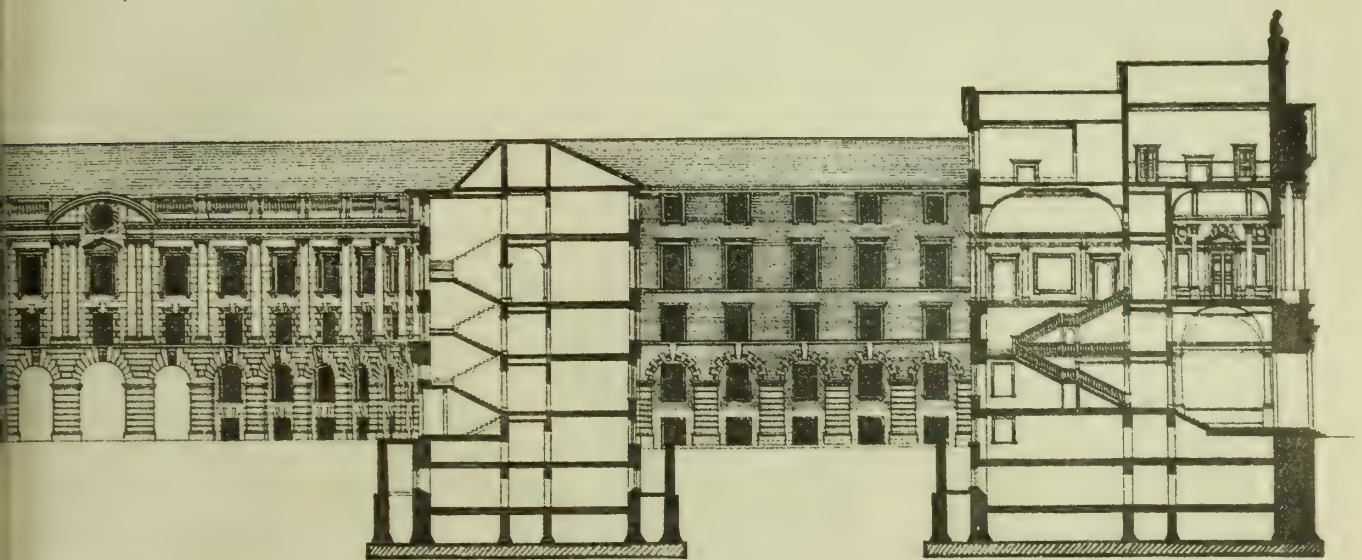




APRIL 21, 1899.

MINSTER, PARLIAMENT STREET

B.A., ARCHITECT.



*Longitudinal Section*

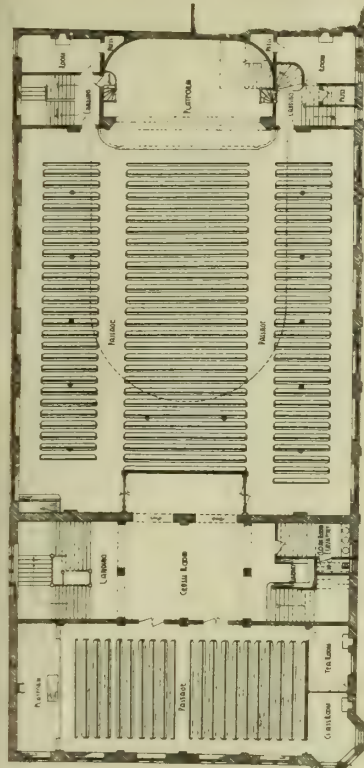


*View to Church, George Street*

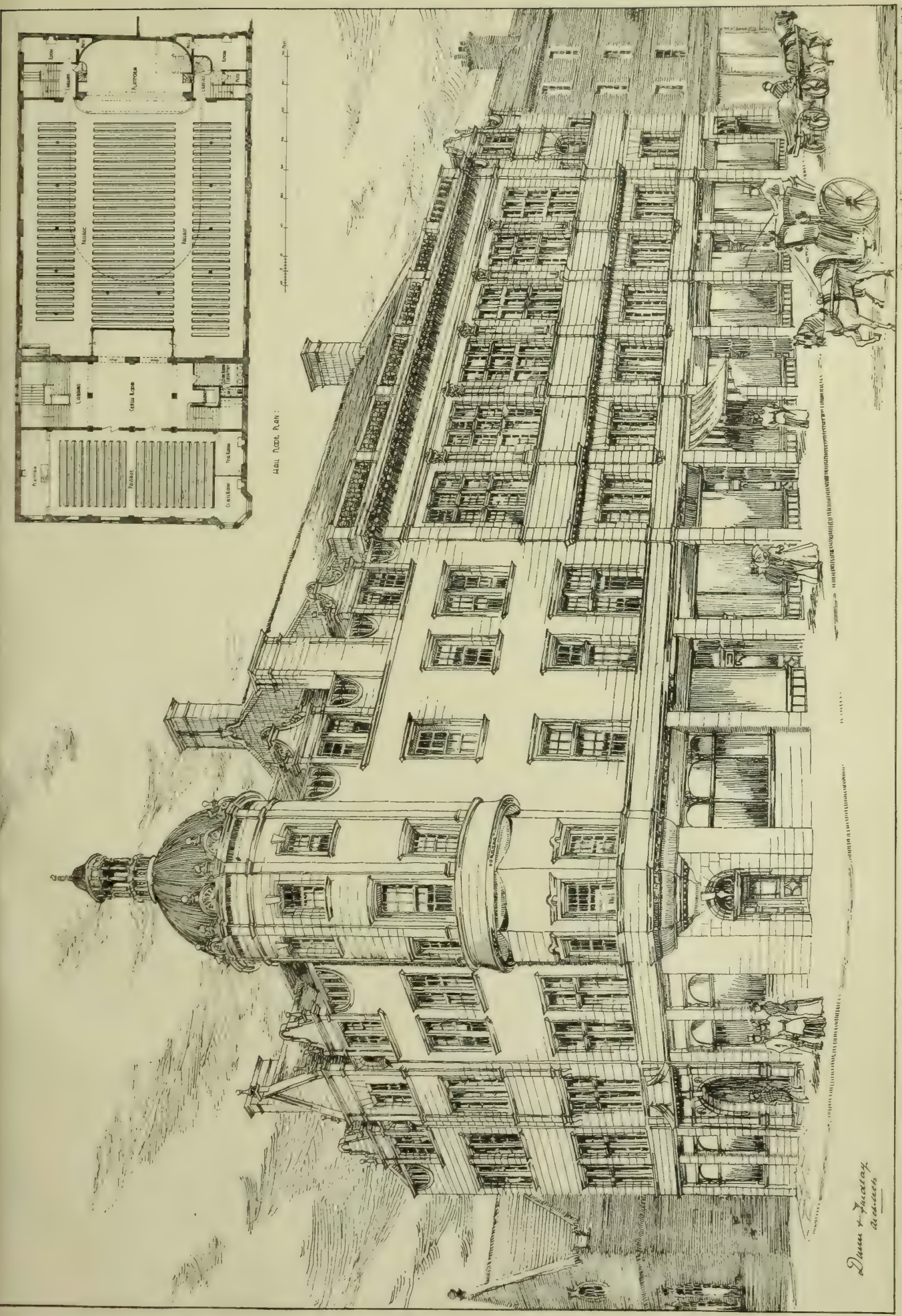








HALL FLOOR PLAN.



WESLEYAN METHODIST MISSION HALL EARL GREY ST EDINBURGH DUNN & FINDLAY ARCHTS



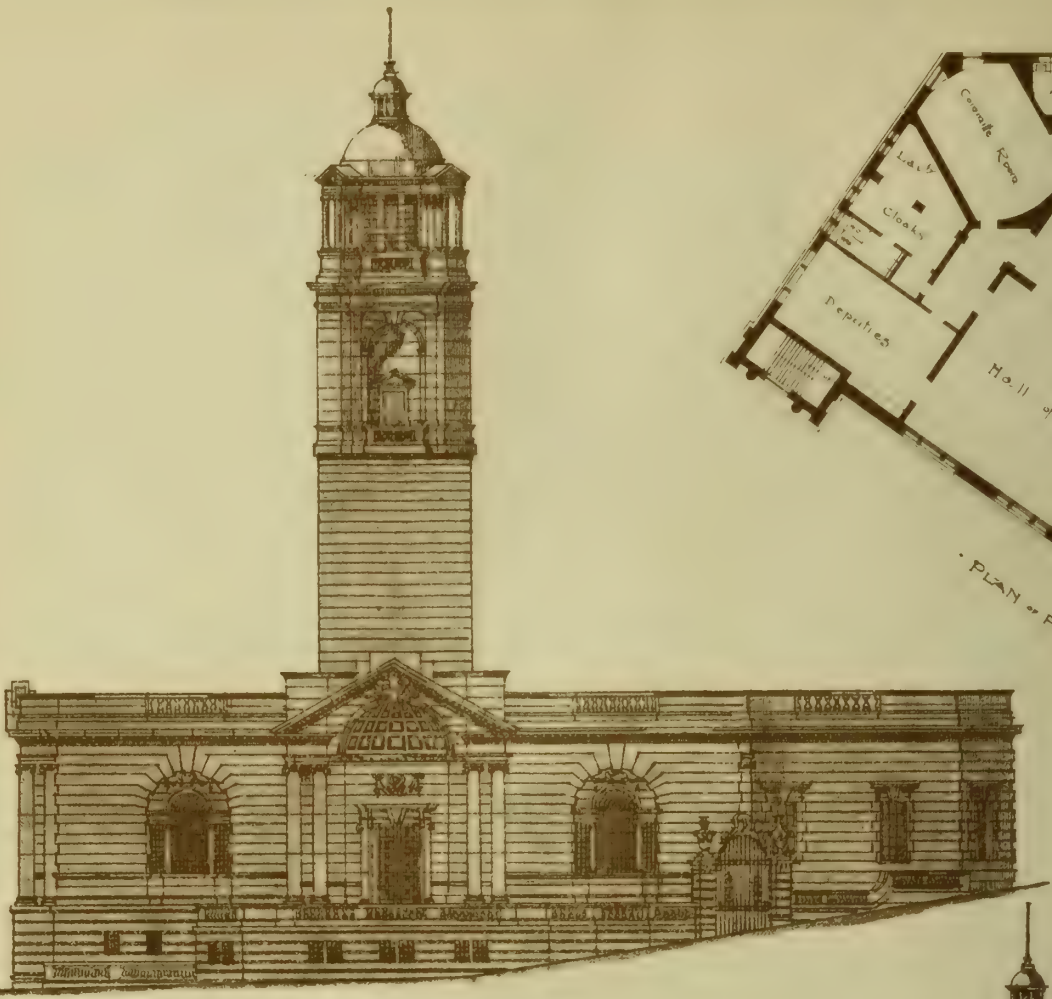




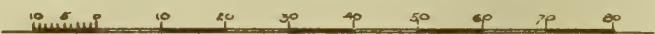




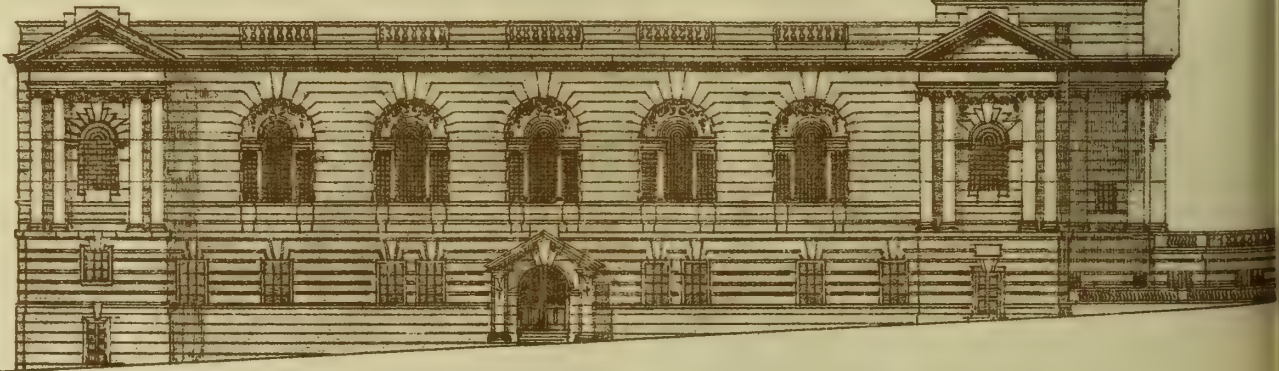
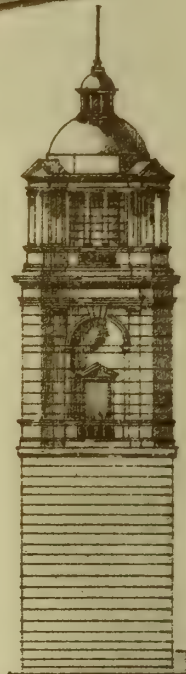
Public  
Entrance



Elevation in St James Street

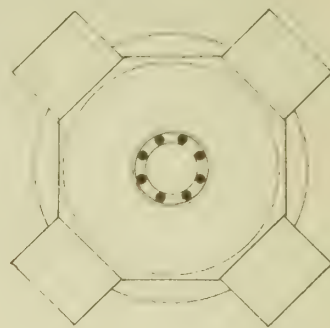
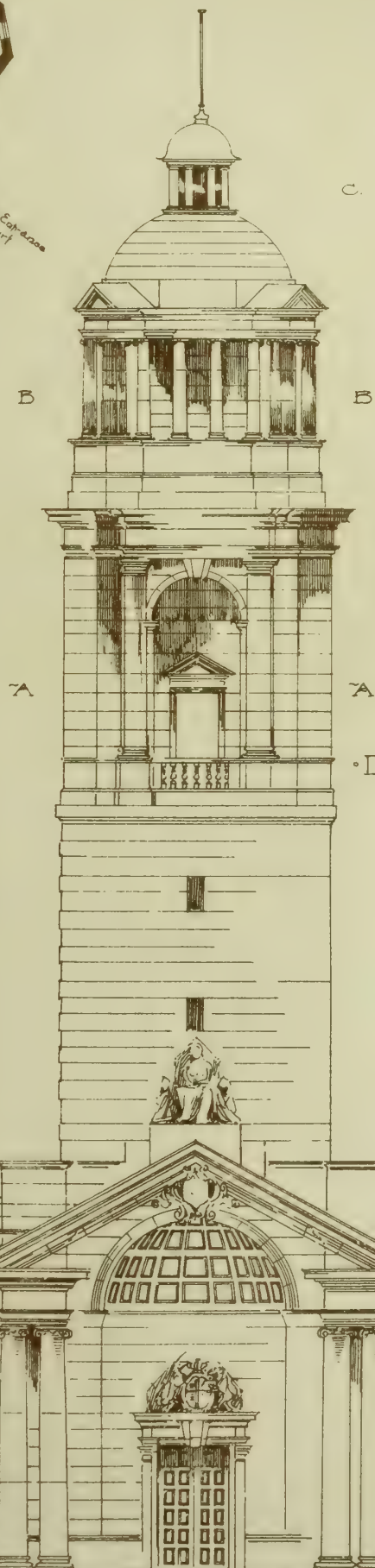


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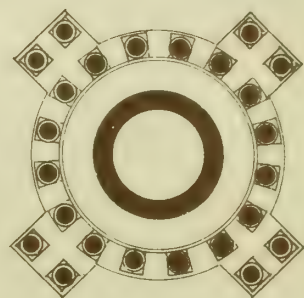


Elevation in Court Row



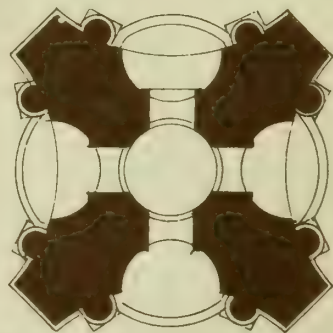


PLAN CC



PLAN BB

DETAIL OF ENTRANCE TOWER

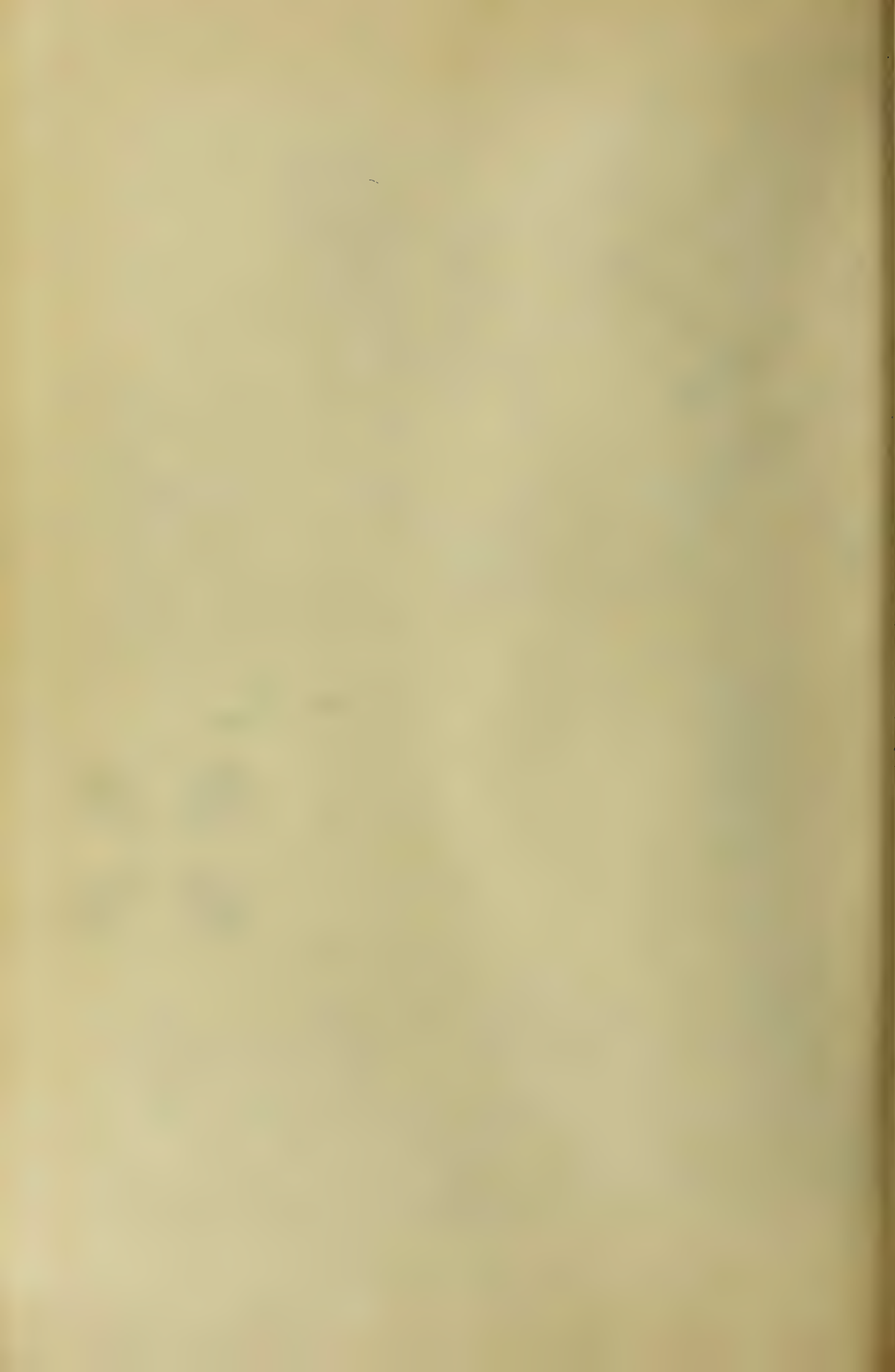


PLAN AA

Royal Arms

MENT BUILDINGS  
S of GUERNSEY  
EMINATED DESIGN  
MOUNTFORD ARCHT.







## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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RECEIVED.—J. W. R.—W. B.—S. M. and Co.—M. T.—T. A. and Son.—F. C.—L. H. S.—C. J.

## Correspondence.

RESTORATION WESTMINSTER ABBEY  
W. FRONT.

To the Editor of the BUILDING NEWS

SIR,—I was much interested in your recent review of Mr. Micklethwaite's new book on Westminster Abbey (March 24), and you made a casual remark therein which directed my attention to the work of restoration upon which Mr. Micklethwaite is now engaged as surveyor to the fabric for the Dean and Chapter. I therefore have taken an early occasion, on being in Westminster, to see if I could ascertain on what lines this work is being done, and learn wherein Mr. Micklethwaite's methods in practice might be improvements upon the system of repair adopted by Mr. Pearson, and following him presumably by Mr. G. F. Bodley—a system which Mr. Micklethwaite was among the foremost to condemn, more particularly in the work of reinstatement so well carried out in the west front of Peterborough Cathedral by these two well-known architects. Mr. Micklethwaite has not himself hesitated to use the public Press to advocate his views. Against my modest letter to you he therefore will not object, even though I scarcely expect he will favour me with an explanation. But for all that, the fact—which is self-evident to anyone who will take the trouble to look—remains that Mr. Micklethwaite has put up a 19th-century imitation—an historical forgery of the work of a past age—a brand-new buttress closely imitated from the old work. Mr. Micklethwaite is doing exactly what he condemned others for doing. It is true he is now in office, safe from the strife of tongues. I com-

plain of nothing. I accord him all praise for his devotion to the anti-scrape cause; but I can but think he is decidedly inconsistent. We were told of that a stock-brick plain wall to the north transept the Abbey would have been better than the fraud on Gothic work which Mr. Micklethwaite's predecessor erected in florid masonry, for it was said at least the stock-brick wall would have been an honest piece of 19th century architectural capacity. Now look at the pity of it, for see how Mr. Micklethwaite is slipping away from the virtue which so well befitted him when aspiring to greater responsibilities. I was the better able to judge of the real value of his criticisms on Mr. Pearson's work at Peterborough a few years ago, because I personally examined the building most carefully at that time when the work was in hand by the late Mr. Thompson, under Mr. Irvine as clerk of the works. I do not say that Mr. Micklethwaite is doing his present work of restoration badly, or, indeed, that if the Dean and Chapter would only make me their surveyor I would do it differently. What I want to know, as a humble learner of my craft, is how Mr. Micklethwaite's work differs from, and how he has improved upon, what other architects have done as restorers, and on whose work the Society for the Protection of Ancient Buildings have unreservedly passed condemnation? If there is no difference, then Mr. Micklethwaite need take no notice of my inquiry, which he will perhaps fancy is presumptuous. It may be; but it is pertinent, surely.—I am &c.,  
AN ANTIQUARIAN ARCHITECT.

## THE NEXT PRESIDENT OF THE R.I.B.A.

SIR,—The several correspondents who have followed up Mr. Woodward's letter on this subject in your pages have one and all ignored the fact that by the constitution and by-laws the Council is possessed of the unqualified right to nominate a member for the office of President. They may, or may not, make the best choice, but it is very little use talking so glibly about having a contested election. It is perfectly true that seven subscribing members who shall be Fellows may nominate any member; but, save in very extreme cases, that is a right of really little value, chiefly because no one of high standing and undoubted reputation would, under such circumstances, permit himself to be put forward as a candidate for the office. In the present instance, Mr. William Emerson has been nominated for the Presidency, and the official list setting forth that fact is already in the hands of the members. Few would care to commence any serious endeavour to upset such a choice which has thus been constitutionally made, and, besides, the nominee is a gentleman among gentlemen, and if hardly an architect among architects, he has done, at any rate, far more architectural work than the present occupant of the chair. For my part, I am disposed to agree with your correspondent, "A Friend of all Three," that Mr. Aston Webb ought to have been selected; but then I am not on the Council, and mere "men in the street" are of little consequence at Conduit-street. The worst of it is, they keep in the street, and do not go to the Institute. The members, unfortunately, as a body, take no interest in its proceedings, and very few indeed comparatively record their votes when the annual ballots take place. At the last ordinary meeting, when the very interesting subject of decoration furnished the subject of two papers, the chairman complained that so few architects took part in the proceedings, while only a moiety of members attended. There were, I noticed, 20 Fellows, 18 Associates, and three Hon. Associates present. The council comprises many admirable names, and it would be considered treason to doubt their good faith as a body. This the writers on this subject last week seem to imply, and therein they make a sad mistake. The list of new names proposed for the council includes Sir John Taylor, K.C.B., and Mr. William Young, the architect of the new War Office. Mr. Blashill appears still, I am glad to see, in the list; but one looks in vain for that of the new Superintending Architect to the London County Council. If your correspondents desire to take more than a languid part in the elections, they should come forward, and combine to improve affairs. Grumbling is of little avail. Some of the best grumblers and critics of the Council in the past are now members of that august body, and their zeal for reforms has grown less cogent, while some appear to enjoy

a comatose tranquillity; but for the greater part they manage to keep one eye open. Partakers in paternal governments are not singular in this respect. Be that as it may, only a popularly-elected President can ever hope to infuse disinterested popularity into any society. Rules, Sir, Rules—we must comply with the rules. By all means, and what then?—I am, &c.,  
A COUNTRY MEMBER.

## ARCHITECTS AND LOCAL AUTHORITIES.

SIR,—Referring to Mr. Worsley's letter in the BUILDING NEWS of the 14th inst., he is, I believe, quite correct in his statement of the facts he refers to; but I venture to think it would be inexpedient in practice for architects to anticipate the sanction of plans by local authorities, as Mr. Worsley seems to suggest, however confident the authors of those plans might feel as to compliance with by-laws. I have seen evidence of this more than once. The uncertainty and irregularity obtaining amongst local authorities in the interpretation and enforcing of by-laws, and even by the same authorities on different occasions, is common experience, and it is often impossible to be sure beforehand what will, and what will not, be sanctioned or required. It is this point which seems most urgently to call for attention with a view to bringing building regulations outside the Metropolitan area into some sort of uniformity and reasonableness, and securing fair, equitable, and sensible administration of those regulations, in order that those concerned may know precisely what will be required, and that such requisitions shall not be unreasonable, and, I would add, shall be drawn up and administered by competent persons.

As an architect, and for two years a member of an urban district council, I have seen both sides of this subject, and my experience of how things are done in this important matter has been interesting, but not reassuring. I am convinced that the present condition of things in regard to it is most unsatisfactory, and is frequently a source of much unnecessary anxiety, annoyance, and loss to those concerned in building under such conditions.—I am, &c.,  
APRIL 19. WM. H. ATKIN BERRY.

## SECRET COMMISSIONS.

SIR.—I note your columns of the 7th inst. contain a letter from "Contractor," replying to mine in the Builder of the 25th ult. If "Contractor" had read my letter without prejudice, he would scarcely have fallen into the error of replying without touching on my chief point—viz., trade discounts on sums provided in contract. These discounts, as all we architects know, are most secretly kept from the public; were they not, a remedy would soon be forthcoming, and builders would have to forego such exorbitant discounts which, to my knowledge, range to anything up to 66 per cent.

How to profit by looking to the dishonesty practised by some of my own profession I fail to see. Undoubtedly, if all architects followed in their steps, it would be profitable to builders whose expectations to realise profits on trade discounts are unlimited, for architects who will degrade themselves by accepting bribes from a builder (which, like all other bribes, are given that some secret and underhand favours may be received) are the ones who cannot check and disallow any illegitimate commissions or trade discounts the builder may obtain.

I have no desire to interfere with discounts on all materials, but provisional sums are so much abused by some builders (as instanced in my last letter), that I contend it is time the building owner knows what he is getting for his money. For instance, a house costing £1,000 will have included, say, £60 for grates and mantels. If the builder orders, he gets 22½ per cent.—viz., £13 10s. If the house or an hotel is costing £30,000, the sum allowed for this item alone would be more like £1,500; this at 22½ per cent. would be £337 10s. for builder—a nice sum to pocket for practically doing nothing. If, as I pointed out, a special clause is given in his contract, he can add 100 per cent. if he wishes before tendering, to which he is entitled; but to obtain his contract by ignoring this clause, and risking the architect to be one of those "Contractor" thinks I might profit by, is nothing less than getting the work under false pretences, and throwing out the more upright competitors.

The good of many contractors is limited to the



amount of profits they make by fair means or foul, and architects who are prepared to put themselves to a little further trouble in their clients' interest to expose these exorbitant discounts, so secretly kept, will always be in the bad graces of some builders; but as for the necessity of having continuously to obtain fresh builders, it is quite the reverse. There are too many straightforward contractors who know only too well the advantages of straightforward dealing by all concerned. Another point to look at is, why a builder can speculate to make it pay, and the public can scarcely build to return a reasonable interest. It is not far to seek, when every article bought bears with it an unknown profit for the builder; and as "Contractor" does not seem to be aware, it will perhaps interest him to know that in many cases the public are already employing labour direct, and buying their goods on discount terms, which is proving a financial success; and there is no doubt this system is likely to extend, as the public are enlightened that these exorbitant secret discounts are added on to the goods they have to pay for.

"Contractor's" experience on the assured profits of architects is evidently very limited, which only tends to show up his utter ignorance in the matter, which, in any case, is no argument for illegitimate means of increasing one's profit, be he architect or builder. Again, I say, if an acknowledged uniform 5 or 10 per cent. were allowed, there would not be the same need of such precautions; but when they range to anything up to 66 per cent. (and probably over), it is time that our commercial practice of "secret commissions" or "trade discounts" is put a check to.—I am, &c., AN ARCHITECT.

#### IRON CONSTRUCTION IN DRAINAGE WORK.

SIR.—Surely Mr. Coleman's table of the sizes of drains for receiving rainwater is incorrect, or else I am slightly mixed. It is usual to provide for the removal of half-an-inch of rainfall from slated roofs per hour, and it is found that the quantity that flows from the roof is four and a half gallons per minute for every 1,000 super.ft. Now, a 6in. pipe with a fall of 1 in 61 will discharge 324 gallons per minute, running at a velocity of 270ft. per minute; therefore, a 6in. pipe seems to be capable of removing the water from an area of 72,000 super.ft., instead of only 5,000, as Mr. Coleman states. The 72,000 is the maximum area, however.—I am, &c.,

Kirkcaldy. J. FORBES SMITH, A.R.I.B.A.

## Intercommunication.

### QUESTIONS.

[12228.]—**Louvre Chimney-Pots.**—These chimney-pots are now deservedly very popular, and have been in use for a number of years in various forms—terracotta, zinc, or galvanised iron. They do not appear to have been patented. It would be interesting to know who designed, and were the first makers of them?—F. MARRIOTT.

[12229.]—**Mastic.**—What materials and proportion of same will make a good hard mastic suitable for pointing round windows, and will the same be suitable for pointing-up fire ranges?—J. RHODES.

### REPLIES.

[12226.]—**Removing Paint.**—Solution of soda, solution of quicklime, equal proportions. Dissolve soda first, add lime; apply a few minutes, washing off with hot water. Afterwards wash with vinegar or other acid to neutralise alkali. Wet with naphtha, when soft, rub surface clean.—REGENT'S PARK.

In our notice last week, first column, p. 507, of the improvements in progress at St. Patrick's Church, Felling, the name of the firm of marble workers who are executing the contract was given as "Tully and Son," instead of Messrs. Emley and Sons, Limited, of Newcastle-on-Tyne.

Business at the Auction Mart, Tokenhouse-yard, was pretty brisk last week, the official returns of sales being £138,930.

At March, Cambs, last week, memorial-stones were laid of a new Primitive Methodist chapel and schoolroom, now being erected from plans by Mr. J. Kerridge, architect, at a cost of a little over £1,000.

It has been decided to give the name "Victoria and Albert Museum" to the new building at South Kensington, the foundation-stone of which will be laid by the Queen on the 17th of May.

## Our Office Table.

THE Dean of St. Paul's backhander is apparently provoking a good many pleasant little rejoinders from objectors to the "improvement" of the cathedral. That of Mr. Hess, of the *Critic*, is, perhaps, the most forcible. Says Mr. Hess:—"Artistic questions are not to be decided by the people who can sign the biggest cheques. Nor can I pin my faith on journalistic criticism. As a matter of fact, I have seen Sir W. B. Richmond's decorations, and personally find them detestable. His 'Eve,' for instance, appears to me merely a white squaw. The Mother of Men does not seem to possess even the one borrowed bone attributed to her in the Book of Genesis. I would defy anyone not an expert to name the subjects of the choir windows. Nor can I understand any sane man hacking out great blocks of Wren's stonework to fill their place with slabs of trashily-painted lath. But I may be wrong. I fully recognise that is only human nature, when one artist gets a really great commission, for his brethren to be keenly alive to the melancholy failure of his attempts to execute it."

On Saturday afternoon Dean Gregory met by appointment at the Deanery the committee designated by the council of the Royal Institute of British Architects to wait upon him with reference to the scheme of decoration now being carried out in St. Paul's Cathedral. The Dean stated to the committee, in the course of the discussion, that the stencil ornament which has been applied to certain architectural features of the building is largely experimental. As the scheme stands at present, it is intended that the drum (the lower portion of the dome) shall be treated in the same manner as the upper part—that is to say, with glass mosaics. Sir William B. Richmond, R.A., under whose direction the mosaic work is being done, is now in Spain with Mr. Somers Clarke, the cathedral surveyor.

A SERIES of tests is being carried out each Wednesday at the testing station of the British Fire Prevention Committee near the Regent's Canal. Among the tests in hand are several with floors and partitions of an ordinary description as allowed by the London Building Act, 1894, including solid timber floors, and floors with various aggregates of concrete, all of which are not subject to any patents or the interests of any special firm. A considerable number of patented floors, patented ceilings, &c., are, however, also under investigation. The tests, which are carried out on scientific lines, but with the principal purposes in view, are conducted by representatives of the executive, the council, and the body of members in rotation, and their reports are circulated bi-weekly.

### MEETINGS FOR THE ENSUING WEEK.

**SATURDAY (TO-MORROW).**—St. Paul's Ecclesiastical Society. Visits to St. Vedast, Fosterlane, and SS. Anne and Agnes, Gresham-street. 3 p.m.

**MONDAY.**—Society of Arts. "Leather Manufacture," Cantor Lecture No. 2, by Prof. Henry R. Procter. 8 p.m.

Institution of Civil Engineers. Annual Meeting. 8 p.m.

**WEDNESDAY.**—Building Trades Exhibition, Agricultural Hall. Opening Ceremony by Prof. Aitchison, R.A., P.R.I.B.A. 12 noon.

Society of Architects. Annual Dinner, Regent's Hall, St. James's Restaurant. 7 for 7.30 p.m.

Society of Arts. "Coal Supplies," by T. Foster Brown. 8 p.m.

**THURSDAY.**—Society of Architects. Visit to L.N.W.R. Goods Warehouses, Broad-street, E.C. 3 p.m.; paper on "The Round Towers of Ireland: their Origin, Uses, and Construction," by Anthony Scott, M.S.A., St. James's Hall, Piccadilly. 8 p.m.

Society of Arts. "Judicial Reform in Egypt," by Sir John Scott, K.C.M.G. 4.30 p.m.

**FRIDAY.**—Architectural Association. "Specifications," by F. W. Macey. 7.30 p.m.

### THE ARCHITECTURAL ASSOCIATION.

APRIL 26th.—ORDINARY MEETING, 9, Conduit-street, W., 7.30 p.m. Mr. F. W. MACEY on "SPECIFICATIONS."

NOMINATION OF OFFICERS for Session 1899-1900.

APRIL 26th.—VISIT to the CHURCH in Chislebury-grove, Ealing, at 3 p.m., and afterwards to ST. SAUVOUR'S CHURCH Grove-road, Ealing.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILLE }

## The Society of Architects.

Founded 1884. Incorporated 1893.

THE SIXTH ORDINARY MEETING of the Society of Architects for the Session 1898-99 will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, April 27th, 1899, at Eight p.m., when a Paper will be read by ANTHONY SCOTT, Esq., M.S.A., on "THE ROUND TOWERS OF IRELAND: THEIR ORIGIN, USES, AND CONSTRUCTION," and the SILVER MEDAL of the Society, awarded to W. A. SCOTT, Esq., will be presented.

ELLIS MARSLAND, Hon. Sec.  
C. MCARTHUR BUTLER, Sec.

## Trade News.

### WAGES MOVEMENTS.

**THREATENED LOCK-OUT IN THE BUILDING TRADES.**—The standing committee of the Master Builders' Association of Great Britain met at the Midland Railway Hotel, Derby, on Wednesday, to consider what action should be taken in view of the serious disputes in the building trades. Alderman Houldsworth, of Bradford, presided over a large attendance of delegates from all parts of the country. The general position of affairs was discussed for three hours. At the conclusion it was announced that a resolution had been passed to the effect that it was quite impossible to conduct business with the existing restrictions and disputes on trivial matters. A resolution was also adopted that decisive measures be taken to settle the matters in difference on a permanent basis. It was further resolved that, unless the plasterers agreed to resume work on reasonable conditions at once, a general lock-out of all the men in the building trades be ordered. The resolutions were carried unanimously, and it was agreed to submit them to the council of the association at a meeting to be held in Birmingham on Thursday in next week, the 27th inst. In the event of the resolution to lock-out being confirmed, a very large body of men will be affected. It is asserted by the masters that during the first three weeks of the lock-out the funds of the National Association of Operative Plasterers were reduced by about 25 per cent., and this in spite of the fact that, in addition to the special levy, the members paid in during this time about £1,000 in ordinary contributions for sick benefit and superannuation purposes. Some of the members of the association, who have been bound to that body by the anticipation of sick or superannuation benefit, are said to have already recognised that any such prospect is rapidly vanishing. They are consequently leaving the organisation.

**THE SKILLED LABOUR MARKET.**—The memorandum prepared by the Labour Department states that the improvement in the state of employment reported as having taken place in February has been well maintained during March, and there have been rises of wages affecting a large number of workpeople in the coal-mining, iron and steel, and cotton-spinning industries. In the 123 trade unions making returns, with an aggregate membership of 494,394, 12,222 (or 2.5 per cent.) were reported as unemployed at the end of March, compared with 2.6 per cent. a month before, and 3.1 per cent. in the 116 unions, with a membership of 466,701, from which returns were received for March, 1898, when the figures were still affected to some extent by the late engineering dispute. Employment in the building trades has continued good, though the plasterers have been affected by a dispute. The percentage of unemployed union members among carpenters and plumbers at the end of March was 1.6, compared with 1.5 in February; the percentage for March, 1898, was also 1.6. Nearly all branches of the furnishing trades have continued to improve, and employment is now brisk. The percentage of unemployed union members at the end of March was 1.0, compared with 3.0 per cent. in February and 1.3 in March of last year.

**EDINBURGH.**—Joiners in Edinburgh to the number of over 1,500 have struck work for an increase of wages of 3d. per hour, from 9d., the present rate.

**STALYBRIDGE.**—The painters' strike at Stalybridge has been settled, and the men have returned to work. They came out because the employers refused to give them 3d. per hour advance, bringing their wages up to 8d. The masters were agreeable to pay this advance on July 1, the date fixed by Colonel Eaton, acting as arbitrator for the Ashton painters. This arrangement did not suit the men, and they struck work last week-end. As the result of a joint conference, the workmen have voted and accepted the masters' offer to pay 3d. per hour until July and 3d. after that date.

**SUNDERLAND.**—An important development has taken place in connection with the strike of bricklayers' labourers at Sunderland. The master builders have decided to give two months' notice to labourers of a reduction from 6½d. to 6d. per hour. The men struck for an advance from 6½d. to 7d. per hour.



## LIST OF COMPETITIONS OPEN.

Arbroath—Infectious Diseases Hospital (35 beds) .....	£20, £15, £10 .....	W. K. Macdonald, Clerk, Arbroath, Forfarshire .....	April 24
Frome—Science and Art School .....	£25, £10 .....	W. F. Bradbury, Clerk, Public Offices, Frome .....	" 29
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff .....	£50, £20, £10 .....	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate .....	" 30
Dover—Concert Pavilion for Promenade Pier (limit of cost £3,000; seating capacity 800 to 1,000) .....	£25 .....	Ardie Marsh, Secretary, Marine Parade, Dover .....	May 1
Stockton-on-Tees—Market Hall .....	£25, £15, £10 .....	The Borough Engineer, Stockton-on-Tees .....	" 1
Arbroath—Public Shambles .....	£7, £5, and £3 .....	W. F. Macintosh, Clerk to Commissioners, Arbroath .....	" 16
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50 .....	The City Engineer, Municipal Buildings, Leeds .....	June 1
Okehampton—Workhouse and Infirmary (9 inmates) .....	£50, £25 .....	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton .....	" 1
Salford—Public Hall, Shops, and Model Cottages on Site of Infirmary Barracks .....	£30 (merged), £20, £10 .....	The Borough Engineer, Salford .....	" 6
Wakefield—Central Premises .....	£50, £30, and £20 .....	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75 .....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	July 3
St. Thomas—Boys' School (600 places) and Teachers' Residence .....	150gs., 75gs., 50gs. .....	J. Champion, Clerk, St. Thomas, near Exeter .....	"
Fulham, S.W.—Public Baths .....	150gs., 75gs., 50gs. .....	Charles Botterill, A.M.I.C.E., Town Hall, Walham Green, S.W. .....	"
Edinburgh—Midlothian County Buildings, Parliament-square .....	150gs., 75gs., 50gs. .....	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh .....	"

## LIST OF TENDERS OPEN.

## BUILDINGS.

Crossgar—Dwelling-House .....	William Hutton .....	F. W. Lockwood, Architect, 16, Waring-street, Belfast .....	April 22
Morecambe—Cottage, Alexandra-road .....	T. Woodhouse .....	A. Lancelot Lang, Architect, 12A, Pedder-street, Morecambe .....	" 22
Bexhill—Three Police Constables' Cottages .....	East Sussex County Council .....	Fred. J. Wood, A.M.I.C.E., County Surveyor, County Hall, Lewes .....	" 22
Mallow—Extension of Catholic Church .....	High Peak Hospital Committee .....	G. C. Ashlin, R.H.A., Architect, 7, Dawson-street, Dublin .....	" 22
Chinley—Isolation Hospital Buildings .....	E. and R. Burley .....	W. R. Bryden, F.R.I.B.A., Architect, 1, George-street, Buxton .....	" 22
Kempford—Repairs at Vicarage, &c. .....	Pikington Bros. .....	Mullins, Ellett, and Co., Cirencester .....	" 22
Malspas—Pair of Cottages .....	Health Committee .....	Wm. Swift, Architect, 38, Lemon-street, Truro .....	" 22
Leeds—Warehouse .....	Robert Deuchar .....	Thomas Winn, Architect, 92, Albion-street, Leeds .....	" 22
Bourne—Alterations to House, North-street .....	Joint Library Committee .....	F. G. Shilcock, Architect, Bourne .....	" 24
Nelson—Refuse Destructor Brick Chimney (180ft. high) .....	F. B. Atkinson .....	B. Ball, A.M.I.C.E., Borough Engineer, Nelson .....	" 24
Low Buston—Farmstead and Three Cottages .....	J. and M. S. Sharp and Co. .....	M. Temple Wilson, Architect, Altwick .....	" 24
Cardiff—Oddfellows' Hall and Institute, Charles-street .....	Lancashire and Yorkshire Ry. Co. .....	Robert and Sydney Williams, Architects, Warton-st., Cardiff .....	" 24
Upper Norwood, S.W.—Public Library in Westlow Hill .....	Harrow U.D. School Board .....	Edward Hazelhurst, Architect, 7A, Lawrence Pountney Hill, E.C. ...	" 24
Harrogate—Four Large Houses, Leeds-road .....	Urban District Council .....	Geo. W. Atkinson, Architect, 1, Mark-lane, Leeds .....	" 24
Drumlin—House, &c. .....	Aberfan Building Club .....	J. Thomson, Architect, Fife-Keith .....	" 24
Heckmondwike—Additions to Orchard Dye Works .....	Gasworks Committee .....	Henry Stead, Architect, Heckmondwike .....	" 24
Liverpool—Extension of the South Docks Goods Station and Alterations to Warehouse in Caryl-street .....	Lancs. and Yorks. Railway Co. .....	The Engineer's Office, Hunt's Bank, Manchester .....	" 25
Harrow—Enlarging Boys' School at Greenhill .....	H.M. Commissioners of Works .....	Houston and Houston, Architects, 5, York Buildings, Adelphi .....	" 25
Crosland Moor—Sixteen Dwelling-Houses in May-street .....	Metropolitan Asylums Board .....	Arthur Shaw, Architect, Golcar .....	" 25
Birkdale—Fire Station, Weld-road .....	Highway Committee .....	John Smallshaw, Clerk, Town Hall, Birkdale .....	" 25
Aberfan—Thirty Cottages, &c. .....	Corporation .....	William Dowdeswell, Architect, Treharris .....	" 25
Horbury—U.M.F.C. Chapel and School .....	Guardians of Hackney Union .....	W. H. Dinsley, Architect, Chorley, Lancashire .....	" 25
Oldham—Retort House, &c., Higginsshaw Gas Station .....	Leeds Industrial Co-operative Soc. .....	Arthur Andrew, Gas and Water Offices, Graves-street, Oldham .....	" 25
Low Moor—Alterations to Passenger Station .....	Donegal Railway Company .....	The Engineer's Office, Hunt's Bank, Manchester .....	" 25
Hyde, Manchester—Post Office .....	William Thornthwaite .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate. ...	" 25
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler House at South-Eastern Hospital, Hatfield-street .....	Vestry of St. Mary, Islington .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ...	" 26
Oswaldtwistle—Additions to Technical School .....	Building Committee .....	R. N. Huner, Surveyor, Town Hall, Oswaldtwistle .....	" 26
Leamington—Disinfecting Apparatus, Sewage Works .....	W. L. Rudd .....	The Borough Engineer, Town Hall, Leamington .....	" 26
Crewe—Liberal Club .....	Hinder Bros. .....	William Sugden and Sons, F.R.I.B.A., Leek .....	" 26
Dalston, N.E.—Rebuilding Waiting-room at Relief Offices, Mayfield-road .....	Gas Commissioners .....	W. A. Finch, Architect, 78, Finsbury-pavement, London, E.C. ....	" 26
Ilkley—Stores .....	Bury Co-operative Provision Society .....	John W. Fawcett, Secretary, 10, Albion-street, Leeds .....	" 26
Londonderry—Station Houses .....	Rev. H. L. Ogle .....	James Barton, M.I.C.E., Exchange Buildings, Dundalk .....	" 26
Cleator Moor—Dwelling-House .....	School Board .....	Edmund Jackson, Civil Engineer, Whitehaven .....	" 26
Holloway, N.—Corrugated Iron Shelters, Recreation Ground, Market-road .....	Corporation .....	Patten Barber, M.I.C.E., Vestry Hall, Upper-street, Islington, N. ...	" 26
Cleator Moor—House .....	Urban District Council .....	Watson Thompson, 42, Crossfield-road, Cleator Moor .....	" 26
Bradford—Unitarian Mission Church .....	Hospital Building Committee .....	T. Cook, M.S.A., 39, Victoria Buildings, Westminster .....	" 26
Cleator Moor—House and Butcher's Shop .....	United Gas Light Co. .....	Edmund Jackson, Civil Engineer, Whitehaven .....	" 26
Bristol—Factory at Lawrence Hill .....	Ingram Heslington .....	A. P. I. Cotterell, Architect, Lonsdale Chambers, Baldwin-st., Bristol	" 27
Abergavenny—Cottage Hospital, Hereford-road .....	Corporation .....	E. A. Johnson, M.S.A., Abergavenny .....	" 27
Dundee—Addition to Electric Lighting Station .....	School Board .....	William Alexander, City Architect, Dundee .....	" 27
Lockwood—Two Dwelling-Houses, Milner-street .....	Weybourne U.D. School Board .....	J. B. Abbey and Son, 34A, New-street, Huddersfield .....	" 27
Bury—Alterations in Back Knowsley-street .....	Corporation .....	Thos. Nutall, C.E., F.S.I., Architect, 20, Market-street, Bury .....	" 27
Flamborough—Farm Buildings at Ocean View .....	Urban District Council .....	J. Earnshaw, Architect, Wellington-road, Bridlington Quay .....	" 27
Batley Carr—Seven Through Houses in Mount-street .....	Hospital Building Committee .....	B. Robinson, Architect, Bradford-road, Batley .....	" 27
Messingham—Classroom to School .....	United Gas Light Co. .....	A. W. Bristol, Clerk, High-street, Messingham .....	" 27
Cardiff—Refreshment House .....	Ingram Heslington .....	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff .....	" 27
Kelling—Enlarging School .....	Corporation .....	F. Andrews, Clerk, Holt, Norfolk .....	" 27
Barrow-in-Furness—New Technical School, and Alterations to Existing Building in Abbey-road .....	School Board .....	Woodhouse and Willoughby, Archts., 100, King-street, Manchester	" 28
Ashford, Kent—New Buildings at Gasworks .....	Hugh G. Larmour .....	Stevenson and Burstall, Engineers, 38, Parliament-st., Westminster	" 28
Ilkeston—Isolation Ward to Hospital .....	Hants County Council .....	Charles W. Hunt, A.R.I.B.A., 132, Station-road, Ilkeston .....	" 28
Sheffield—Raising and Re-roofing Factory and Raising Water-Tower at Grimesthorpe Chemical Works .....	Baptist Chapel Trustees .....	F. W. Stevenson, Engineer, Commercial-street, Sheffield .....	" 29
Durham—Two Dwelling-Houses at Claypath .....	Gt. Northern (Ireland) Railway Co. .....	George Ord, Architect, 16, The Avenue, Durham .....	" 29
Chester—Public Baths, Union-street .....	Huddersfield Industrial Society .....	Douglas and Minshull, Architects, Abbey-square, Chester .....	" 29
Barrow-in-Furness—Cookery Centres at Rawlinson-street and Holker-street Schools .....	Town Council .....	W. Hutchison, Clerk, School Board Offices, Town Hall .....	May 1
Lisburn—Four Houses .....	Hants County Council .....	Henry Hobart, Architect, Dromore, County Down .....	" 1
Hartley Row—Police Cottages and Cells .....	County Property Committee .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	" 1
Barnsley—School, &c., Racecommon-road .....	Gt. Northern (Ireland) Railway Co. .....	Senior and Clegg, Architects, 15, Regent-street, Barnsley .....	" 1
Newry—Additions to Station at Edward-street .....	Watch Committee .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	" 1
Gwbert-on-Sea—Wings to Gwbert Hotel .....	Corporation .....	C. Morgan-Richardson, Cardigan .....	" 1
Dalton—Eight Dwelling-Houses at Greenside .....	Stoke-on-Trent (U.D.) School Board .....	J. Berry, 9, Queen-street, Huddersfield .....	" 1
Ridhill—Isolation Hospital .....	Visiting Committee .....	W. H. Prescott, Borough Engineer, Market Hall, Redhill .....	" 1
Farnborough—Stables for Mounted Police .....	Board of Guardians .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	" 1
Casob—Repair of Church Tower .....	William Wilson .....	Ernest Collier, M.S.A., Carmarthen .....	" 1
Longtown—Alterations to Police-Station .....	School Board .....	Geo. Dale Oliver, County Architect, Carlisle .....	" 1
Dublin—Extension of Timber Goods Shed .....	School Board .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	" 1
Gateshead—Police Station, Old Durham-road .....	London County Council .....	J. Bower, C.E., Borough Engineer, Town Hall, Gateshead .....	" 1
Brighton—Twenty-eight Five-Roomed Artisans' Dwellings, St. Helen's-road .....	Urban District Council .....	Francis J. C. May, M.I.C.E., Surveyor, Town Hall, Brighton .....	" 2
Fenton—Infant's School, Grove-road .....	Corporation .....	R. Scrivener and Sons, Architects, Hants .....	" 2
Whitehaven—Additions to Oddfellows' Hall .....	Stoke-on-Trent (U.D.) School Board .....	J. S. Moffat, Architect, 53, Church-street, Whitehaven .....	" 3
Bridgend—(Chapel at Parc Gwyllt) Asylum .....	Visiting Committee .....	Giles, Gough, & Trollope, Archts., 28, Craven-st., Charing Cross, W.C.	" 3
Pontypool—Workhouse Enlargement .....	Board of Guardians .....	Landsdowne and Griggs, Architects, Bank Chambers, Newport, Mon. ...	" 3
Hayton—Additions to House .....	William Wilson .....	A. W. Johnson, Architect, 81, Castle-street, Carlisle .....	" 5
Alcarr—Royal Naval Reserve Buildings .....	School Board .....	Director of Works Department, 21, Northumberland-avenue, W.C. ...	" 5
Halifax—Board Schools, Sunny Side .....	School Board .....	W. Clement Williams, Architect, 29, Southgate, Halifax .....	" 6
Gloucester—School, Caretaker's House, &c., Hatherley-road .....	School Board .....	Alfred J. Dunn, A.R.I.B.A., 31, St. Michael's-square, Gloucester ..	" 6
Victoria Embankment Gardens and Battersea Park—Super-structure of, and Painting New Band Stands .....	London County Council .....	The Architect's Department, 13, Spring Gardens, S.W. ....	" 8
Govilon—Alterations to British School .....	Urban District Council .....	Edward Edwards, The Cwm, Govilon .....	" 8
Ridford—Public Offices and Hall, High-road .....	Corporation .....	Beni. Wollard, Architect, 16, Finsbury Circus, E.C. ....	" 8
Darlington—Electric Lighting Station .....	Vestry .....	The Borough Surveyor, Town Hall, Darlington .....	" 8
Westminster—Alterations to Bluecoat School, Caston-street, and Additional Schoolrooms, Teachers' House, &c. ....	Bromley Rural District Council .....	Beazley and Burrows, Architects, 17, Victoria-street, S.W. ....	" 9
St. Mary Cray, Kent—Fire Station, Market Meadow-street .....	Vestry .....	W. J. Winter, Surveyor, Station-road, Sidcup .....	" 9
Illogan—Additions to School .....	School Board .....	H. Mair, M.I.C.E., Surveyor, Town Hall, Hammersmith .....	" 10
Trowbridge, Wilt.—Technical School .....	Northumberland County Council .....	Sampson Hill, Architect, Green-lane, Redruth .....	" 12
Herne Common—Additions to Union Workhouse .....	Northumberland County Council .....	G. Fleetwood, 3, New Court, Lincoln's Inn, W.C. ....	" 13
Morpeth—Three Detached Villa Blocks at Lunatic Asylum .....	Northumberland County Council .....	The Master of the Workhouse, Herne Common .....	" 15
		John Cresswell, Architect, Moot Hall, Newcastle-on-Tyne .....	" 15



## BUILDINGS—continued.

Derby—Seven Cottages, Nottingham-road	E. R. Ridgway, Architect, Long Eaton	
Coxhoe—Assembly Hall	C. A. Todd, Clarence Villa Hotel, Coxhoe	
Rugeley—Bakery and Slaughter-House	The Architect, Co-operative Wholesale Society, Manchester	
Bradford—Warehouse	Jas. Young and Co., Architects, 62, Market-street, Bradford	
Ashby-de-la-Zouch—House and Stable, Tamworth-road	J. Pickthorn, Market-street, Ashby-de-la-Zouch	
Ulverston—Alterations to Shop, King-street	Settle and Farmer, Architects, Ulverston	
Wrexham—Central Stores, Bridge-street	Morris and Son, Architects, King-street, Wrexham	
Keighley—Shop, &c., Cooke-lane	Mudran and Moore, York Chambers, Keighley	
Felkettow—Presbyterian Church	G. W. Leighton, Architect, Princess-street, Ipswich	
Manningham—Converting House into Shop, Whitley-lane	H. Hardaker, Architect, Ivetgate Chambers, New Ivetgate, Bradford	
Wigton—Alterations and Additions to Westmorland House	Jos. Graham, Architect, Bank-street, Carlisle	
Lurgan—Licensed Premises	W. J. Moore, Architect, Whitehall Buildings, Belfast	
Ballynahinch—Teacher's Residence	Henry Hobart, Architect, Dromore	
Elland—New Church	Geo. H. F. Pryne, F.R.I.B.A., 6, Queen Anne's-gate, Westminster	
Ardnamurchan—Shop and House, Salen	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William	
Ravennock, Carlisle—Sixteen Dwelling House	P. and J. W. Hayter, Surveyors, &c., Bank-street, Carlisle	
Caistor—Congregational Schoolroom	J. H. Cooper, Architect, Lincoln	
Bradford—Alterations to Premises, Leeds-road	Empeall and Clarkson, Architects, 7, Exchange, Bradford	
Clacton-on-Sea—Detached Residence, Marine-parade	James W. Martin, Architect, Station Chambers, Clacton-on-Sea	
Ardnamurchan—Addition to Post-Office, Acharacle	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William	
Barrow-in-Furness—Congregational Church	E. M. Young, Architect, 90, Duke-street, Barrow-in-Furness	
Meltham—Circular Brick Chimney (50yds. high) at Brigg Mills	W. Carter, Architect, Meltham, near Huddersfield	
Ardnamurchan—House near Acharacle	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William	
Chester—Four Shops, City-road	T. M. Lockwood and Sons, Architects, 80, Foregate-street, Chester	
Belfast—Shop and Dwelling-Houses, Falls-road	W. J. Moore, Architect, Whitehall Buildings, Ann-st., Belfast	
Kingswood, Bristol—Additions to Holy Trinity Church	E. H. Lingen Barker, Architect, 146, St. Owen's-street, Hereford	
Fermoy—Bank Premises	Kaye, Parry, and Ross, Palatine Chambers, 63, Dawson-st., Dublin	
Ardnamurchan—Two Workmen's Houses at Glenborrodale	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William	
Belfast—Improvements to Licensed Premises, Crumlin-road	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast	
Hanging Heaton—Dwelling-House at Common Side	Walter Crawshaw, Architect, Branch Avenue, Batley	
Doncaster—Additions to Premises, St. Sepulchre-gate	Athron & Beck, Architects & Surveyors, Dolphin Chambers, Doncaster	
Ashfordby—Twelve Cottages	Holwell Iron Co., Ltd., Ashfordby, near Melton Mowbray	
Hereford—Alterations to Premises, Widemarsh-street	W. W. Robinson, Architect, 10, King-street, Hereford	
Morecambe—Six Terrace Houses, Sandylands	Walker and Collinson, Architects, Swan-arcade, Bradford	
Carlisle—Sixteen Dwelling-Houses at Raven Nook	P. and J. W. Hayter, Surveyors, &c., Bank-street, Carlisle	
Alveley—Vicarage House and Stables	A. E. Lloyd Oswell, Architect, Dana Chambers, Shrewsbury	
Belfast—Improvements to the Waterloo Bar, York-street	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast	
Hereford—Premises	W. W. Robinson, Architect, 10, King-street, Hereford	
Leeds—Basement and Foundations of Premises, Lands-lane	W. A. Hobson, Architect, 82, Albion-street, Leeds	
Arnold—Alterations at National Board School	John R. Swift, F.I.A.S., Front-street, Arnold	
Nottingham—Improvement of Forster-street Board School	R. C. and E. R. Sutton, Architect, Bromley House, Angel-row	
Barwick-in-Elmet—Alterations of the Old Workhouse	Percy Robinson, Architect and Surveyor, 72, Albion-street, Leeds	
Ashbourne—Additions to White Hart Hotel	Messrs. Garlick and Flint, Architects, Buxton	
Norwich—Seven-Story Factory (140ft. by 66ft.)	A. J. Caley and Son, Limited	
	E. Boardman and Son, Architect, Queen-street, Norwich	

## ENGINEERING.

Reigate—Steam Conduit at Isolation Hospital	Town Council	W. H. Prescott, C.E., Borough Surveyor, Market Hall, Redhill	April 24
Leeds—Roof at Meadow Lane Gasworks	Gas Committee	R. H. Townsley, Manager, Gas Offices, Municipal Buildings, Leeds	24
Perth—Railway (6 miles), Comrie to St. Fillans	Locheanhead and St. Fillans Rly. Corporation	Crouch and Hogg, Engineers, 175, Hope-street, Glasgow	24
Ashton-under-Lyne—Penstocks (233), Sluices, &c.	Gas Committee	J. T. Earnshaw Borough Surveyor, Town Hall, Ashton-under-Lyne	24
Leeds—Cistern at New Wortley Gasworks		R. H. Townsley, Manager, Gas Offices, Municipal Buildings, Leeds	24
Blackpool—Relaying of Tramway Lines between Church-street and Adelaide-street	Tramway Committee	J. Wolstenholme, Boro' Eng., St. John's Market Bldgs., Blackpool	24
Reigate—Laundry Machinery at Isolation Hospital	Town Council	W. H. Prescott, C.E., Borough Surveyor, Market Hall, Redhill	24
Tron—Concrete Sea-Wall (1,900 yards)	Commissioners	J. and H. V. Eaglesham, Engineers, Wellington Chambers, Ayr	24
Erith—Overhead Traveller (10-ton), Crossness Pumping Station	London County Council	The Engineer's Department, County Hall, Spring Gardens, S.W.	25
West Ham—Engines, &c.	Town Council	The Borough Electrical Engineer's Office, Abbey Mills, West Ham	25
Poplar, E.—Electrical Plant	Board of Works	Leonard Potts, Clerk, 117, High-street, Poplar, E.	25
Cleckheaton—Steel Foul Main and Rotary Exhauster	Urban District Council	The Gas Engineer, Town Hall, Cleckheaton	25
Hereford—Bridge Repairs	Herefordshire County Council	A. Dryland, County Surveyor, Shire Hall, Hereford	25
Pimlico, S.W.—Tidal Flaps	London County Council	The Engineer's Department, County Hall, Spring Gardens, S.W.	25
New Cross, S.E.—Boilers, Pumps, Radiators, Steam Heaters, &c., at South-Eastern Hospital, Hatfield-street	Metropolitan Asylums Board	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C.	26
Burnley—Platform Weighing Machine, Lane Bridge Gasworks	Gas Committee	Jno. P. Leather, Gas Engineer, Gasworks, Burnley	26
Morley—Wiring and Fittings, Public Baths, Fountain-street	Corporation	R. B. Hopkins, Town Clerk, Town Hall, Morley	26
Chester-le-Street—Flushing Chambers, &c.	Rural District Council	D. Balfour and Son, C.E., 3, St. Nicholas Buildings, Newcastle	27
Gravesend—Pumping Machinery, &c.	Gravesend Waterworks Company	James Mansergh, Engineer, 5, Victoria-street, Westminster	27
Newport, Isle of Wight—Engine and Dynamo		The Committee of Visitors, County Asylum, Newport, I.W.	29
Hexham—Bridge at Dyehouse	W. B. Thomson	The County Surveyor's Office, Moot Hall, Newcastle	29
Blackford—Grain-Conveying and Malting Machinery		Harbourne MacLennan, Architect, 97, High-street, Dunfermline	29
London, W.—Removal and Reconstruction of Westbourne Terrace-road Bridge	Paddington Vestry	George Weston, Surveyor, Vestry Hall, Harrow-road, W.	May 1
Reigate—Electric Lighting Plant	Town Council	F. Hastings Medhurst, B.Sc., M.I.E.E., 13, Victoria-street, S.W.	1
Newry—Steel Principal Roof (172ft. long), Edward-st. Station	Gt. Northern (Ireland) Railway Co.	The Engineer-in-Chief, Amiens-street, Dublin	1
Dartford, Kent—Sanitary Appliances, &c., at Darenth Asylum	Metropolitan Asylums Board	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C.	1
Lostock and Horwich—Laying Tramway Rails	Bolton Corporation	W. H. Brockbank, Surveyor, Town Hall, Bolton	1
Morecambe—Steelwork of Tower, Calton Lodge Estate	Morecambe Tower Co.	R. T. Gifford Read, C.E., 1, Great Chapel-street, Westminster	1
Breamore—Bridge over River Avon	Hants County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	1
New Ross and Waterford—Railways (13½ miles)	Dublin, Wicklow, & Wexford Ry. Co.	The Engineer of the Company, 1, Westland-row, Dublin	1
Launceston—Retorts, &c.	Launceston Gas Co.	James Treleven, Manager, Launceston	1
Howth—Steel Girder Bridge (175ft. long)	Gt. Northern (Ireland) Railway Co.	The Engineer-in-Chief, Amiens-street, Dublin	1
Clacton-on-Sea—Filter-Beds	Urban District Council	John Taylor, Sons, and Santo Cripp, C.E., 27, Great George-st. S.W.	2
Abercynon—Steel-Rope Suspension Footbridge	Mountain Ash U.D.C.	John Williams, Surveyor, Town Hall, Mountain Ash	2
Southampton—Reconstructing Tramway, Shirley Route (1½ mi.)	Corporation	Kineaid, Waller, and Manville, 29, Great George-street, Westminster	2
Cubley—Bridge	Sudbury Rural District Council	John Barker, Surveyor, Cubley, Derby	2
Epsom—Electric Lighting Plant	Urban District Council	W. C. C. Hawtayne, Consulting Eng., 9, Queen-street-place, E.C.	2
Winstan—Precipitation Tanks and Filtration Works	Bakewell Rural District Council	Sterling and Swann, Engineers, Town Hall, Chapel-en-le-Frith	13
Egremont—Gasholder and Tank	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead	18
Hampstead, N.W.—Electric Lighting Plant	Vestry of St. John	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead, N.W.	18
Battersea, S.W.—Electric Lighting Works	Vestry of St. Mary, Battersea	Prof. Alex. B. W. Kennedy, 17, Victoria-street, Westminster	June 7
Shanghai—Electric Trolley Tramways (23 miles)	Municipal Council	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	30
Naples—Harbour and Docks (estimated cost £162,400)		The Public Works Department, Rome	July 10
Lasswade—Waterworks		David B. Tod, S.S.C., 79, High-street, Bonnyrigg	

## FENCING AND WALLS.

Kingston-upon-Thames—Barbed Wire Fencing (1,000yds.)	Guardians	Wm. H. Hope, C.E., Architect, Portsmouth-road, Kingston	April 24
Wicklow—Boundary Walls, Convent-road	Urban District Council	P. W. MacPhail, Town Clerk, Wicklow	May 1
Leeds—Entrance Gates and Railings to Roundhay Park	Brecon County Council	The City Engineer, Leeds	4
Llangrwnne—Concrete Wall		H. Edgar Thomas, Clerk, County Hall, Brecon	6
London, S.E.—Boundary Railings, Gates, &c., Nelson Recreation Ground, Kipling-street	London County Council	The Architect's Department, 13, Spring Gardens, S.W.	9

## FURNITURE AND FITTINGS.

Dartford—Furniture at Nurses' House and Workhouse	Guardians	J. C. Hayward, Clerk, Sessions House, Dartford	April 24
Winchmore Hill, N.—Bedsteads, Chairs, Tables, &c., at Northern Fever Hospital	Metropolitan Asylums Board	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-st., Strand, W.C.	29
Halifax—School Desks	School Board	W. H. Ostler, Clerk, 22, Union-street, Halifax	29

## PAINTING.

Rotherham—Museum at Clifton Park	General Purposes Committee	H. H. Hickmott, Town Clerk, Council Hall, Rotherham	April 22
Nancledra—Wesleyan Chapel	Committee of Management	Thomas Eddy, Post Office, Nancledra	22
Salisbury—Hospital	Guardians	John Harding and Son, Architects, 58, High-street, Salisbury	22
Hove—Exterior of Town Surveyor's Office		The Borough Surveyor's Office, Town Hall, Hove	24
Atherstone—Painting and Repairing Union Workhouse		W. A. Hutton, Clerk, Atherstone	24
Bradlington—New Spa and Gardens		J. Hague, Company's Offices, New Spa	24
Hoole—Workhouse	Guardians of Chester Union	William Turnock, Clerk, Forest House, Chester	24
Oxford—Corporation Cemeteries	Libraries Committee	The City Engineer, Town Hall, Oxford	25
Manchester—Seven Libraries	Guardians of Toxteth Park	The City Surveyor, Town Hall, Manchester	25
Liverpool—Exterior Wood and Ironwork of Workhouse		J. Moulding, Clerk, 15, High Park-street, Liverpool	26
Salisbury—Wesleyan Chapel	Town Council	John Harding and Son, Architects, 58, High-street, Salisbury	26
Richmond—Exterior Wood and Ironwork, Town Hall	Littlehampton U.D.C.	The Borough Surveyor, Town Offices, Littlehampton	27
Littlehampton—Esplanade Shelter Seats, &c.		H. Howard, Surveyor, Town Offices, Littlehampton	May 3



## PAINTING—continued.

Leeds—Ten Houses, Grange-terrace  
Nelson—Interior of Borough Hotel  
Thurgoland— Wesleyan Chapel and School

J. Thotton, 1, Cowper-street, New Leeds  
Thomas Horsfall, The Brewery, Brierfield  
Thomas Laycock, Thurgoland

## ROADS AND STREETS.

Fenton—Paving Old Foley-road  
Cardiff—Roads and Sewers at Cathays Park  
Hull—Continuation of Scarborough-street to West Dock-street.  
Batley—Paving and Flagging Whittaker-street  
Waterloo—Street Works  
Morley—Paving and Flagging Clough-street  
Stoke Newington—Wood Paving (13,000 yards) at Manor-road and Lordebip-park  
Kingussie—Laying Concrete (500 super. yards)  
Winford—Widening Road  
Felixstowe—Making-up Cobbold, Ranelagh, & Gainsboro' Roads  
Hull—Tramway Street Works  
Dorchester—Road Repairs (Three Years)  
Dewsbury—Paving, &c.  
Hellingly—Making New Road  
Haywards Heath—Making and Sewering Heath-road  
South Tottenham—Victoria Stone Paving in St. Ann's-road  
Lindfield—Making and Sewering New Road  
West Norwood—New Roadway at Schools, Elder-road

Urban District Council  
Corporation  
Corporation  
Town Council  
Waterloo-with-Seaforth U.D.C.  
Vestry  
Long Ashton R.D.C.  
Urban District Council  
Corporation  
Rural District Council  
Corporation  
East Sussex County Council  
Urban District Council  
Urban District Council  
G. Masters  
Lambeth Guardians

S. A. Goodall, Surveyor, Town Hall, Fenton  
W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff  
A. E. White, City Engineer, Town Hall, Hull  
O. J. Kirby, Borough Surveyor, Market-place, Batley  
F. Spencer Yates, A.M.I.C.E., Surveyor, Town Hall, Waterloo  
W. E. Putman, A.M.I.C.E., Boro' Eng., Town Hall, Morley  
R. Brown, A.M.I.C.E., Surveyor, Vestry Offices, 126, Church-st., N.  
Hugh Dallas, Clerk to Police Commissioners, Kingussie  
James Hawkins, District Surveyor, Brockley, near Bristol  
F. B. Jennings, Clerk, Town Hall, Felixstowe  
A. E. White, City Engineer, Town Hall, Hull  
Charles Jesty, Surveyor, Antwerp, Weymouth  
The Borough Surveyor, Town Hall, Dewsbury  
Fred. J. Wood, County Surveyor, County Hall, Lewes  
Edward Waugh, Clerk, Bolstro-road, Haywards Heath  
P. E. Murphy, M.I.C.E., 712, High-road, Tottenham  
Horace W. Beach, Perry-mount-road, Hayward's Heath  
W. Thurnall, Clerk, Brook-street, Kennington-road, S.E.

## SANITARY.

Morley—Sewering Victoria-road  
Croston—Sewers, &c.  
Leeds—Urinals at Burmanofts Cemetery, Roseville-road, and at Cross Flatts Park  
Blackwood—Latrines at School  
Tring—Sewers, &c.  
Gorton—Sewering Cornwall-street  
Garlands—Drainage Works at the Asylum  
Mountain Ash—Stoneware Pipe Sewers (6,300 yards)  
Upminster—Drainage Works  
Rochdale—Sewer  
Watford—Sewers, &c.  
Johannesburg—Sewerage Scheme

Urban District Council  
Bedwellty School Board  
Urban District Council  
Urban District Council  
Urban District Council  
Romford Rural District Council  
Paving Committee  
Urban District Council

W. E. Putman, A.M.I.C.E., Borough Engineer, Town Hall, Morley  
F. E. Dixon, C.E., 49, Lune-street, Preston  
The City Engineer's Office, Municipal Buildings, Leeds  
D. Morgan, Architect, Charles-street Chambers, Cardiff  
J. J. Taylor, 1, Victoria-street, Westminster  
Charles J. Lomax, A.M.I.C.E., 37, Cross-street, Manchester  
John Little, Sanitary Engineer, Viaduct Chambers, Carlisle  
James Mansergh, C.E., 5, Victoria-street, Westminster  
J. Simmons, M.I.C.E., Bank Chambers, Doncaster  
S. S. Platt, M.I.C.E., Borough Surveyor, Town Hall, Rochdale  
D. Waterhouse, Engineer, 14, High-street, Watford  
The Town Engineer's Office, Johannesburg

## STEEL AND IRON.

Liverpool—Pig Iron (400 tons)  
Harrogate—Cast-Iron Pipes (600 tons)  
Ashton-under-Lyne—Cast-Iron Pipes (76 tons)  
Tunbridge Wells—Cast-Iron Pipes (5½ miles)  
India Office, S.W.—Underframes, &c., for Dining Saloons  
London, E.C.—Steel Rails  
Winchester—Cast-Iron Socket-Pipes  
London, E.C.—Girder Work  
Stockport—Cast-Iron Pillars, &c.

Mersey Docks and Harbour Board  
Corporation  
Corporation  
Town Council  
East Indian Railway Company  
Corporation  
Nizam's Guaranteed State Ry. Co.  
Rural District Council

Miles Kirk Burton, General Manager, Dock Office, Liverpool  
E. Wilson Dixon, A.M.I.C.E., Waterworks Engineer, Harrogate  
J. T. Earnshaw, A.M.I.C.E., Boro' Surv., Town Hall, Ashton-u-Lyne  
The Borough Engineer, Town Hall, Tunbridge Wells  
The Director-General of Stores, India Office, Whitehall, S.W.  
A. P. Dunstan, Secretary, Nicholas-lane, London, E.C.  
Walter Bailey, Town Clerk, Guildhall, Winchester  
The Company's Offices, 50, Old Broad-street, E.C.  
H. H. Turner, Surveyor, Davenport-road, Hazel-grove, Stockport

## STORES.

Glasgow—Materials for Sewage Department (One Year)  
Long Ashton—Works and Materials  
Runcorn—Granite Macadam (2,000 tons)  
London, E.C.—Bridge Work, and Tools and Stores  
Tyldesley—Firebricks, &c.  
Hambleton—Road Materials, &c.  
Great Crosby—Road Materials  
London, W.C.—Builders' Materials and Timber to Asylums and Hospitals  
London, N.—Road Materials (One Year)  
Croydon—Granite (2,000 tons), Hand-Picked Flints (6,500 yards), Dog Flints (4,000 yards), Gravel (1,000 yards), Tar Paving, Portland Cement, &c.  
Paddington, W.—Crescented Yellow Deal Blocks (1,250,000)  
Camberwell—Tar-Paving Materials at Myatt's Fields  
East Dereham—Granite (300 tons)  
Hampton, Middlesex—Road Materials  
Rochester—Drainage Materials  
Bexhill—Granite (1,400 cubic yards)  
Croydon—Norway Granite Kerb (20,000ft.), Norway Granite Channel (20,000ft.)  
Wolverhampton—Road Materials  
Blackpool—Australian Hard Wood Paving Blocks (350,000)

Corporation  
Rural District Council  
Rural District Council  
Burma Railways Co.  
District Council  
Rural District Council  
Urban District Council  
Metropolitan Asylums Board  
Urban District Council  
Rural District Council  
Vestry  
London County Council  
Urban District Council  
Urban District Council  
Urban District Council  
Town Council  
Tramways Committee  
Corporation

John Lindsay, City Chambers, Glasgow  
James Hawkins, District Surveyor, Brockley, Bristol  
John Ashton, Clerk, Runcorn  
The Company's Offices, 76, Gresham-street, Old Broad-street, E.C.  
Charles Austin, Manager, Council Office, Tyldesley  
Ferdinand Smallpeice, Clerk, 138, High-street, Guildford  
Watkin Hall, C.E., Council Offices, College-road, Great Crosby  
T. Duncombe Mann, Norfolk House, Norfolk-street, Strand, W.C.  
Jno. Green Banks, Clerk, Council Offices, Heaton Moor  
James Wilson, Clerk, Town Hall, Croydon  
The Surveyor's Offices, Vestry Hall, Harrow-road, W.  
The Parks Department, 9, Spring-gardens, S.W.  
Hedley G. Himson, Surveyor, Theatre-street, East Dereham  
J. Kemp, Surveyor, Park House, Hampton, Middlesex  
William Banks, A.M.I.C.E., City Surveyor, Guildhall, Rochester  
George Ball, Surveyor, Town Hall, Bexhill  
The Borough Road Surveyor, Town Hall, Croydon  
W. Bradley, Borough Engineer, Town Hall, Wolverhampton  
J. Wolstenholme, Borough Surveyor, Blackpool

## LATEST PRICES.

## IRON, &amp;c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	to £8 10 0
Rolled-Steel Joists, English.....	8 10 0	" 7 0 0
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0
Bar Iron, good Stuffs.....	7 5 0	" 8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0
Do., Welsh.....	5 15 0	" 5 17 6
Boiler Plates, Iron—		
South Stuffs.....	7 17 6	" 8 5 0
Best Snedshill.....	10 0 0	" 10 10 0
Angles 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, &c., £8 15s.		
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.		
Galvanised Corrugated Sheet Iron—		

	No. 18 to 20. No. 22 to 24.	Per ton.	Per ton.
8ft. to 8ft. long, inclusive gauge.....	£10 15 0	to £11 0 0	
Best ditto.....	11 5 0	" 11 10 0	

	Per ton.	Per ton.
Cast-Iron Columns.....	£8 5 0	to £8 15 0
Cast-Iron Stanchions.....	8 5 0	" 8 15 0
Rolled-Iron Fencing Wire.....	8 5 0	" 9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	" 9 5 0
" Galvanised.....	11 10 0	" 12 10 0
Cast-Iron Sash Weights.....	4 2 6	" 4 5 0
Cut Clasp Nails, 3in. to 6in.....	9 0 0	" 10 0 0
Cut Floor Brads.....	8 15 0	" 9 15 0

	No. 18 to 20. No. 22 to 24.	Per ton.	Per ton.
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9 6 10 10 10 11 12 13 14 15 17 19 per cwt.			
Cast-Iron Socket Pipes—			
2in. diameter.....	£6 2 6	to £6 7 6	
4in. to 6in.....	5 17 6	" 6 2 6	
7in. to 24in. (all sizes).....	5 7 6	" 5 12 6	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]			

	Per ton.
Pig Iron—	
Cold Blast, Liffeshall.....	105s. to 110s.
Hot Blast, ditto.....	67s. 6d. to 62s. 6d.

Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. :—	
Gas-Tubes.....	75p.c.
Water-Tubes.....	70
Steam-Tubes.....	62½
Galvanised Gas-Tubes.....	60
Galvanised Water-Tubes.....	55
Galvanised Steam-Tubes.....	45

	10cwt. casks. 5cwt. casks.	Per ton.	Per ton.
Zinc, English.....	£30 10 0	to £31 10 0	
Do., Vieille Montagne.....	31 10 0	" 32 15 0	
Sheet Lead, 3lb. per sq. ft. super.....	16 5 0	" 17 5 0	
Pig Lead, in 1cwt. pigs.....	15 12 6	" 16 12 6	
Lead Shot, in 25lb. bags.....	19 5 0	" 20 5 0	
Copper Sheets, sheathing and rods.....	81 0 0	" 82 0 0	
Copper, British Cake and Ingot.....	71 0 0	" 72 0 0	
Tin, Straits.....	113 10 0	" 114 10 0	
Do., English Ingots.....	116 0 0	" 117 0 0	
Spelter, Silesian.....	27 0 0	" 28 0 0	

## TIMBER.

	per load £13 10 0	to £16 15 0
Teak, Burmah.....	11 15 0	" 15 15 0
" Bangkok.....	4 7 6	" 6 5 0
Quebec Pine, yellow.....	8 10 0	" 8 15 0
" Pitch.....	3 5 0	" 4 0 0
" Oak.....	3 10 0	" 5 10 0
" Birch.....	4 12 6	" 5 15 0
" Elm.....	4 0 0	" 5 5 0
" Ash.....	3 5 0	" 4 0 0
Dantzic and Memel Oak.....	1 10 0	" 3 10 0
Fir.....	3 15 0	" 6 5 0
Lath, Dantzic, p.f.....	4 10 0	" 5 10 0
St. Petersburg.....	4 0 0	" 6 10 0
Greenheart.....	8 0 0	" 8 5 0
Box.....	4 0 0	" 15 0 0
Sequoia, U.S.A. ....per cube foot	0 1 9	" 0 2 0
Mahogany, Cuba, per super foot	0 0 6½	" 0 0 7
lin. thick.....	0 0 3½	" 0 0 4
" Honduras.....	0 0 3½	" 0 0 4
" Mexican.....	0 0 4	" 0 0 4
Cedar, Cuba.....	0 0 4	" 0 0 4
" Honduras.....	0 0 3½	" 0 0 4
Satinwood.....	0 0 9	" 0 1 9
Walnut, Italian.....	0 0 8	" 0 0 7

Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in. :—			
Quebec, Pine, 1st .....	£18 15 0	to	£25 5 0
"    2nd .....	13 15 0	"	17 0 0
"    3rd .....	6 15 0	"	10 0 0
Canada Spruce, 1st.....	8 5 0	"	10 5 0
"    2nd and 3rd .....	7 0 0	"	8 15 0
New Brunswick .....	7 0 0	"	7 15 0
Riga .....	8 5 0	"	10 5 0
St. Petersburg.....	9 15 0	"	14 0 0
Swedish .....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	13 0 0
Battens, all sorts .....	5 0 0	"	16 0 0
Flooring Boards, per square of lin. :—			
1st prepared .....	£0 12 0	to	£0 15 3
2nd ditto .....	0 10 6	"	0 12 3
Other qualities .....	0 5 3	"	0 6 6
Staves, per standard M :—			
Quebec pipe .....	—	—	—
U.S. ditto .....	£35 0 0	to	£42 10 0
Memel, cr. pipe .....	210 0 0	"	220 0 0
Memel, brack .....	180 0 0	"	190 0 0

## OILS.

	per ton. £17 17 6	to £18 7 6
Linseed.....	22 10 0	" 22 15 0
Rapeseed, English pale.....	21 0 0	" 21 5 0
Do., brown.....	16 15 0	" 17 5 0
Cottonseed, refined.....	30 0 0	" 32 0 0
Olive, Spanish.....	30 0 0	" 30 5 0
Seal, pale.....	29 10 0	" 29 15 0
Cocconut, Cochiti.....	25 10 0	" 25 15 0
Do., Ceylon.....	24 10 0	" 24 15 0
Palm, Lagos.....	18 15 0	" 19 15 0
Oleine.....	0 6 3	" 0 7 6
Lubricating U.S..... per gal.	0 6 3	" 0 6 6
Petroleum, refined.....	1 0 0	" 1 5 0
Tar, Stockholm..... per barrel	0 15 0	" 0 18 0
Do., Archangel.....	23 15 0	" 29 0 0
Turpentine, American..... per ton	23 15 0	" 29 0 0

The Freeman's Trustees of Coventry accepted at their last meeting three months' notice of resignation of office as architect, tendered by Mr. T. W. Whitley after many years' service.



# "SANITAS" DISTEMPER.

A Washable Sanitary Distemper for Whitening and Disinfecting Walls and Ceilings of Passages, Cellars, Stables, Kennels, Sheds, Farm Buildings, Railway Trucks, Horse Boxes, and for General Use.

7lb. Tins, 1s. 9d.; 14lb. Tins, 3s.; 28lb. Kegs, 5s. 6d.; 56lb. Kegs, 10s. 6d.; and 20s. per cwt.

THE "SANITAS" COMPANY, Limited,  
BETHNAL GREEN, LONDON,

Manufacturers of Disinfectants and Sanitary Appliances.

W. H. LASCELLES and Co.,  
121, Bunhill Row, London, E.C.  
TELEPHONE No. 270.

HIGH-CLASS JOINERY.

LASCELLES' CONCRETE.  
Conservatories & Greenhouses.  
WOODEN BUILDINGS.

BANK, OFFICE, & SHOP FITTINGS.  
CHURCH BENCHES & PULPITS.

ESTIMATES GIVEN ON APPLICATION.

WM. OLIVER & SONS,  
MAHOGANY, WAINSCOT, WALNUT,  
TEAK, VENEER, and FANCYWOOD  
MERCHANTS,  
120, BUNHILL ROW, LONDON, E.C.  
The most extensive Stock of every kind of  
Wood in Planks and Boards, dry and fit for  
immediate use.

## TENDERS.

\*.\* Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ACTON, W.—For the re-erection of the Railway Hotel, Acton, for Mr. A. T. Saviegar. Mr. Edward Monson, F.R.I.B.A., Acton Vale, W., and 22, Buckingham-street, Adelphi, W.C., architect:—

Lascelles and Co., 121, Bunhill-row	£8,426	0	0
Patman and Fotheringham	8,251	0	0
Wallis, W., Ramsden-rd., Balham	8,248	16	0
Ansell, C., York-road, Lambeth	8,181	0	0
Antill & Co., Mornington-crescent	8,000	0	0
Godeon and Son, Kilburn-lane	7,983	0	0
Beer and Gasb, 13, Wharf-road, N.	7,775	0	0
Gould and Brand, Camden Town	7,689	0	0
Chessum and Son, Kingsland-road	7,458	0	0
Nye, T., Ealing Green (accepted)	7,278	0	0
Blackburn, W., Chiswick	7,060	0	0

ACTON GREEN, W.—For the formation of a new road on the Kingswood Park Estate, to be called Bolton-road. Mr. Edward Monson, F.R.I.B.A., Acton Vale, W., and 22, Buckingham-street, Adelphi, W.C., architect and surveyor:—

Nowell, B., and Co., Earl's-court	£1,125	0	0
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(Accepted.)

BRIDGORTH.—For the extension of a water-main to Cliff Dale, for the town council:—

Nicholas, R., jun. (accepted)	£143	14	8
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BRIGHTON.—For alterations and improvements to The Quadrant Hotel, Brighton, for Mr. T. Bovey. Mr. R. W. Pollard, 11, Prince Albert-street, Brighton, architect. Quantities by Mr. W. J. Ede, 88, Buckingham-road, Brighton:—

Field, W. A., and Co.	£2,087	0	0
Lockyer, G. R.	1,900	0	0
Barnes, J.	1,899	0	0
Parsons, J., and Sons	1,847	0	0
Sattin and Evershed	1,639	0	0

(All of Brighton.)

BURTON-ON-TRENT.—For the erection and completion of four shops, offices, concert-hall, and premises in Byrkley-street, for the Burton-on-Trent Co-operative Society, Limited. Mr. R. Stevenson, Imperial Chambers, High-street, Burton-on-Trent, architect. Quantities by the architect:—

Stevenson, W. A.	£7,595	0	0
Hodges, G.	7,590	0	0
Edwards, H.	7,570	0	0
Adams, G. H.	7,400	0	0
Geary, A.	7,392	0	0
Lowe, T., and Sons (accepted)	7,390	0	0
Kershaw, R. (informal)	7,333	7	0

CHATHAM.—For the electric wiring of the new town-hall, and for providing electrical fittings, for the town council:—

Stevens and Barker (accepted)	£927	10	0
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CLAY LANE, DERBYSHIRE.—For rebuilding the Park House boundary wall, for the Clay-lane U.D. School Board:—

Spencer, G., Pilsley	£56	4	0
Griffin, G., Clay Cross	51	10	0
Rouse, W., Pilsley (accepted)	46	10	0

DERBYSHIRE.—For the enlargement of the county asylum by the addition of new wards and laundry, for the county council:—

Shaw, of Ilkeston (accepted).

GATESHEAD-ON-TYNE.—For rebuilding The Forester's Arms, for Mr. Robert Newton. Mr. Alfred G. Kyle, 145, Pilgrim-street, Newcastle-on-Tyne, architect. Quantities by the architect:—

Ross, J., Gateshead	£2,650	16	0
Arkless, H. and A., Gateshead	2,407	2	0
Nichol, J. C., South Shields	2,390	0	0
Wales, J., and Co., Gateshead	2,950	0	0
Lamb, T. and R., Gateshead	2,327	13	2
Bewley, I., Dunston	2,253	0	0
Turner Bros., Gateshead	2,159	5	9
Thompson, R. M., Gateshead	2,118	0	0

LONDON.—For the erection of warehouses on the site of No. 73 to 81, Clifton-street, and the City Stone Yard, Finsbury, E.C., for the Home and Colonial Stores, Ltd. Mr. Robert Willey, F.R.I.B.A., 33, New Bridge-street, E.C., architect. Quantities by Mr. A. Howard, The Outer Temple, E.C.:—

Alan	£25,355	£1,000
Larter	25,000	359
Holland and Hannen	24,914	550
Woodward	24,290	470
Clarke and Bracey	24,031	551
Lascelles	23,881	456
Dove Bros.	23,355	550
Patman and Fotheringham	21,791	491
Smith and Son	31,29	450

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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

VOL. LXXVI.—No. 2312.

FRIDAY, APRIL 28, 1899.

### ARCHITECTURE AT THE ROYAL ACADEMY.—I.

[WITH LITHOGRAPHIC ILLUSTRATIONS.]

THE President of the Royal Institute of British Architects, Professor George Aitchison, R.A., is responsible for the hanging of the drawings shown in the Architectural Gallery at the Royal Academy this year, and, although by far the larger number are executed in pen and ink, it is evident that the President's sense of colour has had no little to do with the ingenious arrangement of the works displayed on the walls. Infinite care has been devoted to the contrivance and fitting-in of a mosaic of comparatively small frames, and by these means some 61 drawings in excess of those hung last year have been got into the available space. One end of the gallery is, with one exception, devoted to coloured studies, and the effect, it must be admitted, is, in general terms, very bright and decorative. On a closer inspection, individual works are found to be so wanting in architectural merit as to leave no room for doubt as to their colour having given an excuse for their selection in the exhibition. The black and white exception on this wall to which we have alluded is the new Radcliffe Library, Oxford (No. 1830), by Mr. T. G. Jackson, R.A., in the post of honour. We confess considerable surprise that one who has done work of more than ordinary merit should be content to produce so exceedingly inconsequential a design for this building, while the drawing is careless and poor to a degree. Is "Architecture a Profession or an Art?" Such work as this surely reduces it to the level of a trade. The poor Gothic building adjoining, of 30 years ago seen in the sketch, at any rate, is picturesque in outline. This new Radcliffe Library will not add to the reputation of the new Royal Academician. Mr. Aston Webb, the new Associate, figures in a corresponding place of honour at the other end of the gallery, with some excellent views of the Britannia Royal Naval College, Dartmouth (1671), also delineated in pen and ink. This vast undertaking, seated on the crest of a hill, is approached by a series of terraced roads, very materially enhancing the importance of its long façade, which has been cleverly studied with this idea. Our readers will have an early opportunity of seeing an illustration of this perspective, and we may then take the opportunity of referring to the design again. It is marked by refinement and dignified simplicity, which is enhanced materially in effect by a skilfully conceived sky-line. Another building of the first magnitude is the great pile in terracotta and brick (1853), which Mr. Alfred Waterhouse, R.A., is building at Holborn Bars for the Prudential Assurance Company, making a grand isolated block, which will extend from Brooke-street to Leather-lane, and northwards from Holborn to Greville-street. A large quadrangle will form an essential contrivance in the centre of this island of offices, and a grand tower-like pavilion, forming the middle feature of the principal front, will distinguish the entrance archway, and give a striking prominence to the whole. The author's drawing is handled in a masterly way, rich in colour, and cleverly aided by the adroit distribution of well sketched-in groups of figures. The style adopted, as will be seen from the accompanying lithographic illustration, is in unison with the original pre-

misces at the corner of Brooke-street, erected by the same architect some twenty years ago. Ample fenestration and a well-defined grouping of parts, while permitting every attention to practical requirements, are here treated with dignity and broadness, making a building entirely in accord with a contemporary sense of fitness.

Of church work this year there are comparatively few notable specimens. Among these the foremost place is taken naturally enough by Mr. G. F. Bodley, A.R.A., who sends a water-colour by Mr. Brewer, in his best manner, of St. John's Church, at Cowley, near Oxford, showing a typical English interior with a florid rood-screen and loft over, in true Ecclesiastical form, with a rich crucifix to match; following precedent, it is clear, but with a knowledge and artistic sense always in evidence in Mr. Bodley's designs. A good feature is made in a quiet way of the projecting organ-case over the choir. The roof has a pointed barrel vault in timber, elaborated in colour and divided into bays by stone arches, which span the nave at intervals and mark off the chancel. The building is constructed of a warm-coloured stone, which gives a key for the painted decorations.

Sir Arthur Blomfield, A.R.A., is not represented, neither is Mr. Norman Shaw, R.A., whose continued illness since January, we regret to say, still causes much anxiety, though we have had an assurance from him this week which justifies the cordial expression of our hope that an improvement may be now recorded.

Professor Aitchison's diploma drawing, deposited on his election as an Academician, furnishes an elevation of the Royal Exchange Assurance Office in Pall Mall, S.W. (1608), a building which has been erected some years, and is distinguished by careful detail and many windows, inevitable in a narrow street frontage in London, where much light is an absolute necessity.

Turning now to the work contributed by outsiders, we notice with pleasure Mr. W. D. Caröe's designs for the Archbishop's Palace at Canterbury, now building at the corner of the cloisters for Dr. Temple. The drawings by Mr. Raffles Davison illustrate the group of buildings in capital style, and show how ingeniously the architect has combined the old fabric with his new work of extension and adaptation. The whole groups remarkably well with the Cathedral. The low, large square tower of the Palace in no way attempts any competition with the church. Any such endeavour would, of course, be absurd; but Mr. Caröe, well understanding this, has also realised the fitness of a simple and somewhat depressed outline, acknowledging the surroundings and relative values without allowing the sense of smallness to mar his work. Below the elaborated chapel, in Late Gothic, is an examination hall, and next to this a picturesque study prettily planned. This is the best piece of work yet associated with the name of the present architect to the Ecclesiastical Commissioners. He shows several other designs in the present gathering; but they are relatively of minor importance. Another important exhibit occupying a distinguished position is the New Union Church and Institute at Brighton, to be built on the site of the late Paxton Hood's Chapel in Queen's-square. A greater contrast architecturally to the Canterbury Palace, just described, could not be named, and the difference is almost as great between the present Gothic chapel at Brighton and its intended substitute. Mr. John W. Simpson is the architect, and we congratulate him on his work. The scheme comprises a vast auditorium domed in the centre, and having three shallow transepts or apses. These will be fitted with galleries, the rostrum being located on the flat side of the trefoil plan. Two cupola towers will flank the dome on the side of the building fronting

Queen's-square, the Institute extending beyond up the hill. At the corner of the site, which is V-shaped, will be placed the rooms known as church parlours. Brighton has long been famous for its ecclesiastical buildings, and, at last, when Mr. Simpson has built this great pile in Queen's-square, the Nonconformists will be possessed of a meeting-house of uncommonly fine proportions and excellence of design.

Mr. John Belcher is very strongly represented in the present Academy. His Colchester Town Hall will be a very interesting building. A beautiful model of the belfry-tower stands in the gallery, showing how much he has improved the original design, and, moreover, it exhibits the value of good sculpture in conjunction with good building. A fine detail of the main front of this same Town Hall (1722) deserves close examination, for the detail is, in many ways, very excellent. Among our illustrations to-day is Mr. Belcher's "Main Staircase for the Guildhall, Cambridge" (1869), drawn in pure outline, in which the figure frieze makes a notable feature. We shall refer to some other works by the same contributor later on. Hard by the one just named, strange to relate, is an old competitive design, submitted in 1857, for the new War Office, by Mr. Henry B. Garling. We suppose it was thought somewhat interesting on account of the design by Mr. Wm. Young now being before Parliament; but, whatever its interest may be, we can only realise our thankfulness that this design was not carried out. If this result is admitted, possibly the place accorded on the line at the Academy for this big perspective is justified.

Among the buildings of contemporary interest to be seen in the present gallery is Mr. Mountford's clever design for the new States Hall, Guernsey, won quite recently in competition, and illustrated by us last week. The interior of the "Salle d'Attente" (1728) is boldly shown in a way befitting the handsome scale of Classic work adopted. Externally the perspective is disappointing, and the tower seems open to improvement, the division of its parts at present being too nearly equal.

The New Town Hall, Henley-on-Thames, by Mr. Henry T. Hare, is another boldly conceived work spiritedly designed without smallness or littleness of idea (1765), and next above this municipal building on the line is the Passmore Edwards Public Library at Acton, now in course of erection, by Mr. Maurice B. Adams, in red brick and stone. Messrs. Ernest George and Yeates show three bridges this year, two in timber (1635) and one in stone, the latter at North Myms (1749), all excellent and charmingly drawn by Mr. George, who is one of the few architects who is capable of making an artistic drawing of his own work. Mr. Leonard Stokes does excellent work, and we like the Convent at Colney, which he is building in conjunction with Mr. G. T. Hine, here shown by a good pen drawing (1723). Mr. E. Newton's house at Burley-in-Wharfedale is too near the sky to be seen (1731); but we have no doubt as to its merits. Lack of space prevents our naming many things worthy of note, and among these is Mr. H. Wilson's pastel study of a scheme in which he is associated with Messrs. C. W. Whall and Louis Davis in the elaboration of the Lady Chapel of Holy Trinity Church, Chelsea (1743). It is a cartoon of big size, of dashing ability, florid in idea, and rich in form and colour. The names of Mr. Wilson and Mr. Whall are a guarantee of excellence; but for all that the building can never look like this highly-conventional and very misleading drawing. Mr. H. L. Florence shows the new library and museum, at the Freemasons' Hall, with a domed ceiling (1752) now being built. The water-colour perspective does not do the design justice.

We must now conclude our review for to-



day, and in doing so we draw attention to Mr. Edward S. Prior's delightfully-made model for a stone-built cruciform house (1874), with an inner cloister and court open to the sky. This model is excellent, and the design is most interesting—working out a quaint conceit, but making a house of questionable convenience and uncommon expense. The details of this conception bespeak the touch of a true artist. Another model is a good one by Mr. Charles J. Blomfield of a house at Poulton, Fairford, Gloucestershire (1876)—a building of much greater extent and of quiet and home-like design.

The exhibition contains many poor and inconsequential things—some distinctly poor and uninteresting, and some, too, are old chestnuts. On the whole, however, the collection is a good one.

#### PICTURES AT THE ROYAL ACADEMY.—I.

THE absence of the works of several great painters appears still to leave a gap on the walls of Burlington House. Not only Leighton and Millais, but Albert Moore, Calderon, Marks, and Burgess are conspicuous by their absence, and they all sent subject pictures of note. We look in vain at the great centres of interest in the leading galleries, though these are crowded with canvases, some of them of undoubted ability, and displaying technical resource. On the whole, perhaps, we may say there is less of the purely academic and conventional; painters are beginning to catch the spirit of advanced schools, thanks to the protests so persistently made in other quarters, where the older traditions and methods have been abandoned. If there is less reserve and restraint in many of the works, there is, on the other hand, a proportionate desire to go to Nature direct, or to imitate methods that promise a truer personal interpretation of the facts of nature. Landscapes make a large bid on the public this year. On the other hand, subject and figure compositions are few. Circumstances have also robbed the walls of important works. Mr. Stanhope Forbes' great work, illustrating the Fire of London, has occupied a long time, and has gone to the Royal Exchange, so that we unhappily lose his Academy contributions. So, too, it is unfortunate that Mr. Abbey's important picture of "Katharine of Aragon pleading before Henry VIII." was not finished in time; but two lesser works are exhibited. His chief contribution is in the third gallery, and is entitled "Who is Sylvia?—what is she, that all the swains commend her?" the first lines of a song in scene 2 of Act IV. of "The Two Gentlemen of Verona"—a dramatically conceived picture. The fair Sylvia, in white robe with puffed red sleeves, with her attendants behind—some playing mandolines, is the centre figure, whose personality appears to captivate the disguised man who is leaping against the pedestal of columns to the right. We can only say now that the work is solidly painted, the details show accomplishment, and the colour is powerful.

The Diamond Jubilee has not passed without a pictorial record, and Mr. Gow's large, important picture in Gallery II., crowded with figures, of the scene before the western portico of St. Paul's, where the Archbishops of Canterbury and York gave their benediction to Her Majesty as she halted in her Royal progress, is an interesting reminiscence of an event never, perhaps, likely to be witnessed again. As to its artistic merits, we cannot perhaps say all that we might if Mr. Gow had been left to group and mass the multitude. He had simply to record the event and the diverse groups by aid of the camera; but he has shown much skill in grouping the colours and masses so as to

avoid confusion and distraction. No problem can be more difficult for the painter than that of making a picture of a crowd of persons in uniform and gorgeous apparel, ministers of State, officials, ambassadors, ecclesiastics in their embroidered copes and mitres, the white-robed choir rising in tiers, and the only aim he has is to arrange his masses of colour. In this instance Mr. Gow has been successful. The gorgeous colour, chiefly of scarlet, the caparisoned bays of the Queen's carriage, the trappings and the scarlet-clad postillions form a line of strong and brilliant colour along the lower tier of steps of the cathedral. Above this rise in tiers the great crowd of bishops, clergy, and State officials, and the choir in their white robes. John Charlton's picture of the event in Gallery IV., "God Save the Queen," shows a more rapid perspective of the portico and its crowd of spectators. The view faces north, there is a large space devoted to the cavalry and uniforms of the Indian officers in the space before the portico, but the picture is less satisfactory as a whole. The chief interest is centred in the uniforms of the cavalry occupying the area in front of the portico and the houses thronged by spectators on the north side. In Gallery X. the same scene is painted by Gennaro D'Amato, to which we shall refer again. There are a few differences to note in the treatment. The choir appear to have scarlet cassocks under their white surplices, and the grouping is more pleasing than in the last described.

The President's one contribution is not this time a subject such as a Roman or Pompeian interior, or so characteristic a work as he exhibited in the Third Gallery last year, "The Skirt Dance," full of learned research and technique, but a life-size seated portrait of the Hon. Miss Violet Monckton, the accomplished actress, her hands on her lap holding a closed fan. The lady wears a warm cream-coloured satin dress, low cut, and holds a fan, and is seated on a white marble bench, with a black dog at her side. The background is of dark foliage, through the branches of which sky and sea are visible. The landscape background has some faults: it destroys breadth and simplicity, but the painter has overcome this by the dark subdued leafy background of bay, and the low tones employed. The bright blue and green plumage of the birds, one on the lady's shoulder, imparts a vivid note of colour to the work.

Mr. Alma-Tadema's work in Gallery III. is this time an architectural restoration of the Baths of Caracalla, a building which fitly synchronises in time with the subjects he delights to depict of Roman baths and their marble fittings and fair occupants. It is of large size and of upright proportion. It represents a conjectural restoration of the Frigidarium, or cold-water bath, evidence of the details of which exists. The galley-shaped island of marble forming the centre of the swimming-bath is a feature; but this is partially hidden by a large grey column of marble which rises in the foreground. Round the interior are red marble columns which support the arched vault of the bath. In the foreground is a group of three richly-attired ladies—one with a bouquet—gossiping on a couch, while a number of male and female swimmers are disporting themselves, others preparing to indulge in the favourite pastime. The work exhibits learning and archaeological research. Mr. Alma-Tadema has not only restored the architectural interior of this sumptuous edifice, but has re-peopled it with a fashionable crowd of Roman life in its palmy days. Probably the painter has been helped in his work by the restorations made by French savants, who have brought to light the position of the dressing-rooms, the tepidarium, and the caldarium of this large and splendid structure, which is said to have

accommodated 1,600 bathers. The group of three maidens on a couch of learned design is a picture in itself. Only Mr. Alma-Tadema could have conceived the free and graceful trio of maidens; one sitting on the end of the couch turns her head to chat with a fair lady friend. The harmonious tones of their draperies of light citron green, bluish grey, and drab, look a little weak in contrast with the warm tones and red columns of the background. The white marble tessellated pavement, and the delicate green tint of the water in the bath full of life and animation, are almost perfect in colour and technique. The architectural scheme may be open to question; an arched vault supported by columns of marble with recessed sides and ends, incloses the swimming-bath, one end of which is used for male swimmers and the other for women bathers. The work is accomplished and full of technique, and is worthy of this painter.

Mr. Leader's deftness as a painter of landscape is undiminished. We see the same open-air brilliance, the same sunset effects. He has not changed his style as many have done;—he sees nature in all its varied effects and realistic detail, and transcribes what he sees faithfully, without any misgiving as to method to make his pictures interpret his own personality, or to produce subtle emotions in the minds of a few, and in this way his landscapes appeal to the popular taste. In the first gallery Mr. Leader exhibits his diploma work, "The Sand Pit, Burrough's Cross" (23) in which we see the bent of his genius. A bank of trees is half bathed in evening sunlight. In Gallery III. we have one of his latest landscapes, in which the same presentment of nature is given. "Evening's Last Gleam" (183) represents the corner of a wooded common. The warm glowing light of the evening sun illumines the upper branches and foliage of a cluster of fir-trees, their cold shadows falling on an undergrowth of bracken or furze. "Where Brook and River Meet" (355), is another very beautiful landscape divided by a brook, with blue hills in the distance; but the colour and tone are very different. Instead of a glowing sunlight, we have morning light, rather cold, perhaps, but brilliant and realistic. There is, perhaps, a want of mass of shadow, too much distributed light. "Summer Eve by Haunted Stream" (508) is delicate in handling of foliage and atmosphere, but the composition is rather disjointed, and appear as islands of detached trees. The reflection in the water, and the mist in the distance, are rendered with consummate skill.

We may now briefly notice a few pictures of note in the first galleries. Seymour Lucas has in "News from the Front," given us an episode from the Civil War. The period chosen is the Cromwellian, and the interior accessories and figures are painted with knowledge and technique. "J. J. Shannon's "Babes in the Wood" (13), is broad and sympathetic. The little girl with her brother are in a thick glade of a birch wood, the grey tones of which are relieved by the autumnal yellow and red leaves which form a background to the solitary figures. J. C. Hook sends several works. "Waders" (14) represents a sandy, rocky beach washed by limpid waves—a very beautiful piece of coast scenery, and the "Waders" resemble herons or storks. John S. Sargent's portrait of "Mrs. Charles Hunter" (18), in large black hat, dressed in a fawn-coloured cape, and with low scarlet-trimmed bodice, is one of the best in the Academy. The painter has succeeded in representing the style and vivacity of his lady sitter. John MacWhirter's large mountain glen, "Dark Loch Coruisk" (19), is grand and forcible. Dark-blue mountains surround a lake bare of all vegetation, "black waves, bare crags" abound, and the painter has sought to realise a stanza of "the



Lord of the Isles." H. H. La Thangue is a contributor of several characteristic pictures. "Cider Apples" (28), a boy emptying a basket of apples, is full of realistic truthfulness, and the handling and colour are strong. In Gallery II. his "Cutting Bracken" (121), a woman and man in an undergrowth, is full of vigour; gleams of sunlight fall on the reapers. There is more here than a simple record of labour: the painter interprets peasant toil in its true sense. His toilers are men and women endowed with zeal for their work, however humble, and he tries to impress us with the dignity of labour. His work is always firm and solid. Hugh G. Riviere paints in a rather decorative manner "The Lonely Life" (53), from Christina Rossetti's poem:—

I, a princess, king-descended, decked with jewels, gilded, drest,  
Would rather be a peasant with a baby at her breast.  
For all I shine so like the sun, and am purple like the West.

Peter Graham's grand coast piece, "A Rising Tide," is powerfully painted. Huge dislocated rocks, over and through which the waves and surf beat, form the subject of the picture; but it is the sense of freshness and sea qualities which Mr. Graham imparts to his seapieces that we admire. The seagulls hovering over the rocks, and the fishergirls climbing the rocky pass inland give life to the scene. Ernest A. Waterlow's "La Côte d'Azur" (88) is a large and brilliant landscape. Over Mr. Gow's large Jubilee picture already noticed Arthur J. Nowell has a colossal picture of a well-known and often-painted subject, "Perseus and Andromeda." Perseus, a son of Jupiter, is represented about to kill the sea monster, whose folds are round the chained Andromeda on the rocks. This done, Perseus married her. One legend says Perseus changed the monster into a rock by showing Medusa's head. The composition has merit, and the handling is powerful. John S. Sargent has a portrait of Miss Octavia Hill.

There are painters who have nothing to say: they interpret nature in a literal, mechanical way, often perfectly, and with wonderful technique; but their work leaves no message, or arouses little feeling in the beholder. Others imitate the methods of leaders with more or less devotion and meaning; they catch, as it were, the reflected light of an original exponent, and often produce works of undoubted merit. Thus we have men who have imitated the conceptions and methods of Turner, Constable, Lawson, Corot; or, in these days, of Burne-Jones, the pre-Raphaelite Brotherhood, the French Impressionists, and the hard, flat, mosaic-like handling of the Glasgow school.

H. W. B. Davis, whose charming landscapes with blossoming trees have often attracted attention, sends a very delightful view of the banks of a stream clothed with foliage. Evening light illumines the landscape, the reflection of which in the stream is cleverly handled, and cattle are wending their way along the bank. It is entitled "Going Home." He has also another very fine landscape, "On the Wye," in the next gallery. Mr. Davis is a careful student of nature, and he represents the class of delineator who paints what he sees simply and directly. So also does Mr. Leader. There are others who seek to give us impressions of a more mental kind—effects of sunlight or shadow apart from objects, or some effect of colour or atmosphere to which other details are subordinated. Of this class we find few examples in the Academy.

In Gallery III. one of the chief portraits that will attract attention is Sir W. B. Richmond's graceful presentment of "Miss Muriel Wilson," a society young lady. The painter has, we believe, done justice to the refined classical features and acknowledged charms of this young lady. Seated, she is attired in a delicate grey tinged with salmon, and the grey-window background

revealing a delicate design, sets off the beauty of the figure. Colin Hunter's "Signs of Herring" (138), a grey, misty stretch of water, with birds hovering over disturbed eddies, and his "Kyles of Skye," and the two coast scenes of J. C. Hook, both fresh and green, and sunny. "Grist to the Mill" (232) is the better of the two; but we pause here, to resume our notes of this gallery next week. There is much to call for admiration, a great deal more that is commonplace or mediocre.

#### THE NEW GALLERY.

THE New Gallery opens with a display of pictures of the distinctly modern or advanced school, in which several traditions are followed. Portraiture is strongly represented, and there are some good seascapes and landscapes, but subject pictures are few.

Beginning at the South Room, Herbert Schmalz's portrait of a fair girl in white dress, with blue bow in her light hair, is pleasing. He also sends another portrait (6). W. Llewellyn's "Mrs. Hugh Law" lacks repose; the bright colours of silk blue-lined cloak and the pink are not in harmony. No doubt the painter has produced a characteristic and spontaneous likeness. Somewhat hard and conventional, after the Birmingham school of imitators, is Charles McGere's hilly landscape, "The Lost Sheep" (4), and near it W. J. Hennessey has a large reminiscence of an old Calvados custom, "Le Feu de Joie"—a village green, in the midst of which lads and lassies are indulging in a wild country dance round a bonfire. The landscape and low tones of colour leave something to the imagination.

Reminiscent of the Dutch is William Padgett's "In Flanders," with its windmill and boat on canal, rather crude in treatment and colour. A night effect of "A Street in Dinan, Brittany" (12), by J. Young Hunter, and James Charles's "Evening"—cottages under the shade of large trees, with gleams of sunshine cast over the ground and cattle; and Edgar Wills's "September Sunset" (16) are examples of different renderings. Mr. Edgar Wills is a true exponent of nature. The cattle in the meadow on side of river, and the breadth and atmosphere are handled with much feeling. W. H. Bartlett's glowing coast scene, "Carting Wrack, South Devon" (18)—a rocky headland suffused by a warm sunset—is effective as a study of rock and sea. Charles W. Bartlett is broad in his piece of impressionism, "The Load of Hay." "Saint Geneviève" (24) is a poetically-conceived study of the saint with a lantern in a dark wood. James E. Grace is broader and more convincing in his "Summer Days" than in some of his late work. The tall, delicate foliage of the trees bordering the river, and the atmosphere and bend of the river are attractive. Arnold Helcke, as a painter of seas and rocky coasts, stands high. His "Grandes Rocques, Guernsey," is a fine piece of sea painting; the rolling wave and dark sky are in capital colour, and the subject has a melancholy interest just now. The very brilliant piece of grouping and colour in Miss Flora M. Reid's stall scene, "Vanity, Vanity, all is Vanity" (32), an elderly woman tying on a new cap at an out-of-door stall of odds and ends, is sympathetic in its handling. We admire the technical qualities—the colour of the red stream from the leathern bottle in Mr. C. Perugini's "Ruby Wine." Hung at the end of gallery is a rather decoratively-conceived canvas by George Wetherbee, entitled "Caught," a troop of young girls running on a sandy beach near the sea. In the distance stand huge perpendicular rocks. There is a gracefulness and a sense of motion in the running maidens; the colour is of a light greyish tone. Above this John Finnie sends

one of his solidly painted autumnal landscape harmonies, full of rich tints of russet and gold, "November" (38). Arnold Priestman, in "A Swamp," has a large, lurid landscape of much power. A line of rather stunted trees breaks the expanse of the horizon; the sky is overcast with dark clouds, and the evening shadows cast a gloominess over the scene. The mournful grandeur of night has been realised. Thoroughly "modern" and "open air" in its conception of portraiture is the rather slight and spontaneous work of W. G. Von Glehn (47), a young lady in white dress, with blue sash and large hat, seated in a garden. James Prinsep Beadle's dark and forcible work "The Dawn of Waterloo," a night on the plains, where one dimly discerns the masses of cavalry standing to their horses cloaked, anxiously looking for the dawn of the morrow, is touching in its gloom and pathetic silence. Miss Ethel Walker's "Lamplight" (31), a young girl seated on a sofa, clad in a dress of soft tones of heliotrope under the light of a lamp, is a pleasing piece of harmony and delicate colour. The light is subdued, and the absence of any strong colour is to be noted—not an easy achievement. We pass by "A Grey Day in the Forest," by Hugh Wilkinson (52), a study of leafless trees, to Hubert Draper's carefully-painted subject, "For Saint Dorothea's Day," a sister in convent dress engaged in filling the altar-vases of the chapel with choice roses. The devoted nun has a peaceful face, and the technical qualities of the picture are strong. Then we have a charming side-face of a girl wearing a large hat with low bodice (59), by F. Markham Skipworth, entitled "Lesbia"; works by James Orrock, "On the Trent" (61); and others by Wilfrid Ball (62), J. Ammonier, and Lady Spence Walpole.

One of the chief centres of interest in the West Room is occupied by a wonderful picture by W. Holman Hunt, "The Miracle of Sacred Fire in the Church of the Sepulchre, Jerusalem," representing the thronged edifice or rotunda in the morning of the Greek Easter Eve. The shrine stands in the centre of the interior, embellished with hanging lamps; around are seen various pilgrims from Russia, Armenia, and other Eastern parts; improvised scenes from The Passion are being enacted; the crowd is full of life and expectation. There are quarrels among the pilgrims and Mohammedans, and what is really a religious rite looks to the spectator one of irreverence. The miracle is at last revealed, the fire is thrust out through windows in the side of the shrine. The miraculous fire is then carried by a priest to the Jaffa gate of the city, thence it is distributed to re-light the altar candles throughout the country. Such is the scene which Mr. Holman Hunt depicts with all his wonted minuteness and in bright and vivid colours. We wonder at the movement of the excited throng, the gorgeous vestments, and the different nationalities. It is painted with all the precision and realistic detail of the great pre-Raphaelite, but is lacking in repose.

J. M. Strudwick's "Falling Leaves" is a charming study of Mediaeval sentiment. The pensive-looking maiden of Rossetti type, standing against the carved marble cloister, the paving and openings strewn with sere leaves, is painted in Mr. Strudwick's scholarly style, and is elaborate in its detail of the relief figures on the colonnade.

Miss Anna Alma-Tadema's "The Closing Door" (85) is charmingly finished and delicate in its harmony of colour. The half-agonised look on the lady's face standing near her escritoire, and the hand which is seen closing the door behind her, leaves little to the imagination. The story told is a love disappointment. As for the accessories and the technique, they are unsurpassed. "Beauty Receiving the White Rose from her Father"



(90), by Joseph E. Southall, is quaintly pre-Raphaelite in manner, the drawing and costumes clever. G. F. Watts, R.A., sends three subjects. His best is called "Dedication" (103), and hangs at the end of the gallery. Half-symbolic, half-poetical, the subject chosen represents an angel whose face is buried in her hands before an altar upon which apparently are seen the slaughtered victims of a Jewish offering— young pigeons and turtle-doves. But the painter has a moral, and intends to suggest the cruelty of vanity in sacrificing birds to women's love of fashion? The linen covering of the altar is stained with the blood of these innocent victims. The beauty of the colour is Georgian-esque. His "Peace and Goodwill" (115)—a mother and child asleep—is also charming in its modelling of draperies and harmony of rich tones, if we take exception to the heavy type of figures.

Mrs. Alma Tadema, whose work generally graces this gallery, sends one small study in her dainty style. "The Great Reward" (118) represents a lady at the entrance of her house, and her little girl dressed in a long satin skirt. The mother is holding up a toy figure which the child is anxious to reach. Every detail, the panelled door, the knocker, the dress of mother and child, are delightfully painted with the technique and harmony of pearly hue which this accomplished lady artist can command. Mr. Edward Stott, in "Trees Old and Young" (76) from Keats's "Endymion," shows a change in method and colour; Spenslove - Spenslove's "One Summer's Night" (91) is a large sombre landscape, in deep tones of blue and green, and reflection on rippled stream. C. E. Hallé depicts the legend of May Day Eve in "The Wishing Well," but without the meaning and fervour of a Burne-Jones. Hans Hansen's "Village Fair" (105) is an effective evening street scene; the well-proportioned church tower, whose dark profile is silhouetted against a bright evening sky, and the reflected light on the street, crowded with stalls, are skilfully handled. Amongst portraits we notice Sir William Richmond's Mrs. Marshall, not so successful as his Academy subject. G. F. Watts's portrait of Lord Roberts of Kandahar is scarcely happy. "Mrs. Barrett," by J. W. Godward (132), is a more finished production. The lady is of sallow complexion and auburn hair, clad in close-fitting brown plush dress, resting her arm on a pedestal, on which stands a large bronze bowl. We can at least appreciate the rich harmony of colour and technical qualities; but the drooping hand of the lady is not perfect in drawing. L. Alma Tadema, R.A., sends a portrait of "Mrs. George Lewis and her Daughter" (135), full of careful study, and T. C. Gotch a portrait of a child with her toys, a harmony in white and blue; but we must accord to John S. Sargent, R.A., the merit of expressing character and life in his "Colonel Ian Hamilton" (149). There is nervous energy shown in the thin agile figure of the colonel, which stands out from the grey background.

T. Austen Brown's large, dark, and attractive picture "In a Calf Shed" (150), is strong and robust in its wonderful chiar-oscuro. We wonder where the bright golden light comes from which lights up the bundle of straw which the man holds in his prong, the whole shed is in total darkness; but the calves and their attendant are illumined in a marvellous manner. Other subjects include a large centre landscape by J. Coutts Michie (129), a somewhat conventional landscape; "Feeding Pigeons," by Edward H. Fahey; a vigorous Northern sea-coast in strong colour, with trawlers unloading, by Robert W. Allen, "In Shelter"; "Fleeting Beauty," two fair delicate girls playing with soap-bubbles, in light Oriental costume, lacking in composition and robustness; J. Clayton Adams's "Spring" (139), a garden with blossom; MacWhirter's "Birks and Bracken" (145),

and Moffat Lindner's "Evening Glow" (154), with its amber light on rippled water, are noteworthy.

The North Room is largely devoted to portraiture. J. J. Shannon, A.R.A., has a portrait of a lady (170) seated looking at a print, set off by a hanging. There is character and original treatment here; but his other portrait, of Lady Henry Cavendish Bentinck (199), a full-length standing figure in delicate tones of grey, advancing amidst a garden of hollyhocks, is by far the best portrait. The grace and movement of the advancing figure in greyish tea-gown are well given. The painter's daughter is the subject of quite a decorative treatment under the name of "Magnolia" (222), putting us in mind of one of Mr. Gotch's symbolic studies. The fair-haired girl holds a branch of this blossom, and is robed in rich black velvet, trimmed with ermine, over a gown



THE WATER NYMPH.

SAMUEL FRY, Sculptor.

embroidered in tones of this delicate flower of pink and cream. She stands straight and symmetrically before a green curtain, powdered with a pattern of the magnolia petals. "Mrs. Hal Hurst," by Richard Jack, is a full-length standing figure, in a rich dress of black chiffon, embroidered with silver scrollings; technically perfect, but withal, without any of the higher qualities of portraiture.

Miss Lucy Kemp-Welch's "The After-glow" (173), three cart-horses on the brow of a hill, is strong. Next to it, George Spencer Watson has a picture of a "Mother and Child"—a little fellow, quite unclothed, is lying on a snowy-white bed, and his mother turns round from her toilet to look at him. The harmony of white and blue and the light-red curtain are pleasing. The refined and graceful water-colour studies of Miss Mary Gow, "His Lordship the Baby" and "Corinne" (176 and 185), as usual, represent French *élégantes*, clad in gauzy draperies of brilliant delicacy and whiteness.

C. Napier Hemy's "Derelict Boat" (180) in a tempestuous sea is grandly realistic, and we can see the imitation of another painter of rustic labour in Edgar Wills, "Field Pea Pickers." Alfred East, A.R.A.'s, centre landscape, "The Land that Shakespeare Loved," is less strong than the usual work of this painter, but there is atmosphere and repose.

Above J. T. Nettleship has one of his powerfully-painted animal subjects, a stealthily pursuing bear following tracks in the snow. Geo. Harcourt's "Forgiven," a peasant girl kneeling before her young husband at a cottage door, is larger than its importance demands. The Hon. John Collier's personification of "Evil" (236) is not particularly convincing. The crouching young woman, her eyes askance, with scarlet skirt, sitting opposite a fire in a deserted corner of a common, is not exactly the weird, revengeful creature we imagine. "Sea Holly and Sea Lavender," by Alfred Parsons, A.R.A. (237) is a large and bright coast scene, a sandy creek with sand banks, and a wide expanse of low water, a large area covered with the delicate flower. It has a fresh, open-air effect. Mr. Parsons is still a follower of nature, and not given to imitation. The Balcony has a few good water-colours. We notice, in passing, a nice face of a girl supplicating, "De Profundis," and two charmingly-delineated Cornish subjects by Cesare Formilli, "Age decked with Nature's Jewels" and "The Fisherman's Possessions, St. Ives," both excellent. A careful and spirited sketch of St. John's College, Oxford, by E. Phené Spiers, and a poetically conceived work by Miss M. Winifride Freeman may be mentioned.

In the Sculpture Gallery are to be seen a few creditable works, among them Mr. Samuel Fry, of Netherhall Gardens, Hampstead, contributes a bronze statuette, "Water Nymph," designed for a fountain, in which there is grace and clever modelling. We give an illustration of this work.

#### THE BUILDING TRADES EXHIBITION.

THE Building Exhibition was opened on Wednesday at the Agricultural Hall under auspicious circumstances.

The opening address was delivered by Professor Aitchison, R.A., the President of the R.I.B.A. It was, unfortunately, impossible to hear Professor Aitchison's remarks, and only one type-written copy appears to have been available for inspection; but, as far as we could gather, the address dealt with building exhibitions and building appliances from the days of the ancient Assyrians downwards, and was characterised by the acumen and research which invariably permeate the genial President's remarks.

A vote of thanks to Professor Aitchison was proposed by Mr. J. W. Swan, F.R.S., and seconded, in his usual business-like and apposite fashion, by Sir Arthur Blomfield, A.R.A. On the whole, the send-off was hardly equal to that of the previous exhibitions under Mr. Greville Montgomery's able management. We miss, too, the interesting exhibitions of craftsmanship, which, under Professor Banister Fletcher's chairmanship, formed so attractive a feature of the last exhibition. Possibly the well-deserved confidence in Mr. Montgomery's management has made the response of manufacturers so overwhelming this year that no room could be spared for the displays of craftsmanship. If so, we have little to say, except that it struck us that the attendance of architects on Wednesday was hardly up to the average of recent years. It goes without saying that the architect is the visitor of all others that the exhibitor at a building exhibition desires to attract. Thanks to the co-operation of the consultative council, in connection with the last two exhibitions, this was secured in a most satisfactory fashion. We hope it may prove to have been similarly made certain on the present occasion, in which case there can be no doubt that the painstaking carefulness and invariable courtesy of its projector will attract still more deserved support in the future. We all know what the Building Exhibitions at the Agricultural Hall had sunk to a few years ago, and no member of the architectural profession would care to visit a show in which vacant spaces were filled by sweetstaff makers and exhibitors of that sort. But we are not so certain that the omission of the very interesting displays of art workmanship, which formed such desirable features of the last two exhibitions, is compensated for by the letting of a few extra square feet of space.

Anyhow, the exhibition is a thoroughly repre-



sentative one. Owing to the somewhat late day in the week on which it was opened, it was impossible for us to deal exhaustively with its contents, and by the time our next issue appears, it will be so near the close of the show, that any additional remarks will be comparatively out of date. We are not gifted with the prescience of some of our contemporaries who managed to publish a readable and, no doubt, critical review of the exhibition before it opened; and all we can do, therefore, this week is to draw attention to some of the principal exhibits, and to supplement our notice next week by a review of those which, owing to no fault of ours, have escaped attention here.

One of the handsomest and most instructive stands is that of Messrs. Doulton, of Lambeth. Second to none, either as regards suitability or novelty of design, or the scope covered, the great Lambeth firm's display is an exhibition in itself. A portion of the stand is allotted to the display of a selection of mantelpieces and fireplaces in glazed faience. We notice in the designs a successful attempt to depart from the more or less stereotyped fashions that have hitherto ruled in this department of ceramics. The forms are commendably simple, and the colour effects quiet and restful. The advantages of glazed fireclay as a material for fireplaces are so obvious that we need not enlarge upon them; the ware is always cleanly and bright, and the radiation of heat so gradual that an equal and healthy temperature is easily maintained. It is evident from the new illustrated list which Messrs. Doulton and Co., Ltd., have recently issued, that as regards really artistic designs and reasonable prices, the firm still holds its pre-eminence. A few words must be devoted to the specimens of wall tiling. The same desire for simplicity of arrangement and artistic balance of colour is here evident. The stoneware tiling is of extreme importance in that it offers a material that can be used in confidence for exterior work, or any position where the ordinary glazed faience may seem to be inadmissible. The absence of a high gloss is the distinguishing characteristic of the "Carrara" stoneware, and this will recommend the material to those who dislike the effect of too glittering a surface. Both salt-glazed stoneware and the "Carrara" enamelled stoneware are in use for constructional work, and several important buildings have been recently erected in which they have been introduced; noticeably, the new Birkbeck Bank (Mr. T. E. Knightly, architect), the entire interior of which is built in "Carrara" stoneware, while the banking-hall, staircase, manager's room, board-room, &c., are in glazed faience. In the section specially reserved for sanitary fittings we notice among other things some strong glazed-ware sinks for hospital use. These are arranged so that the bed-pans can be thoroughly cleaned without being handled in any way. This is done by means of a spray and jet, and the valves for these are worked by means of treadle-action. The sink, in addition, has a flushing rim, so that the whole surface can be cleaned after using. There are other patterns chiefly in glazed ware, but suitable as well for ordinary private use. The baths are very varied in pattern and design, Canopy, French, and Sitz forms being among those exhibited. A noticeable feature is the patent vitreous enamel with which the baths are lined. This enamel is very superior to the old metallic enamel, and has a surface as cleanly and lasting as the earthenware baths, while considerably lower in price and more varied in colour. There is one bath which calls for special attention, which is on the same principle as the canopy arrangement having shower, spray, &c.; but instead of the large hood at the back it is merely a skeleton arrangement with a hanging curtain. Amongst the Lavatories there are some very highly finished examples with marble tops, friezes, &c., and specially shaped basins. In all cases where fitted with standing waste and vulcanite plug, the outlet is made as large as possible so as to allow of their emptying quickly. For supporting these tops either ornamental brackets or highly-finished standards are used, so that the whole space beneath shall be quite open. There is also a selection of decorated earthenware lavatories. Well worthy of special attention are some designs for valves, wastes, &c., for independent baths. The closets are shown fitted as for use. One which is specially noticeable is the siphonic, which gives a good water area and depth of seal, and possesses great advantages in its simplicity and strength of action. Amongst others, there are thick-glazed closets for asylum

use, and also one of the *Simplicitas* type, decorated. The "Paisley" cistern is fixed with these closets; but it will be seen in some cases the shell, instead of being made in cast iron as usual, is made in highly-decorated pottery. Messrs. Doulton and Co.'s exhibit includes their well-known stoneware pipes of the ordinary type, and with their "self-adjusting" and "composite" joints—both of which forms have been extensively used for main sewerage schemes, and for the drainage of hospitals, &c. The display of white enamelled fireclay is particularly noticeable, and includes lavatories, sinks, &c., which are samples of excellent manufacture and careful design, embodying the most modern sanitary requirements. Staffordshire earthenware, white and cane glazed, is represented by a selection of closets, urinals, &c., while the Staffordshire blue bricks, also visible on the stand, afford further evidence (if any were needed) of the wide range of Doulton's productions in all classes of ceramics.

No better examples of wood block flooring can be seen than those of Messrs. Charteris and Longley, who exhibit numerous samples of their patent "Perfect" system. Examination of the samples will show very clearly the simplicity and ingenuity of this system. The patent "Perfect" blocks, which are grooved along the bottom of each side, have also at each end a rabbeted tongue which fits accurately into the groove of the block lying next to it. By this means every block is securely keyed to its neighbour in a most simple and effective manner, insuring the absolute rigidity of the whole floor. Many different patterns are shown, proving that whether the design chosen be simple or elaborate the same perfect bond is obtained. One is struck by the immense superiority of this system over those which depend for the bonding together of the blocks on loose dowels or similar contrivances, which may only too easily be left out by careless or lazy workmen. The blocks are laid in a special damp-proof mastic, which experience has proved to be the best obtainable, and one that holds the blocks to the substructure even at very high temperatures. It never becomes brittle, and has a natural affinity for all kinds of woods as well as for cement. The greatest care is taken in the selection of the wood used, and its treatment before preparing the "Perfect" blocks. The method of seasoning adopted is the now well-known Shapland's process. After long and careful experiment it has been found that wood treated by this process is in much firmer and brighter condition than if desiccated in the ordinary way, and also (which is very important) that it sustains no injury to its fibre. Having seen that the method and materials used in this system leave nothing to be desired, it only remains to inquire as to manufacture, and to this we find that special attention has been given. By the use of very high class machinery, which they have patented, Messrs. Charteris and Longley turn out their blocks with an accuracy and finish not often met with, and a close inspection of their samples will convince the most exacting that the pre-eminence held by the "Perfect" system is well deserved. To mention seriatim the advantages possessed by floors laid on this system we may say that: They are absolutely rigid, adaptable in blocks of any size, and in any kind of wood, can be laid in a great variety of patterns especially suited to large areas, basements, school corridors, &c., afford a beautifully smooth surface for dancing, &c. They are sanitary, noiseless, damp-proof, rot-proof, and fire resisting, and make special provision for gaining access to hot-water pipes, &c. This last, which is a special feature, merits some description. Both sides of the trench to be covered with flooring are fitted with strong wood curbs on which the perfected blocks rest. These blocks are then securely fastened by long border blocks, which are screwed into the curb on each side. To obtain access to the trench it is only necessary to unscrew the border blocks along one side, and remove the tongued blocks; these are replaced with the same ease, and the floor rendered perfect again.

We have so often recommended Callender's pure bitumen sheeting that it is superfluous here to do more than to direct attention to its exhibit, shown in connection with those of Messrs. John Knowles and Co., the Ketley Brick Co., and Messrs. Outram and Co. Examples of every method of the judicious application of the bitumen sheeting will be found here, both as a lining for existing walls which are damp, and in conjunction with expanded metal, Jhilmil lathing and plastering

on the top. Specimens are also exhibited of its remarkably cheap and effective application for the covering of railway arches, the lining of reservoirs, and for ordinary damp-course purposes. A word or two of praise is the simple due of the admirable damp-resisting solution, made of pure Trinidad asphalt, and sent out in cans ready for use at 7s. 6d. per gallon. We hear nothing but good opinions from all who have used this splendid damp-resister.

Another stand that will rivet the attention of all visitors is that of Aspinall's Enamel, Limited. Here we have a villa decorated entirely with Aspinall's special decorative enamels, Japan, and sanitary washable "Wapicti" distemper. The effect is as admirable as we are assured it is permanent, as is also that of the numerous small articles inside the villa, similarly decorated. It is well to remind architects and builders that the enamels here exhibited have no connection whatever with those sold in the small tins, or supplied to the retail trade, which, admirably suited as they may be to their purpose, are altogether superseded by those shown here for the use of the practical builder and decorator.

Messrs. F. McNeill and Co. show a judiciously-assorted series of their well-known patent felts for exterior roofing and roof lining, as used by H.M. Government for over 50 years; the principal camps and military stations abroad being roofed with their asphalted roofing felt. Their bituminous or inodorous felt for placing under tiles or slates has been adopted by the principal architects and builders throughout the kingdom, and always with good results. Their dry hair felts for sound-deadening and non-conducting of heat and cold, for covering boilers and cisterns to prevent radiation of heat, are as serviceable as they are lasting. Their new patent metal asphalt damp-proof course, a combination of sheet-lead and fibrous asphalt, which they claim is a theoretically perfect damp-proof course material should be carefully inspected. Their fibrous asphalt damp-course material, the handy form of asphalt damp-course which is now largely adopted by many of the leading architects and builders, will impress all with its usefulness. Their patent pipe coverings are among the best non-conductors known. They consist of dry hair, felt, and slag wool made up in a netted form for covering pipes to protect them from frost or to keep in the heat. Their patent slag wool (made by their own special process) is coming largely into use for fireproofing buildings and sound-deadening, and also for insulating cold-storage rooms and warehouses, and for covering boilers, superheated steam-pipes, &c., to conserve the heat. Their fibrous plaster, a substitute for ordinary plaster, and combination slabs, which are made of fireproof plaster slabs with a backing of patent slag wool, are a handy form for fireproofing and sound-deadening.

Messrs. S. and E. Collier's exhibit, comprehensive and attractive as it is, perhaps after all inadequately represents the enterprise and invention of a firm that makes almost anything in red clay. Their speciality, of course, is their world-famous bright red roofing and vertical tiling, which blends so harmoniously with the green foliage round the thousands of English homes, from the mansion of the peer to the cottage of the peasant, where it has been used. No less renowned are they for their ridging and finials, of which admirable examples are shown. Better specimens of architectural terracotta, too, it would be hard to find; while as for the exhibit of mural and air bricks, chimney-pots, ornamental bricks, pier balls and caps, &c., it is comprehensive enough to enchain the admiration of all who delight in thoroughly well-made and well-designed clay goods.

The British Luxfer Prism Syndicate, Limited, have a display of unparalleled interest in its own line. The chief feature, of course, is the demonstration of their transparent fire-resisting window-glass. A full explanation of the new process of uniting glass by copper electrically deposited in place of the old leaded glazing is given, and sheets of various kinds of glass thus united are exhibited. The Syndicate has had its electro-glass tested by an independent and unprejudiced body, the British Fire-Prevention Committee, and the plates that they have tested, together with the particulars of the heat and water to which they have been subjected, are exhibited. It is, of course, a physical impossibility to show the diffusion of daylight by means of Luxfer prisms in the Hall; but photographs are shown of what has been done in this direction in London,



and samples are on view. Panels of ornamental glass, copper electro-glazed, are also on view. The economic distribution or diffusion of daylight throughout every floor of a building is most efficiently attained, while the manufacture of a fire-resisting window glass is abundantly proved to be an accomplished fact. Of no less interest are the methods shown of improving the illumination behind darkened stained-glass windows, the making of fire-resisting glass lift encasements and staircase encasements, and the making of ornamental glass known as "leaded lights" for door panels, transoms, by the new copper electro-glazing process.

The United Asbestos Company, Ltd., are showing a selection of designs of their "Salamander" decorations for ceilings, walls, friezes, &c. We draw special attention to the ceiling No. 1076, which is in very bold relief. The principal feature of this well-known material is its fireproof qualities. The walls of the stand are decorated in low relief material. The prices are wonderfully low. They range, for the high-relief work, from 4½d. per square foot, and for the low-relief work from 8d. per yard, 21in. wide.

Messrs. Joseph Cliff and Sons have a characteristically fine exhibit of architectural terracotta, glazed bricks (white, coloured, and salt-glazed), and majolica. Their faience mouldings and panels are as good as ever, and so are their terracotta and buff building bricks. Their glazed brick fireplace is worth careful inspection. Tiltman's patent partition bricks, Tiltman's patent continuous scum trough for swimming-baths, also deserve notice. The stand also contains examples of Shoppee's patent dovetailed bricks, Adams's patent dovetail-keyed bricks, "Shepwood" patent ceiling tiles, "Shepwood" patent partition bricks, Hall's patent hanging tiles (9in. by 2½in. face and 6in. by 6in. face), slabbed and loose, the "Grip" patent wall-tile, slabbed and loose, Gregory's patent locking tiles, slabbed and loose, "Imperial" porcelain baths, "Imperial" porcelain bath with glazed rod and feet, white-enamelled and Yorkshire brown salt-glazed sinks in "Housemaid," "Butler," "Kitchen," and other patterns, fireclay closets, and fireclay lavatories of various patterns. A selection will also be found of traps, gullies, and channels in white and salt-glazed wares, chimney-pots, the "Success," &c., together with drain-pipes in graded sizes, Cliff's patent machine-made retorts, furnace lumps, and fire-bricks of various shapes. Manifold as are the forms and uses of the various articles, the high-water mark of excellence of manufacture is indelibly stamped on all alike.

The Anaglypta Co., Ltd., exhibit a large and varied selection of their newest and best productions in extra high, medium, and low reliefs, together with a few very choice and special decorative treatments, for which they have such a wide reputation.

Messrs. Sissons Brothers and Co., Ltd., have a large miniature house decorated inside and outside with Hall's patent distemper. Architects will do well to examine the piece of wood showing the advantage of using the outside quality of the distemper as a priming paint instead of ordinary oil paint to absolutely prevent blistering by sun. We hear continually renewed expressions of satisfaction on the part of all who have used this cheap and effective distemper.

Mr. John P. White has a very fine exhibit of chimneypieces designed by Messrs. C. E. Mallows, H. Wilson, Geo. Jack, C. H. B. Quennell, H. Percy Adams, G. L. Morris, Alf. Cox, Edwin T. Hall, Jas. S. Cooper, and T. W. Hamilton. All are capable of being executed in cheap or costly woods, and the variety in design and the scope as regards cost are as elastic as the level of good taste is uniformly high and the workmanship good.

Another striking collection of chimneypieces is shown by the Bath Cabinet Makers' Co., Ltd. We especially direct attention to the following:—1881, mahogany inlaid chimneypieces; 2177, mahogany inlaid fireplace and overmantel; 2185, mahogany inlaid fireplace and overmantel; 2181, fumigated oak fireplace and overmantel; 2195, fumigated oak fireplace and overmantel, carved; 2196, fumigated oak chimneypiece, plain; 255, fumigated oak chimneypiece, carved. An oak door and numerous examples of carved and inlaid work, repoussé metal panels, grilles, hinge-plates, &c., suitable for interior woodwork, are also shown.

Of all the patent sliding and reversible sash windows we have met with, few equal that shown by Messrs. W. G. and L. England. The sashes slide up and down just as in the ordinary double-

hung window, and are not launched out into space or into collision with one's head, as in the case of some ingenious but utterly unpractical concerns of the kind we remember. All the fittings are in view, and the detachment of the sashes for reversion is simple and easy, and the sashes are completely weather-proof when closed. We have seen many inventions of the kind, but have seldom been so favourably impressed as by Messrs. W. G. and L. England's patent.

No labour-saving and risk-avoiding help to builders is making more deserved progress in the favour of contractors than Mr. E. Palmer's wire-supported travelling cradle, which is so simple and so easily worked as to commend itself to all. All who are not familiar with it should examine it, and mark particularly the facility with which it can be moved all over the surface of a front while the men are in it. The large-sized model (12ft high by 10ft wide) of house, with working model of travelling cradle and tackle on same scale as the copy-building, and a full-size travelling cradle, completely fitted with all the usual blocks, falls, &c., give the visitor full opportunity of seeing the strength and utility of the apparatus practically tested. At the present time these cradles may be seen working at Messrs. Geo. Trollope and Sons' offices, Halkin-street, W., and Motcombe-street, Belgrave-square; 22, Princes'-gate; No. 1, Hyde Park-gardens; Savoy Hotel, &c.

Messrs. John Knowles and Co. have a splendid selection of tested stoneware pipes on view in "Vitrifine" and other materials, with Hassall's patent joints. The practical architect and builder know the specialities of this firm too well to need particularisation at our hands; but not one will fail to renew his acquaintance therewith to his advantage.

And the same may be said of that veteran firm Messrs. Stiff and Sons, who were the pioneers of the revival in terracotta and clay goods, and who still challenge the world for excellence of manufacture and design. No architect will fail to inspect their admirable selection of hard-fired, straight-lined, sharp-edged terracotta, of various tints, or their admirable exhibit of traps, channels, sinks, closets, lavatories, and fender kerbs in majolica.

Another firm on whom Time's ruthless fingers trace naught but the stamp of long-proved dependence and growing prosperity, is that of Messrs. J. Austin and Sons. Some of us remember what sash-lines were like in the early years of the present century, when Austin's Imperial patent superfine sash-line had not fully insured the universal adoption it afterwards attained, and still deservedly enjoys. There may possibly be some architects and builders unfamiliar with the fact that it is now made for many kindred purposes—for greenhouse sashes, for public-house shutters, blinds, &c.—all alike distinguished by the invariable excellence of the well-known "Anchor" trade mark. They will be amply repaid by a visit to the collection on view.

Recent narrow escapes from fire will keep all architects and builders awake to the merits and demerits of methods of fireproof construction. All, therefore, should renew their acquaintance with one of the most reliable systems, the "Cunnah Wright." Walls and floors are effectually protected. As regards economy in space, cost, and time, the Fireproof Partition Syndicate, Ltd., may confidently invite comparison at the hands of all visitors to their well-arranged stand.

Mr. James Woodward will welcome many old and new customers to his capital collection of glazed bricks, manholes, drain-pipes and connections, lavatories, siphonic closets, &c. Many a day's journey may be taken before meeting with a simpler, cheaper, or more efficient and lasting closet than the "Kensington." We have said before that it is next to impossible for this closet to get out of order, while its cost is less than a fifth of that of a high-class valve-closet.

Messrs. F. Jones and Co. show a selection of their well-known patent British-made silicate cotton, or "slag wool," and their fireproof, soundproof and fibrous-plaster slabs. Use and experience have endorsed the many recommendations we have given to both.

Messrs. Wilson and Co. exhibit their well-known "Safety" paving light, with lead frames and level treads for the feet, as used at Hammer-smith Town Hall and in many other places. Fitted either with their improved vertical prismatic reflecting lenses, or their "dioptric" lenses, they will attract attention by their efficiency and extreme reasonableness of price. We may also

draw attention to an ingenious ventilating stove, which insures a constant supply of fresh warm air, and will be found deserving of careful examination.

One of the most complete exhibitions of heating and ventilating is that of Messrs. Matthews and Yates, Ltd. Their "Cyclone" electric fan will at once attract the attention of all interested in mechanical ventilation. Fans on this principle, both open and closed, may be driven by belt, or combined with electric motor, steam-engine, or water-motor.

Messrs. G. Tucker and Son, Loughborough (Stand 119, Row F), have a good collection of red facings, hard weight-carrying pressed brick and sand stocks, and moulded bricks to match; their speciality is a capital hard brick for sewers used in great numbers in London, and adopted for the sewerage works of Cape Town, where many hundreds of thousands have been supplied.

At Stand 10 the Moreau Marble Company, Ltd., exhibit some fine examples of their material, which is a soft, white limestone converted into marble by a chemical process, which does in a few days just what Nature takes centuries to accomplish. The architect will appreciate the greater freedom of design and treatment this material enables him to adopt, untrammelled by the consideration of extras for thickness, and the heavy cost of bold mouldings in natural marbles. The staircase in Sienna Coquillere is an excellent piece of work, and so is the altar screen in Rouge and Sienna Coquillere. Some good chimney-pieces are shown in Rouge and Brocatella Coquillere, and a variety of strings, stiles, panels, and string-courses.

Messrs. William Hampson and Co., Ltd., have a good selection of their well-known and eminently durable stone. It is known geologically as Greenmoor Rock, and has a reputation second to none for steps and landings. For public buildings where the wear is heavy nothing can beat it. It is specified by H.M. Office of Works for Government buildings, and has won the approval of the architect to the London School Board, the engineer of the London and North-Western Railway, and many other eminent architects and civil engineers. Dr. Wallace, the Glasgow City analyst, who has analysed the stone, certified that it contains 92.22 of silica, and 14.8c. ft. in the ton; while Mr. David Kirkaldy tested the stone twice, and found its resistance to thrusting stress 684 tons and 686 tons per square foot respectively.

In the Electrical section, one of the most complete exhibitions of arc lamps and electrical apparatus is that of Messrs. Julius Sax and Co., Ltd., whose long experience in all branches of this industry well warrants notice. We know of no firm whose antecedents better entitle them to the confidence of the architect—either on the ground of efficiency or economy.

The Ratner Safe Co., Ltd., show, in Bay 6, a remarkably unique collection of their unrivalled fire and thief resisting solid bent steel safes, strong-rooms, strongroom doors, plate and jewel safes, and party-wall doors. In the safes, we especially note the doing away with all the ornamental bands, simply attached by screws and rivets, which are obviously sources of weakness, and the legitimate dependence on the inherent strength of the bent plate itself. Hitherto, safes of this description have been costly purchases; but the Ratner Safe Company have solved the problem of absolute security at moderate cost.

The Sanitary Lead Lining and Pipe Bending Co., Ltd., show a remarkably unique series of examples of their specialities. The chief advantages of their method are, simplicity in fixing, the certainty of a perfect joint, practical indestructibility, readiness of replacement, accessibility for painting, immunity from injury by boiling water, or sagging, and economy in cost. A lead-lined system on this principle actually costs less than it would do in 8lb. lead, and is, to say the least, as durable, to say nothing of the other advantages gained.

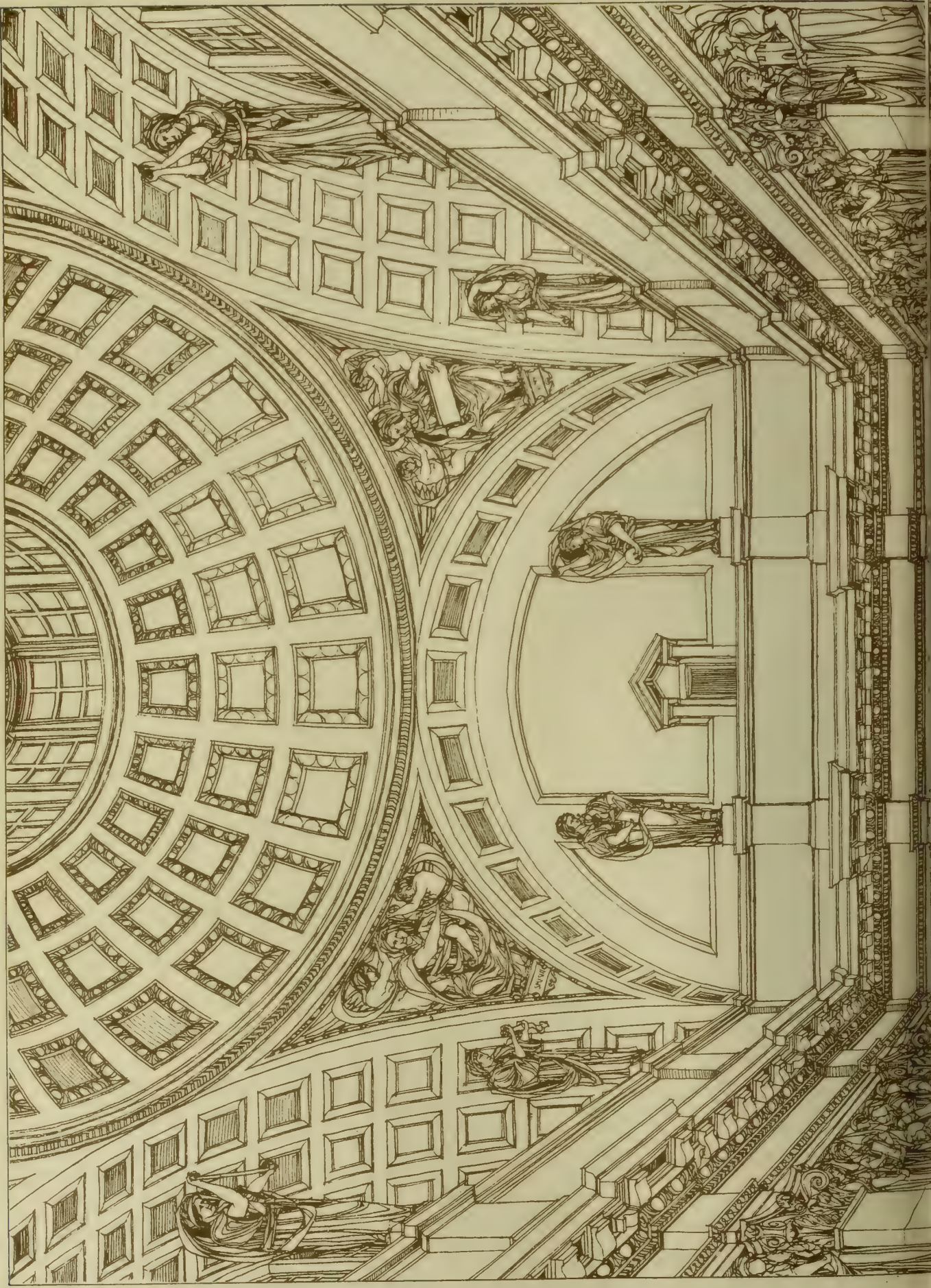
Whatever else the visitor may fail to see, let him not fail to pay a visit to the stall of the London Stereoscopic and Photographic Co., Ltd. (No. 13 in Bay 13 of the Gallery), the sole photographers to the exhibition. Most will find it absolutely necessary to take away with them some photographic record of some of the objects they more particularly desire to remember, and all will do well to secure some souvenir of their visit, if only for "old acquaintance sake," with the firm that has done so much to make the art of which it is the leading exponent a real adjunct to all purposes of convenience and beauty.



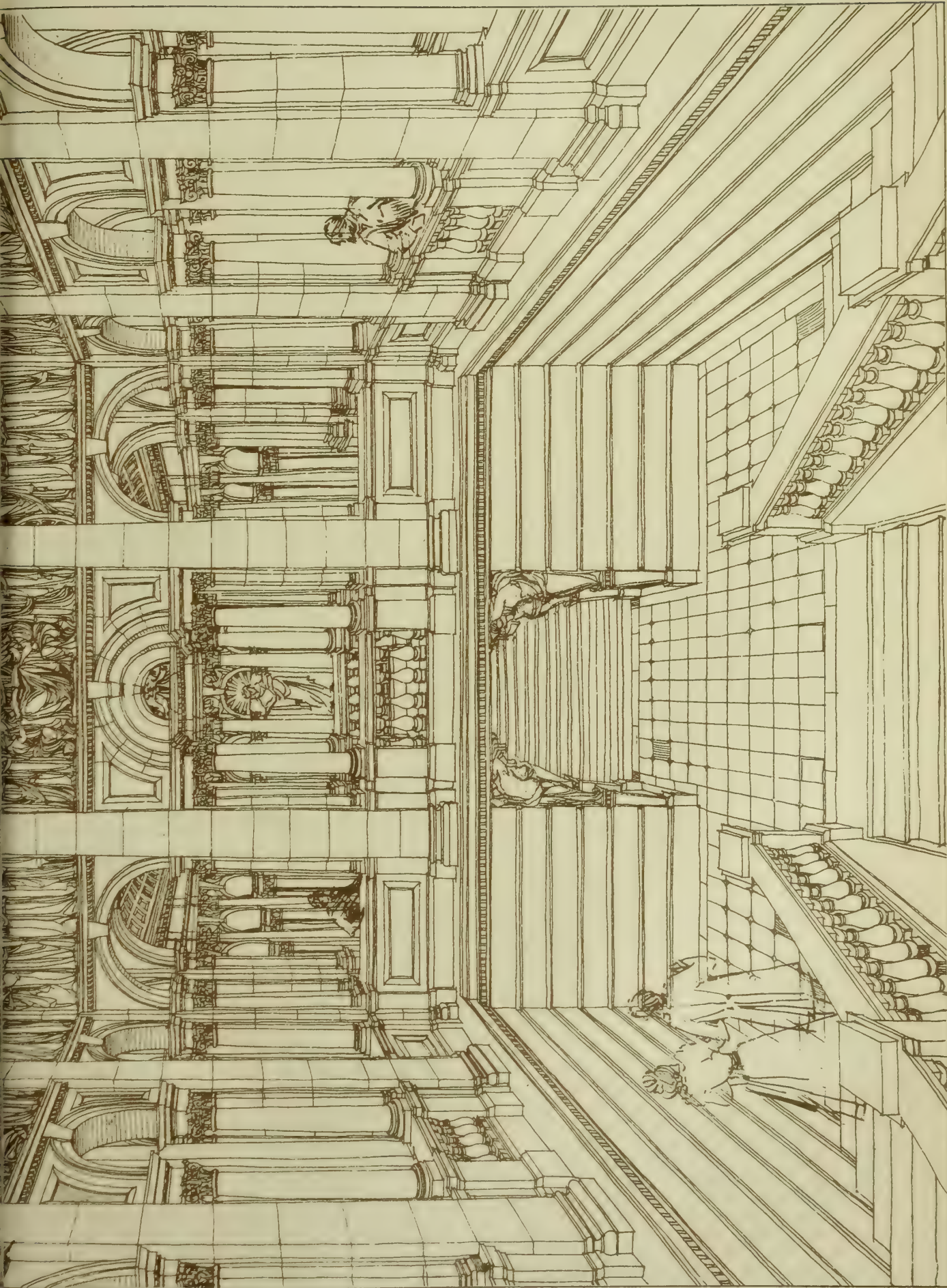




THE BUILDING PEWS, APRIL 28, 1899.







THE GRAND STAIRCASE · GUILDHALL · CAMBRIDGE JOHN BELCHER ARCHT





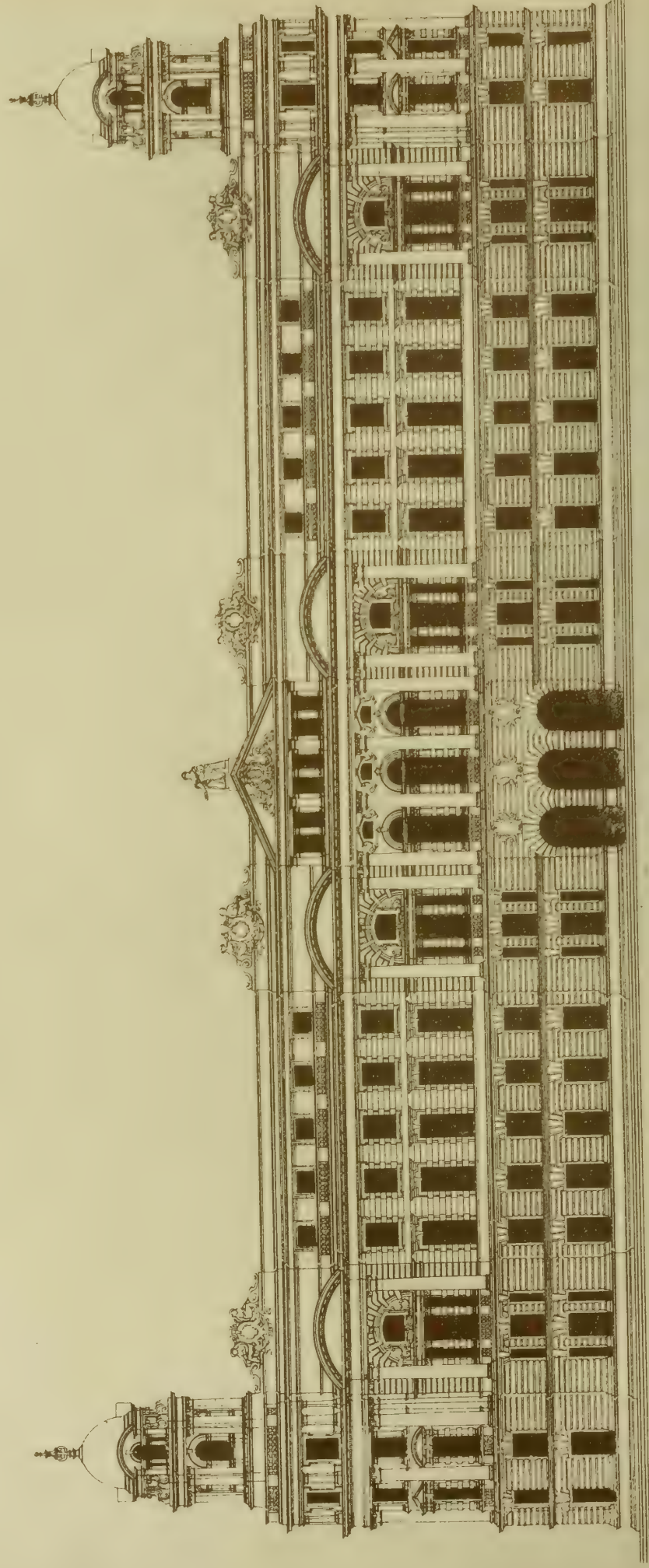






THE BUILDING PEWS, APRIL 28, 1899.

THE NEW WAR OFFICE, WHITEHALL. W<sup>M</sup> YOUNG, F.R.I.B.A., ARCHITECT.

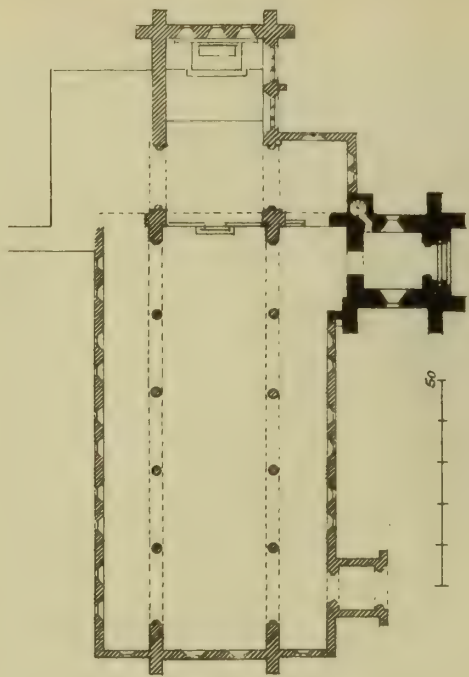
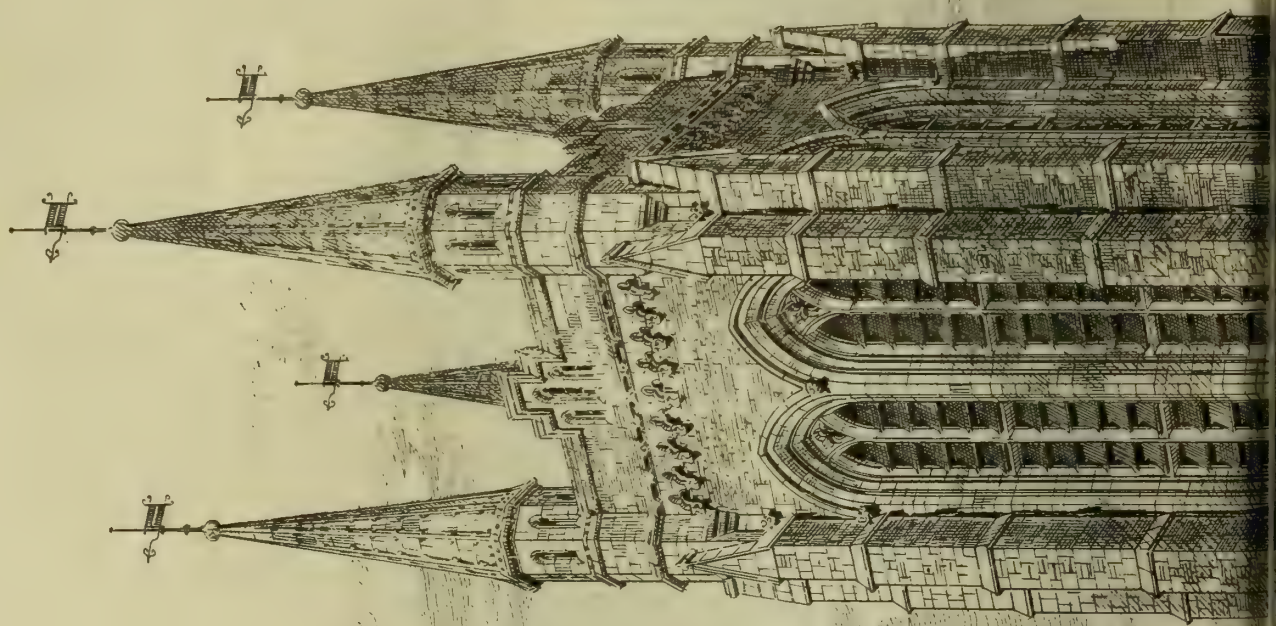


MORSE GUARDS AVENUE

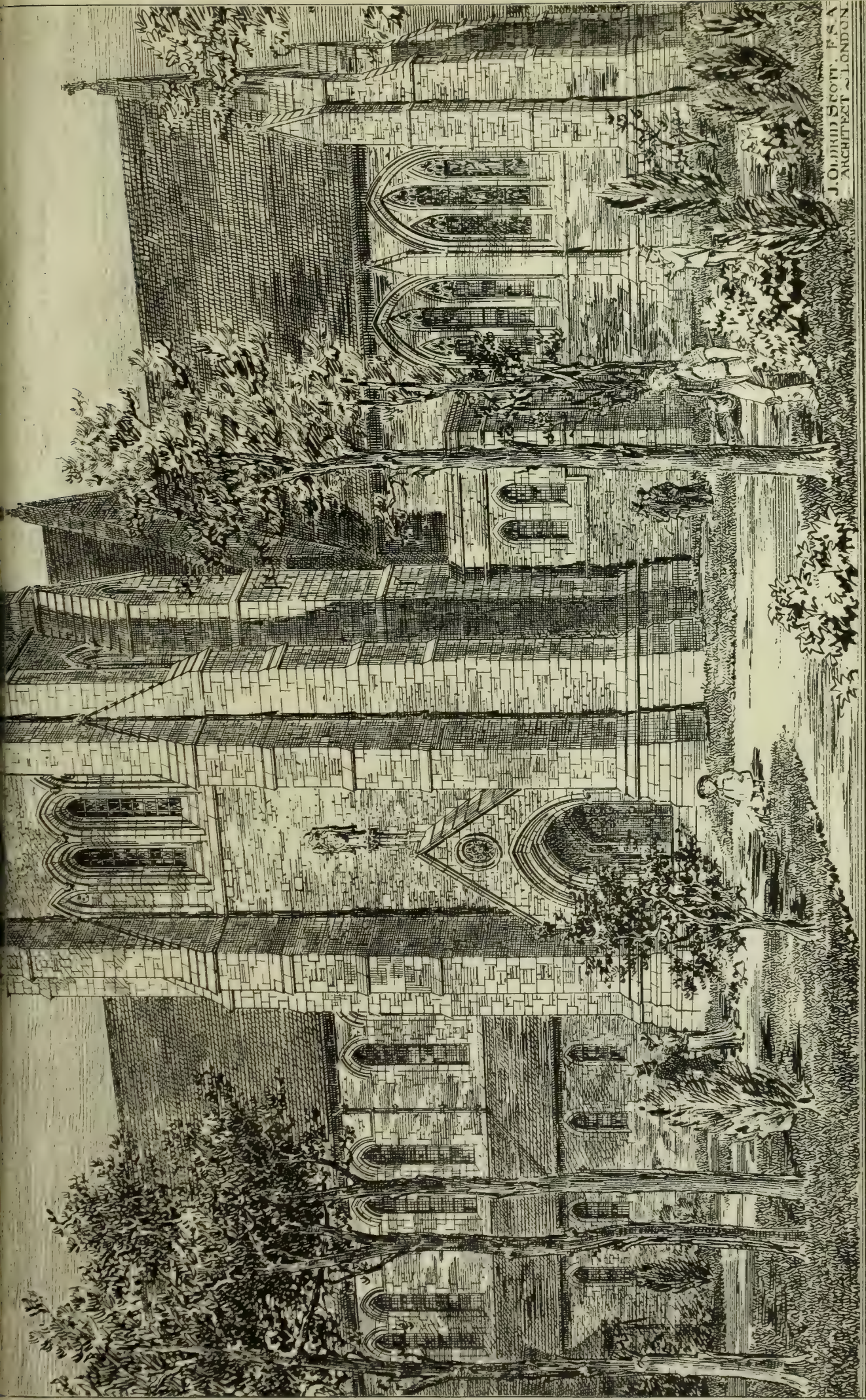








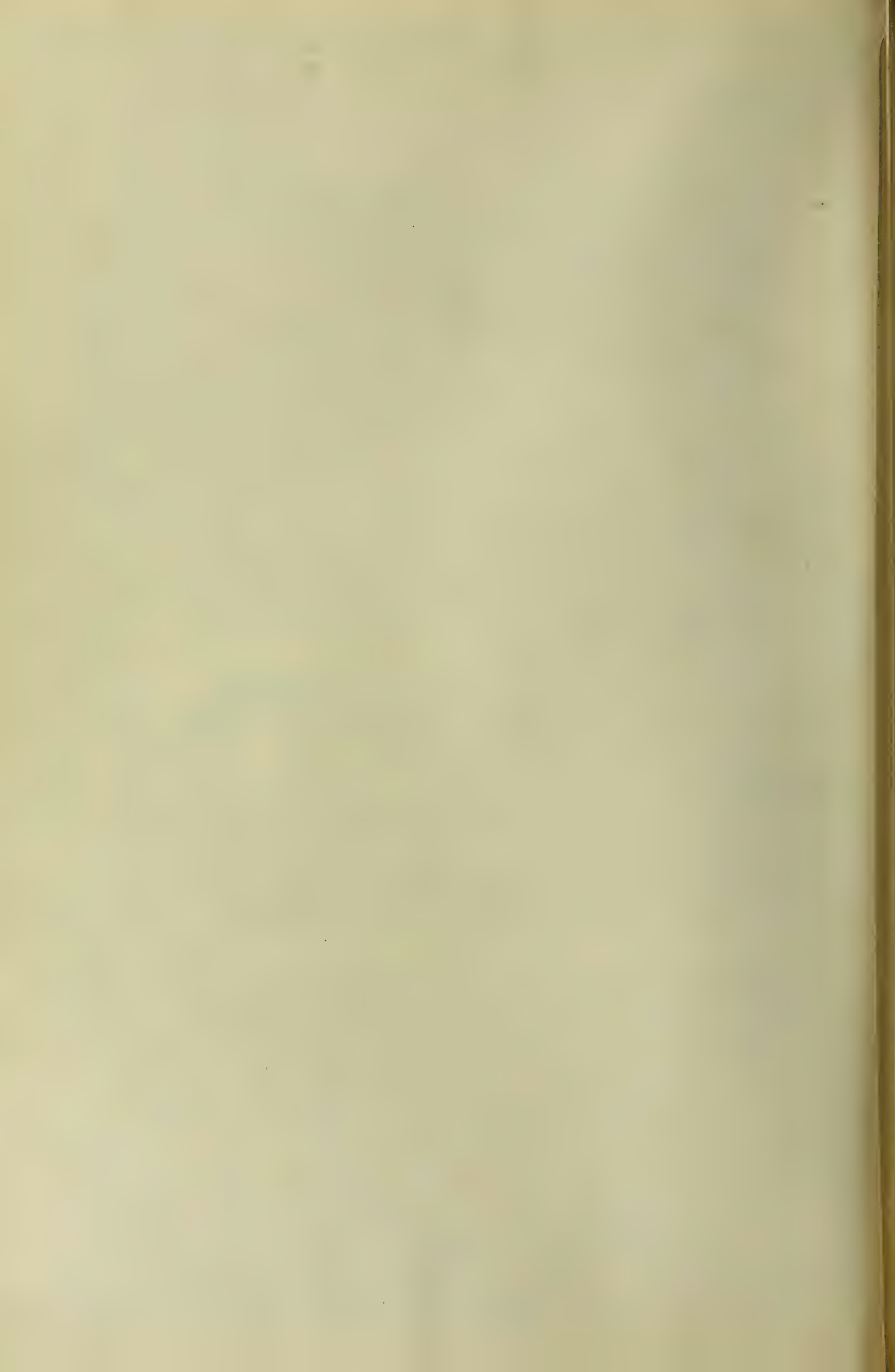




J. OLDRIED SCOTT, F.S.A.  
ARCHITECT & LONDON

S. MICHAEL'S CHURCH: BOURNEMOUTH: PROPOSED TOWER.



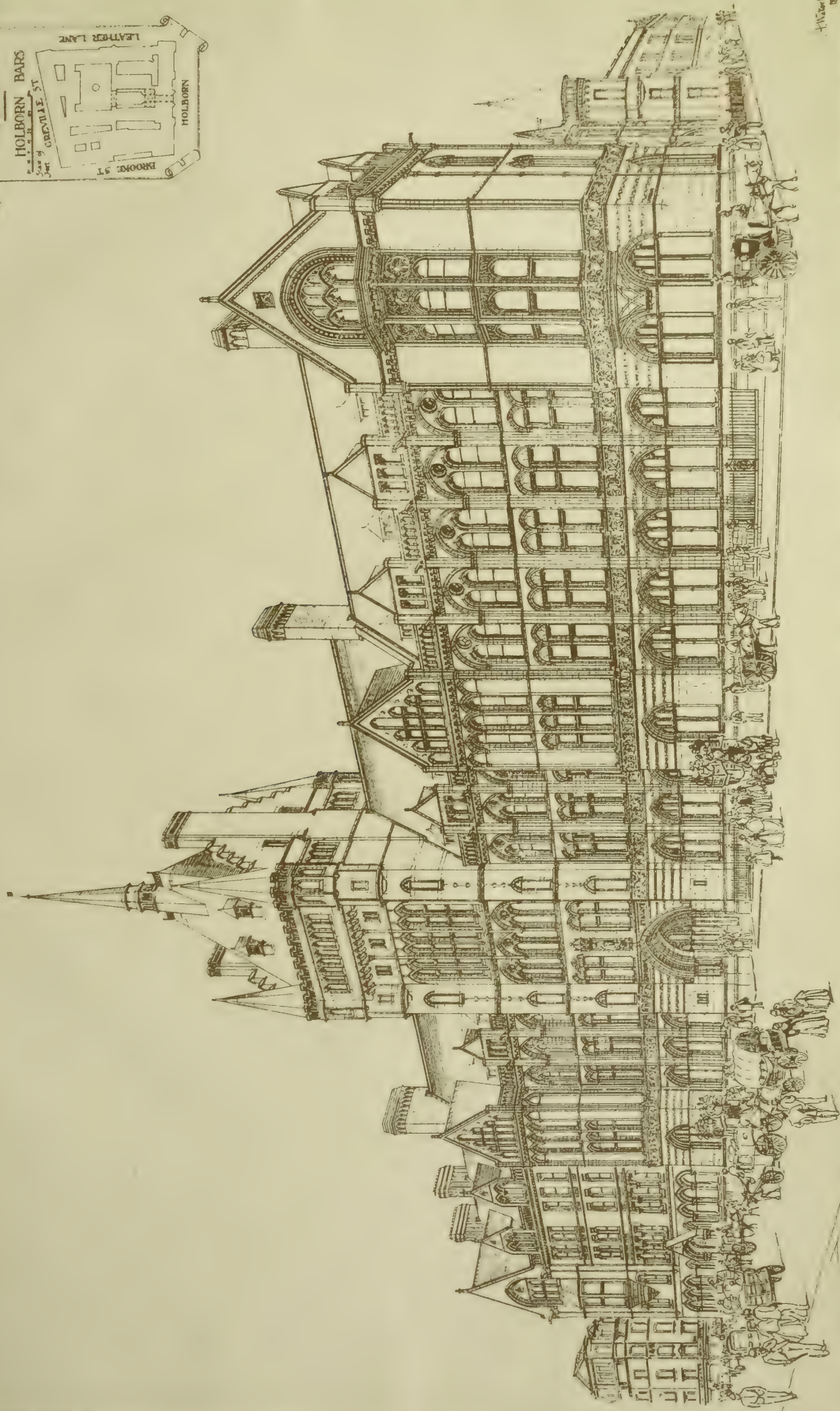




PRUDENTIAL ASSURANCE  
COMPANY

HOLBORN BARS  
Junc of CLEVELAND ST  
Scale of CLEVELAND ST

LEATHER LANE  
HOLBORN  
DROOKE ST



W. & A. G. 1899

THE PRUDENTIAL ASSURANCE BUILDINGS HOLBORN BARS. ALFRED WATERHOUSE R.A. ARCHT.

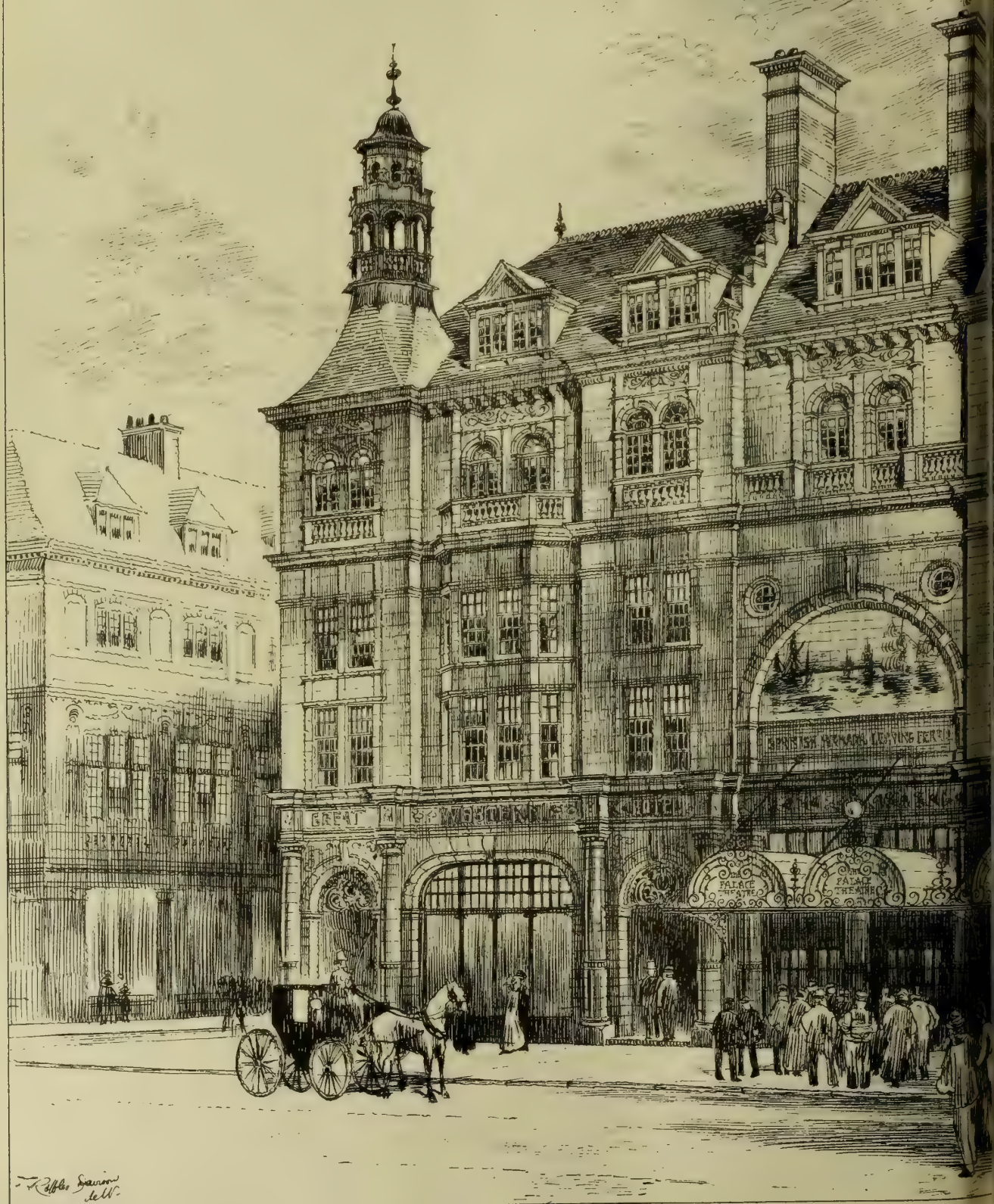




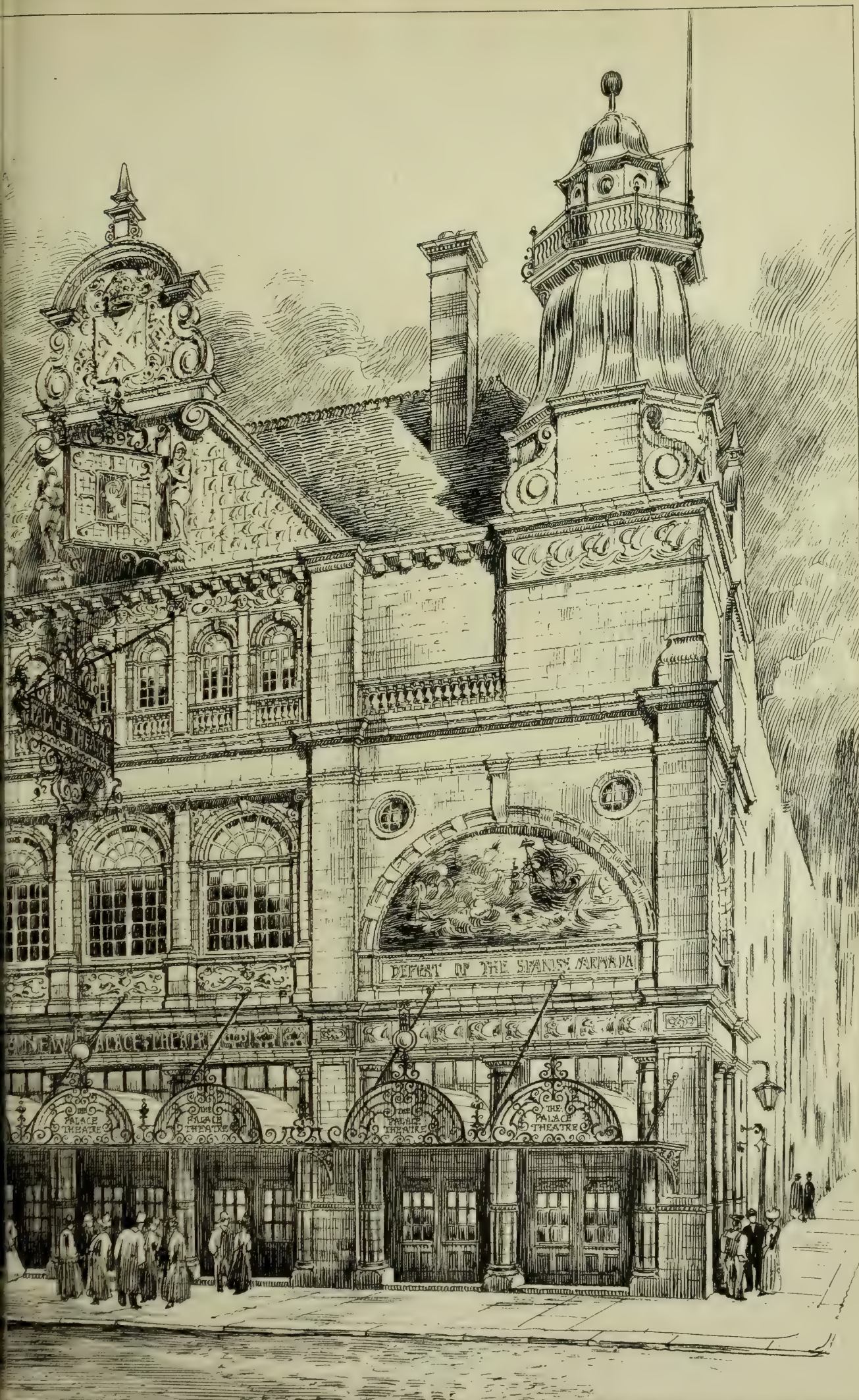




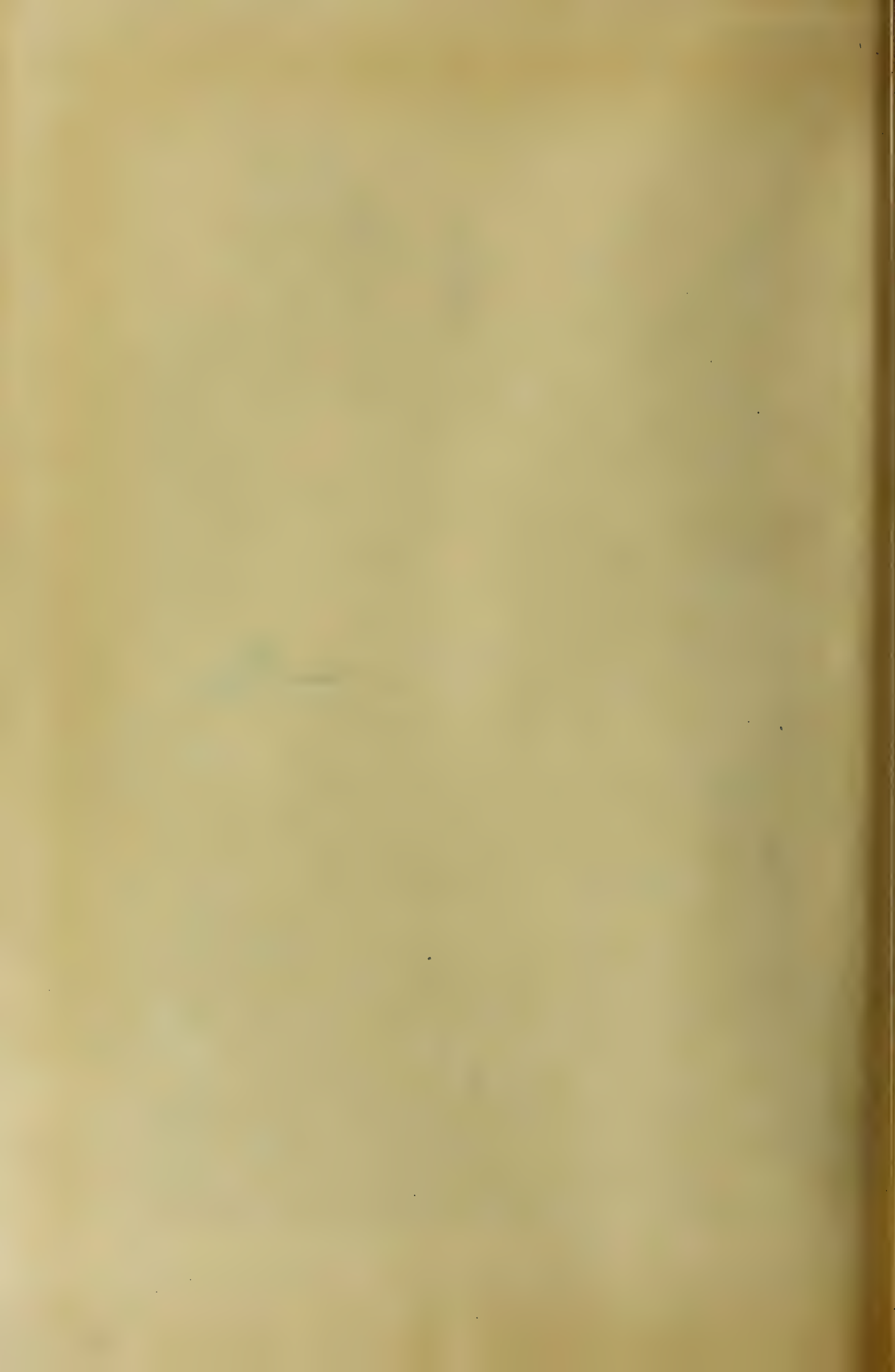














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## ILLUSTRATIONS.

ST. MICHAEL'S CHURCH, BOURNEMOUTH.—PRUDENTIAL ASSURANCE BUILDINGS, HOLBORN BARS.—GRAND STAIRCASE, GUILDHALL, CAMBRIDGE.—NEW PALACE THEATRE, PLYMOUTH.—THE NEW WAR OFFICE.—PROPOSED COUNTY COUNCIL FARM AT GARFORTH.

## Our Illustrations.

## ST. MICHAEL'S CHURCH, BOURNEMOUTH.

This church was built some years ago by Mr. Norman Shaw. It has lately been decided to add a tower, and a design has been made by Mr. J. Oldrid Scott, which has received Mr. Shaw's approval. The position selected is nearly central to the length of the church, the tower standing well forward towards the Poole-road. It will be built of the same materials as the church itself. The approximate cost is about £5,000.

## PRUDENTIAL BUILDINGS, HOLBORN BARS.

This illustration is referred to more particularly in our review of the architectural works exhibited at the Royal Academy this year on page 565. It represents the only exhibit of Mr. Alfred Waterhouse, R.A., the subject being the immense block of Insurance Office buildings, which will form so conspicuous an improvement at Holborn Bars, in continuation of the already existing premises erected by the Prudential Company a few years ago from the designs of the same eminent architect. The key plan given with the view displays the general arrangement of this great scheme now in progress of building. The original drawing is a brilliant water-colour by Mr. Waterhouse himself, our lithographic plate being taken from the outline picture before it was coloured.

## THE GRAND STAIRCASE, GUILDHALL, CAMBRIDGE.

Our first review of the architecture at the Royal Academy, above alluded to, includes a reference to this exceedingly interesting and clever drawing, now on view in the Architectural Gallery at Burlington House. We have not been favoured with any particulars of the work, for which Mr. John Belcher is the architect. Cambridge, so famous for its historic buildings, is already rich in 19th-century architecture, from the designs of several of our foremost men. Mr. Belcher's Guildhall will add to the series in a most conspicuous way, and there can be no doubt as to the cleverness of the design of this grand staircase.

## NEW PALACE THEATRE AND GREAT WESTERN HOTEL, PLYMOUTH.

These buildings, situated in Union-street, Plymouth, have been erected from the designs by Messrs. J. T. Wimperis and Arber. The front is in terracotta, by Doulton and Co., of Lambeth, the ground story being in glazed ware. The two-coloured semicircular panels are reproductions of two pictures by Sir Oswald Brierly—namely, "The Spanish Armada at Ferrol" and "The Destruction of the Armada." Internally the theatre accommodates about 2,000 people, and the decoration is eminently suited to the locality. Some particularly fine paintings in the dome and other decorative spaces, by Mr. H. C. Brewer, represent the famous historical events with which Plymouth has been associated, as well as other great naval and military feats and their heroes. Messrs. W. Johnson and Co., of Wandsworth Common, were the contractors.

The box fronts embodying the leading features of the old battle-ships are strikingly original and effective in design, and these, with the arcading at the top of the grand staircase and foyer, has been capitally executed by Messrs. Hooydonk.

## THE WAR OFFICE, WHITEHALL.

This drawing shows the façade of Mr. William Young's design for the new War Office, towards the Horse Guards' Parade. By reference to the plan which we gave on March 31, it will be seen that the great quadrangle is reached from the archways in the middle of this front, which faces Inigo Jones's Banqueting Hall. Other illustrations will be found in the last four numbers of the BUILDING NEWS.

## COUNTY COUNCIL FARM AT GARFORTH, YORKSHIRE.

The accompanying design is for a farmstead at Garforth, near Leeds, for the joint agricultural committee of the East and West Riding County Councils of Yorkshire. Unfortunately, after the tenders were received, it was decided for reasons of economy to temporarily repair the existing buildings on the farm, and the more comprehensive scheme was put off for a while. It will be seen the plan has been arranged to facilitate a convenient and economical working of the buildings. Accommodation is provided for eight horses, twenty cows, six pens of pigs, and six experimental feeding-boxes. The feeding passages, &c., are so arranged that it will be possible to get to all the various departments under cover, and to facilitate the giving of lectures to the agricultural students, for whose benefit to a great extent the County Councils have leased the farm. There are two yards, one of which will be partly and the other altogether covered, the open boarded roofing being adopted. The design has been prepared by Mr. Joseph Shepherdson, of Driffield and Hull, the architect consulted by the joint committee.

## THE SOCIETY OF ARCHITECTS' DINNER.

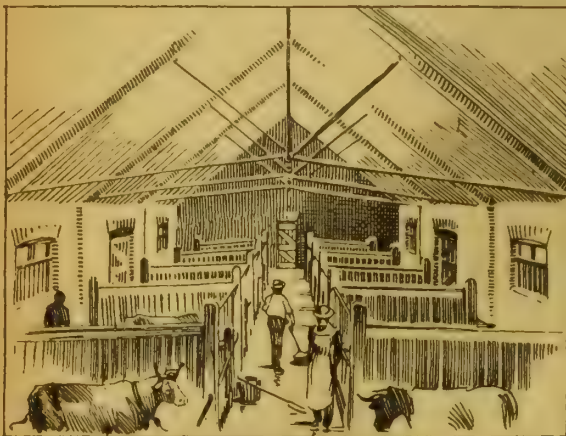
THE fifteenth annual members' dinner of the Society of Architects was held on Wednesday evening, in the Regent Saloon, St. James's Restaurant. The President, Mr. T. Walter L. Emden, J.P., L.C.C., occupied the chair, the vice-chairs being taken by Mr. Silvanus Trevail, of Truro, and Lieut.-Col. F. Seymour Leslie, R.E., Vice-Presidents, and Mr. H. G. Quartermain, Treasurer, and among the ninety guests present were the Right Hon. E. Carson, Q.C., M.P.; Sir David Evans, K.C.M.G.; Sir Jas. D. Linton; Mr. J. A. Rentoul, Q.C., LL.D., M.P.; the Very Rev. Dean Langton Geo. Vere; Mr. T. L. Corbett, Vice-Chairman of the London County Council; Mr. J. Classon Preston, Master of the Carpenters' Co.; Mr. P. A. McHugh, M.P.; Mr. Andrew Murray, the City Architect; Mr. Charles Welch, the City Librarian; Mr. W. T. Madge; Mr. Joseph Randall, the President of the Institute of Builders; Mr. Ellis Marsland, hon. secretary; Mr. C. McArthur Butler, secretary; Mr. Edgar Furness, solicitor to the Society, &c. A letter of apology was received from the Lord Chancellor, Earl Halsbury, who was prevented at the last moment from attending. Sir David Evans proposed "The Houses of Parliament," and referred to the Bill for the Better Government of London as an all-important and desirable measure. He coupled with the toast the name of the Right Hon. Edward Carson, remarking that Mr. Carson's father was an architect, and while he could not understand why that gentleman did not bring up his son to the practice of his own art, all members must regret that their distinguished guest had not devoted his abilities to their profession instead of to the law. Mr. Carson, in the course of an eloquent and humorous reply, said not only was he proud to be the son of an architect, but originally he was intended to follow that profession himself, and the training he gained in reading a plan and interpreting a specification came in very opportunely, by a curious coincidence, in the first action in which he was briefed—a building case, in which he was able to utilise his technical knowledge in trying to get round the idiosyncrasies of the judge and jurors. The Houses of Parliament met in one of the most magnificent architectural monuments of the present century; but he did not remember many discussions arising as to how they might bring about greater symmetry in the architectural features of London. He was not so certain as Sir David Evans had been

that the London Government Bill was likely to be beneficial, and he was not sure that he fully understood it; but every member was not bound to make a study of every measure, and certainly the omniscient member was not beloved in the House. Mr. J. R. Manning proposed the health of "The Clergy," coupling with it the names of Dean Vere, and the Rev. H. J. Pulley, M.A., who responded, the former very rev. gentleman claiming, in an anecdotal speech, that the Church was the mother of Architecture, and that consequently architects owed very much to the clergy. "The London County Council" was proposed by Mr. Ellis Marsland, who remarked that, although it was rather unpopular, no public body had done more hard work, and had done it so well, as the Council. Mr. Corbett, in responding, referred to the criticism with which the designs for the Vauxhall Bridge had been received, and said that he could only congratulate himself that the tide of criticism had rolled somewhat further down the Thames, and that the County Council for once found itself in the respectable society of the Dean and Chapter of St. Paul's. The toast of the evening, "The Society of Architects, and Architecture," was given by Mr. Rentoul, Q.C., M.P., in a very amusing, if discursive, speech, in the course of which he remarked that architecture was honoured in the fact that our greatest modern delineator of human character had selected an architect as the type of his greatest scoundrel in the person of Mr. Pecksniff. Joking apart, the architect alone among the professions left a lasting and distinctive mark behind him in his buildings. His great disadvantage was that he had to execute sometimes potboilers as he had to work for his living, and was often obliged to carry out buildings in which he had to alter his designs to suit the stupid whims of his clients, a glaring instance of this being the New Law Courts, the best-abused building of modern times, in which Mr. Street was cramped and his plans spoiled by the direct orders of the First Commissioner of Works. He coupled with the toast the name of the President, who in his reply referred to the aims of the society and what it had accomplished. The young Society was started with the purpose of giving life and vitality to the profession. Its first object was to secure the registration of architects, and their consequent recognition by the State; all architects seemed to be agreed on the principle of the Architects' Registration Bill, but hitherto it had been no one's business to push it forward into law. Architects were also at one in urging that there should be in the Metropolis and in every urban and rural district uniform building regulations, wielded by one authority, and for that reason he, for one, did not look with favour on the London Government Bill in its relation to this question. The necessity for fresh legislation to simplify procedure in relation to questions of light and air was urgent, and in this respect the practice of Deans of Guilds Courts as carried out in Scotland afforded a useful precedent. These suggested reforms in registration, uniform building regulations, and light and air questions would involve a large expenditure of labour, time, and money to carry into statutory effect, and in their endeavours to promote these measures, he thought the Society was deserving the support of all members of the profession. Mr. Silvanus Trevail, in proposing "The Arts and Crafts Allied to Architecture," observed that the British Government and our municipalities were deplorably mean and stingy in the amounts allotted for public buildings and their decoration as contrasted with the public spirit displayed in all architectural and decorative matters in the United States, France, and Austria. He coupled with the toast the names of Sir J. D. Linton, who, in his response, referred to the intimate relations that should exist between the architect and decorator, and Mr. Joseph Randall, who spoke as an employer of labour. The remaining toasts were, "The Visitors," given by the President and acknowledged by Mr. J. Classon Preston; and "The Press," proposed by Lt.-Col. F. S. Leslie, R.E., and responded to by Mr. W. T. Madge. Some part-songs were given during the evening.

In the estate market, during the last week, some good business was transacted, notably by the sale of some town houses which hitherto have been a source of such disappointment. The returns, including Messrs. Fox and Bousfield's sales, not officially reported, are £186,763.



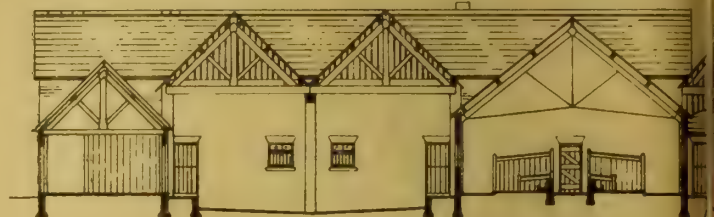
# Proposed Buildings at the County Garforth - York



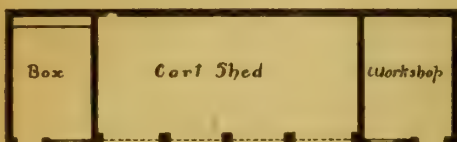
INTERIOR VIEW



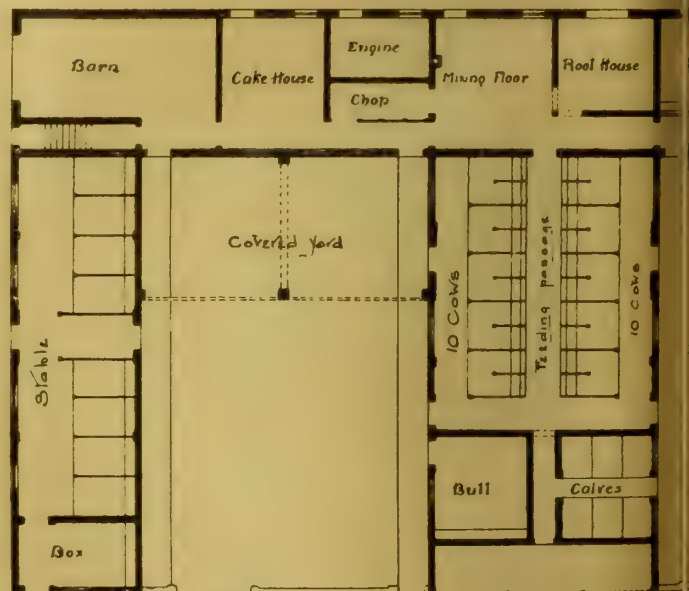
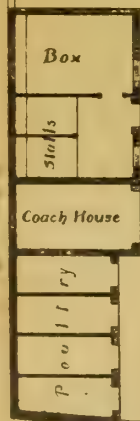
Elevation.



Section.



Stack Yard.



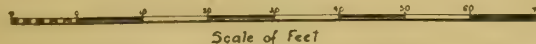
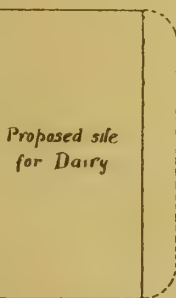
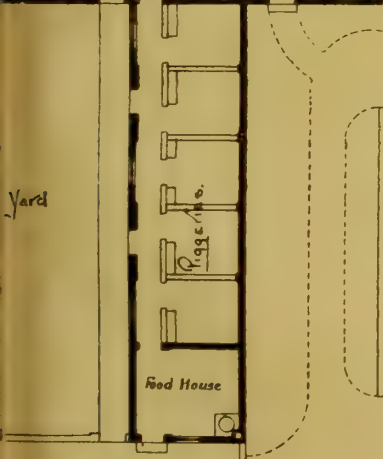


APRIL 28, 1899.

# Councils' Farm at ire.



VIEW OF FARM  
from SW.



JOSEPH SHEPHERDSON ARCHT.

MARSHALL 80



## THE SURVEYORS' INSTITUTION.

## ANNUAL COUNTRY VISIT.

AFTER an official reception on the morning of Wednesday, 26th inst., of the members visiting Bristol, by the President of the Institution and the members of the local reception committee, and a welcome to the city by His Worship the Mayor, on behalf of the Corporation of the City, the business of the meeting was commenced by the reading of a paper by Mr. Sturge (past-President) on "Bristol," which, compiled from the many sources of information which were at the disposal of so old a citizen as Mr. Sturge, and reflecting, as it did, so much of his own personal knowledge of the growth of the city over a large number of years, proved to be exceedingly interesting. Bristol, said the author, was one of the most ancient cities in England, but its origin was somewhat obscure. In 1086 it was described in Domesday Book as part of the Royal Manor of Bertone, known to this day as the Hundred of Barton Regis. In Stephen's reign it was described as almost the richest city, receiving merchandise from neighbouring and foreign places, in a fertile part of England, and by situation the most defensible of any city in England. Again in the reign of Henry II. it was referred to as a port full of ships from every part of Europe. Edward III. made it a county of itself, although geographically it is situated in both Gloucester and Somerset. Under Henry VII. John Cabot, a foreign merchant, of Bristol, under letters patent, sailed with a fleet of six ships and discovered Newfoundland. To his honour the "Cabot" Tower\* was erected in 1897. By Henry VIII. it was created a bishop's see, but during this century was united with Gloucester, and again, in 1897, was made a separate bishopric. The city suffered severely during the Civil Wars, being successively occupied by Royalists and Parliamentarians. Macaulay spoke of it as being next in importance at this time to London. In 1685 the hearth-money returns show it to have contained 5,300 houses, inhabited by probably 29,000 persons. At the beginning of the last century many improvements were begun and important houses erected, and in 1832 the boundaries were extended to include Clifton and other parishes, the ancient city of 755 acres being enlarged to 4,879 acres. The municipal boundary now included 11,468 acres, or nearly 18 square miles. The estimated total population was now about 320,000, and it was noticeable that during the past 90 years the population within the same area had increased almost 400 per cent. Mr. Sturge proceeded to give an interesting account of the foreign commerce of Bristol and the construction of the harbour in the early part of the present century, and the purchase of the Dock Estate by the corporation in 1848, the resulting reduction of dues raising the foreign shipping trade from 100,000 tons in 1849 to 800,000 tons in 1898. In the latter year the Customs duties amounted to £1,846,889, an amount only exceeded by the ports of London and Liverpool, and new schemes were now afloat for increasing the dock accommodation. The manufactures of Bristol were also very numerous and extensive, ranging from tobacco and cocoa to boot and shoe factories and chemical works. The places of recreation for the people comprised the downs of Clifton and Durdham of some 400 acres, purchased by the corporation in 1860; Brandon Hill, Eastville Park, Windmill Hill, Redland's Avenue, and many smaller open spaces. The schools and educational establishments were very numerous, and many of them of very ancient foundation. The water supply was, said Mr. Sturge, admirable: the principal proportion being taken from springs at Chewton Mendip, fourteen miles distant, the company's three storage reservoirs now occupying an area of 130 acres, besides a new reservoir now in course of construction at Blagdon, several hundred acres in extent. The gas-lighting and the tramway service on the overhead wire system were mentioned, and reference was made to the coming extension of the latter system. The civil government was, the author said, vested from very ancient times in a corporation, the office of Mayor dating, at least, from the reign of Edward III. Property, which was as a rule held on freehold tenure, or subject to a small quit-rent, had, in the principal business streets, very much risen in value during the last

twenty years, as much as £110 a yard being paid for a corner position, and, in another case, a ground rent of over 30s. a yard per annum.

The second paper was read by the secretary in the absence of the author, Mr. W. M. Acworth (Barrister-at-Law), in which the writer dealt with the railway rates under the title

## "THE RAILWAYS AND THE FARMERS."

The author disclaimed any particular bias in one direction or the other, as he was only a railway shareholder or an agriculturist on an equally microscopic scale; but he wished to view the matter from a perfectly impartial standpoint. To begin with a somewhat startling statement, he concluded that, as a whole, railway rates for the conveyance of agricultural produce in England were not excessive, and compared with similar rates for similar produce under similar conditions in other countries were low rather than high. Figures might be made to prove anything, but this method of argument produced no practical results. But to give one instance. For the sum of 4d. the Great Eastern Railway would bring from any part of the district, say 80 or 100 miles from London, and deliver free at the consumer's door, a box of 20lb., which would hold a considerable number of small items of agricultural produce, worth probably 10s. or 12s. This did not seem excessive, and after deducting cartage would leave only about 1d. to cover the 100 miles railways transport. The often quoted American tariffs for large freights over long distances did not in any way compare with such rates. The Great Eastern rates did not obtain all over the country, but their system was being gradually adopted, and reductions had during the past few years been made of from 10 to even 40 per cent. of the old rates. He believed it might fairly be contended that the rates in England for small consignments of perishable produce were as low as those in force in France, Germany, or America, and having regard to speed and convenience of service, they might be said to be even lower. The fact was that English farmers sent much of their produce in retail quantities and necessarily at retail rates, while foreigners sent wholesale at naturally much lower rates. Again, in England the geographical conditions were different. In America, in France, or in Germany the supplies of the capital were drawn from the farthest corners of the country, while, except in the south-west of England, the produce had rarely to travel more than fifty miles to market. The average percentage of carriage to market on the value of the produce would work out at about 2½ to 5 per cent. for meat, 1½ to 2½ per cent. for butter, and perhaps 7 per cent. for milk. The price of perishable produce in London was often lower than in the country. These figures, he thought, showed that railway rates were not, as was often contended, responsible for agricultural depression. The railways could make out a good case for saying that they do the farmers' carrying at a fair price, but this was not the whole truth. Everyone, farmers included, wanted lower rates, and English farmers might have them if they cared to if they would abandon their antiquated methods. In the Southampton Docks case it was shown that American bacon in train loads was brought to London at 6s. 8d. a ton, while English bacon in parcels of a few hundredweights each was charged 15s.; but the company were able to show that the former rate gave a gross train mile profit of 12s. 6d., while the latter rate only earned gross 5s. per mile. Cost of working averaged 2s. 6d. per mile, so that the net earning on the foreign produce was 10s. per mile, and that on the native produce 2s. 6d. If farmers would co-operate, and take advantage of the much-reduced rates which the companies were always ready to quote, they might reduce the cost of carriage very considerably. Mr. Acworth instanced one case of a town 150 miles from London where the rate was 41s. 8d. for consignments of meat under a ton, while it was only 29s. 2d. for three tons, and yet farmers went on individually sending up small quantities at the higher rate, when a little arrangement would enable them to save some 12s. 6d. per ton. It was the same with corn and dairy produce. Co-operation paid the producer and the carrying company as well.

## LOANS FOR HOUSE PURCHASE.

A paper was read by Mr. Howard Martin (member of Council) on "The Recent Proposals to Enable Working Men to Purchase Their Dwellings by Means of Loans from Local Authorities," in which the author criticised the

various measures which had in late years been brought before Parliament with the object indicated in the title of his paper. It must not, he said, be forgotten that England had become great in the practice of the principles of individualism, and by means of the self-help and energy which it had fostered. Her political freedom and business prosperity had been developed by the energies of individual citizens, unhampered by State interference and unenfeebled by State aid, and it became now important to consider what would be the probable results of driving personal enterprise out of the field by competition on the part of public bodies. There seemed a probability that if any legislation were effected in the immediate future it would be on the lines of Mr. Chamberlain's Bill, which was in certain respects likely to prove the most passable and the most workable. He would therefore deal with this Bill. It provided that a local authority of a county or county borough, or an urban district with a population of 10,000, might advance to a resident a sum sufficient to enable him to buy his house, provided the sum does not exceed four-fifths of the market value, or £240. The advances might be for 30 years, at a rate presumably of 3½ per cent. The repayment was arranged so that if principal and interest were paid off together the rate would come to about 5½ per cent. per annum on the loan. The local authority could only advance to an occupant or intending occupant, and the house can only be held by the borrower (during the term of repayment) subject to punctual payment, to insurance against fire, to his continuing to occupy it, to its being kept in good sanitary condition and repair, and under other restrictions. The borrower might only transfer his interest in the house to the person intending to reside in it. Where the statutory conditions were not complied with the authority might take possession, or on breach of covenant might order a sale by auction. Where the authority took possession they must pay to the owner either an agreed sum or the value of his interest less the amount of interest or advance remaining unpaid. All costs of taking possession were deducted from the payment to the owner, and in the event of an auction proving abortive the authority might take possession without paying anything to the owner. The owner might, under certain conditions, let his house, or reside away from it by special permission of the authority. The expenses of carrying out the measure were to be paid by the ratepayers up to a penny in the pound. The Bill would prevent its powers being utilised for speculation or investment, as it applied to occupiers of the premises only; but in times of business adversity, when cottages stand empty, it would be difficult to find occupying purchasers from the holders of advances driven to seek employment elsewhere. The Bill was entirely permissive, the authority not being bound to lend nor the owner to sell. There could be doubt that, in the abstract, it was desirable to interest as large a proportion of the population as possible in local and national affairs and in the prosperity of the country and of each man's district by making the ownership of the soil as wide as possible; but the conditions of the case were too complicated to be decided on abstract principles, and the matter must be looked at practically. It seemed probable that an act limiting ownership to the actual resident would not be largely applied, for, however desirable such a limitation might be morally, it was a bad investment financially for a man of small means. Outgoings were uncertain, accidents and necessary repairs must be met, and the varying and increasing requirements of sanitary authorities might prove a serious addition to liabilities. Mr. Martin gave a typical instance where the outgoings on an estate of 280 houses in South London, including arrears, amounted to 45 per cent. on the gross rental, and he doubted whether an estate properly repaired and kept up to modern sanitary requirements ever averaged much less. Such outgoings could only be met by small owners setting aside a proportion of income. The income obtainable from small house property was very uncertain, whereas a poor man's investment should be as certain as possible.

In the evening the members dined together at the Grand Hotel in Broad-street, and for the following day (yesterday, Thursday), we hear, as we are going to press, that several successful extensions have been organised, one embracing Bristol, Clifton, and the neighbourhood; a second including Tintern Abbey and Chepstow Castle; and a third Wells and Glastonbury.

\* Designed by Mr. W. V. Gough, of Bristol, and illustrated in the BUILDING NEWS of Sept. 9, 1898.



### THE PROPOSED HOLBORN-STRAND NEW THOROUGHFARE.

THIS scheme came on Friday, Monday, and Tuesday before the Parliamentary Committee to which the London County Council's Bill has been referred. It is proposed to acquire most of the property on the north side of the Strand between St. Clement Danes and St. Mary-le-Strand, and to form two branch streets, one from St. Clement Danes, and the other from Wellington-street, converging at Stanhope-street, and running thence to Southampton-row. The main thoroughfare and its southern branches are each to be 100ft. in width. Upon the area thus cleared new buildings are to be erected. The cost of the land to be cleared would be nearly four and a half millions sterling; but the Council propose to defray the bulk of the outlay by an elaborate system of betterment and recoupment, without which, it was admitted by the County Council, the scheme could not be undertaken.

On Monday the Right Hon. G. Shaw-Lefevre, who has twice held the post of First Commissioner of Works, was examined before the Select Committee. The scheme would, he said, alter the whole character of the district in question, and would turn it into a most valuable business locality. Sir A. R. Binnie, chief engineer to the County Council, was also examined. He said it was not proposed to interfere with the fabric of St. Clement Danes Church, but only to curtail the disused churchyard. It was originally proposed that the new street from Holborn should run direct into the Strand; but the new scheme, by which there would be crescent arms running east and west into that thoroughfare, had met, he asserted, with general approval.

Other witnesses examined during the week have been Mr. Andrew Young, the valuer to the L.C.C., and formerly surveyor to the London School Board, and Mr. Thomas Blashill, who has just retired from the post of superintending architect to the London County Council. The inquiry will be continued to-day (Friday).

### OBITUARY.

THE death is announced of SIR JOHN MOWBRAY, M.P. for Oxford University, the Father of the House of Commons. Sir John Mowbray was born in Exeter on the 3rd June, 1815, being the only son of the late Robert Stribling Cornish (a builder in Exeter) and Marianne, only child of John Powning, of Hill's Court, Exeter. Sir John's father was, for a great number of years, the Cathedral Surveyor of Exeter, and in latter years resided at Hill's Court, remaining there until the time of his death. This picturesque residence is at present in course of being demolished, and the hand of the speculating builder of the locality is converting the charming grounds in the midst of which it stood into "eligible villa residences." The late Sir John and Lady Mowbray paid a visit to the old homestead a few months ago, and at the same time went over the extensive studios of Messrs. Harry Hems and Sons, situated almost exactly opposite. He took a great interest in the city of his birth, and quite recently presided at a dinner of the Exeter Grammar School, of which he was the senior "old boy" living. The deceased baronet leaves three sons and three daughters.

### CHIPS.

A large clock has just been erected in the parish church at Peasenhall, Suffolk, which strikes the hours and shows time on a dial 5ft. across. The work has been carried out by John Smith and Sons, Midland Clock Works, Derby.

The Prince of Wales has been pleased to reappoint Mr. Henry L. Florence, vice-president R.I.B.A., the present Grand Superintendent of Works, to that office in Grand Lodge for the ensuing year.

The business of Messrs. Measures Brothers and Co., Ltd., the well-known iron and steel merchants, will be offered to the public in the course of a few days. The share capital will consist of £285,000, divided into 75,000 5½ per cent. preference shares of £1 each and 210,000 ordinary shares of £1 each, and £75,000 4½ per cent. first mortgage debenture stock. The profits, it is understood, are enough to pay 10 per cent. on the ordinary shares, after all expenses are paid. The customers on the firm's books number between 6,000 and 7,000, including the British and Foreign Governments, H.M. Admiralty, the War Office, Post Office, Crown Agents for the Colonies, railway companies, contractors and builders in a large way of business.

### TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

F. WOODWARD. (Neither series have been published separately.)

RECEIVED.—W. G. S. Co.—M. B. R.—L. A. C. and Son.—K. R. R. Co.—S. H.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Clegornie," "Spilark," "Tip."

## Correspondence.

### THE NEXT PRESIDENT OF THE INSTITUTE.

To the Editor of the BUILDING NEWS.

SIR,—It is a curious fact that all your correspondents on this subject are so impressed by the magnitude of the occasion that they have dreaded to let us know who they really are, and have consequently hidden themselves under the convenient *nom de plume*.

I can now answer the question of "A Friend of All Three" as to "whether my conclusions are accurate," as we have all received the printed "house list," wherein only one name is returned as "President," and that is "William Emerson."

"An Old London City Member" wishes to know why I am advocating Mr. Florence's claims to the presidential chair. The reason is that I think he is the right man as one of the vice-presidents, and that his fellow vice-presidents also think so, knowing that, under the usual custom, they will follow on after Mr. Florence. Their action in permitting Mr. Florence to do the work of the chair, as he has done recently, tends to confirm my opinion.

As for "F.R.I.B.A.," who "thinks it is a pity thus to thrust the private affairs of the R.I.B.A. before outsiders," he is probably one of those gentleman who regard with awe the self-elected permanent Council, who, year by year, keep more and more to themselves that administration which should be shared by the general body. It is not a "private affair" at all; it is an important matter, which deeply concerns the whole Institute.

I can reiterate positively that the expectations and desire of the general body are that one of the vice-presidents shall always be the nominated for the presidential chair. We all clearly understand (except the Council, or some part of it) that the position of vice-president is the necessary and proximate stepping-stone to the chair, and no society but a Council of the R.I.B.A. would ever dream of departing from it. If Mr. Florence is not the right man now, then let the vice-president who is the right man be nominated, and let it be distinctly set forth by the Council whether or not the position of vice-president carries with it the elevation to the chair in due order.

I will not even yet conclude that Mr. Emerson intends, if he can, to occupy the chair this year. I trust that he will see that he will be an unwelcome interloper, and that it can only have been by the voices of one or two of the happy little coterie at "No. 9" that he has been placed in the position in which he stands in the "house-list."

There was every reason, too, this year, why an architect in practice in London should have filled the chair. Many matters of importance as regards the administration of municipal work, appointments of architects, and general questions affecting professional practice are to the front, and, unfortunately, the Institute has not for some years had the benefit of men in active practice occupying the chair. Mr. Penrose has all love and reverence as a *dilettant*; Professor Aitchison has for many years ceased to worry himself with bricks and mortar, and he may be placed in the same category; and now comes Mr. Emerson, who, so far as I know, is not in active practice in London, however much he may have been in India.

The Council, too, rather suffers from the want of first-class business architects. "Arm-chair" architects are not entirely absent, and that fact, perhaps, accounts for the little real benefit the general body have received at its hands during the last five or six years.

It is, however, of no use for me to "grumble," as "An Antiquarian Architect" puts it. The same little mutual admiration society (the Council) will keep themselves together and re-elect themselves until they become objects of real antiquarian interest, and not till the apathy of the general body is replaced by active interest in the affairs of the Institute will that improvement take place which we all know is needed, but which we appear quite unable to secure.—I am, &c.,

WM. WOODWARD.

13, Southampton-street, Strand, April 25.

### IRON CONSTRUCTION IN DRAINAGE WORK.

SIR,—Replying to Mr. J. Forbes Smith's letter in the BUILDING NEWS of the 21st inst., permit me to point out that the table of "size of drains receiving rain-water" refers to the size of the "house-sewer" as required by the regulations of the New York Sanitary Authority (Department of Buildings) when such "house-sewer" carries away the rain-water in addition to sewerage or other fouled liquids. This is readily seen by reading the above-mentioned table in conjunction with its context.—I am, &c.,

T. E. COLEMAN.

## Intercommunication.

### QUESTIONS.

[12230].—Kitchen and Laundry Plumbing.—Are there any works that treat of the plumbing arrangements and fixtures of kitchens and laundry work in large establishments like hotels and restaurants? A reply will oblige.—X.

[12231].—Facings of Picked Stocks.—Would a wall faced with picked stocks or best malms cost much more than plain brickwork of the best stocks, flat-pointed? One price-book states the cost of best malms to be 4½d. per foot in addition to the price of slack bricks. Is this a fair charge? Will an experienced builder say whether this extra price applies to London?—COUNTRY.

### REPLIES.

[12224].—Cape Colony.—"Guide to South Africa," by A. S. and G. E. Brown, 1898-9 edition, published by Sampson Low, Marston, and Co. Ltd., Fetter-lane, Fleet-street, E.C., price 2s. 6d., a book of about 500 pages, contains much useful information such as "D. S. M." requires. For an almost complete list of works upon South Africa, see "Catalogue of Books relating to South Africa," compiled by Messrs. Charles A. Fairbridge and John Noble. The Keeper of the Archives, Parliament House, Cape Town (Mr. Leibbrandt), has an even more complete one. He will be glad to show, or be consulted upon, this, upon application.—HARRY HEMS.

### COMPETITIONS.

BURNLEY.—The report has been issued by the assessors, Messrs. Oliver and Leeson, of Newcastle-on-Tyne, on the competitive plans of a new higher grade school proposed to be built by the Burnley School Board, at an estimated cost of £12,000. The first prize of £50 was awarded to Mr. Quarumby, of Burnley; the second of £20 to Mr. F. W. Dixon, Corporation-street, Manchester; while the third, of £10, was divided between Messrs. T. Bell, of Burnley, R. Holt, of Southport, and J. M. Bottomley, Bond-street, Leeds.

LEICESTER.—With regard to the new Wholesale Market Competition at Leicester, Messrs. Leeming and Leeming have been appointed assessors by the corporation, and as the designs will be delivered on Monday next they will take an early opportunity to inspect them, probably on Wednesday or Thursday next.

ST. PANCRAS BATHS.—At a meeting of the St. Pancras Vestry, on Wednesday, the baths committee submitted the report of Mr. A. Hessel Tiltman, F.R.I.B.A., the assessor appointed to advise the vestry as to the relative merits of the designs for the new baths received from the six architects selected to compete. The assessor stated that, apart from the general disqualification of all the plans upon the point of cost, he was of opinion that the two designs Nos. 1 and 5 best met the requirements as set out in the instructions, and, of the two, he gave the preference to No. 5. Either design would require modification, chiefly in order to reduce the cost to within the £50,000 limit mentioned. After a long discussion, the vestry decided to



adopt design No. 5, and to ask the author to make such modifications in his plans as would bring the cost of the buildings within the \$50,000 limit, and to make such other alterations as the vestry might consider to be desirable. It was also resolved to retain Mr. Tiltman for the purpose of advising as to the modifications at a further fee of one hundred guineas. On the envelopes being opened, it was found that the authors were:—No. 1 design, Messrs. Harnor and F. Pinches assessor's estimate of cost, £63,350; No. 2, Messrs. Spalding and Cross, £58,850; No. 3, Mr. Francis J. Smith, £58,340; No. 4, Mr. R. Stephen Ayling, £60,812; No. 5, Mr. Thomas Aldwinckle (selected), £63,550; No. 6, Messrs. E. I'Anson and Son, £62,387.

## Our Office Table.

THE Building Act Committee, in a report presented to the London County Council on Tuesday, refer to the Factory and Workshops Acts, 1891 and 1895, by which the duty is imposed upon the Council of seeing that each London factory or workshop, in which more than forty persons are employed, is provided on the stories above the ground-floor with such means of escape in case of fire for the persons employed therein as can reasonably be required under the circumstances of each case. The powers conferred upon the Council by the Act are exercised by the Building Act Committee, and the latter have prepared a general statement of requirements which they think will be of use in assisting factory owners in making application for the Council's certificate, or in submitting proposals to comply with the requirements laid down. The Committee submit the statement for the approval of the Council, showing the conditions to be observed. But the statement is only to be taken as a general guide or indication, each case being dealt with upon its merits.

ALTHOUGH the Corporation of Liverpool have rejected the plan for the retention of the tower and spire of the recently demolished church of St. George, the local architects have not abandoned hope of preserving so fine a specimen of Early 19th-century work and so lofty a landmark, and on Friday a special meeting, convened by the Liverpool Architectural Society, was held in the Law Library in Castle-street, to consider what steps should be taken. The chair was occupied by Mr. W. E. Willink, the president of the society, and a member of the city council. Letters in favour of preserving the tower were read from the Bishop of Liverpool, Mr. R. D. Radcliffe, hon. secretary of the Historic Society of Lancashire and Cheshire; Mr. Morrison, president of the Liverpool Academy of Fine Arts; Mr. F. V. Burridge, head master of the School of Art; Mr. C. E. Deacon, architect; and Mr. J. T. Watts, artist. On the motion of Professor F. M. Simpson, of University College, seconded by Mr. Robert Fowler, artist, a resolution was unanimously passed stating that, from æsthetic and historical associations, the demolition of the tower would be regrettable, and a second resolution, moved by Mr. Henry Peek, an archaeologist, and supported by Mr. Henry Hartley and Mr. J. H. McGovern, requesting the city council to review their resolution to destroy the tower, was agreed to.

A DISCUSSION is in progress in the Devonshire papers as to the advisability of entirely rebuilding the tower of St. Sidwell's Parish Church, Exeter. In accordance with plans prepared by Mr. E. H. Harbottle, of that city; or whether it would not be better to retain and repair the old fabric, two-thirds of which is in as good condition as it was in four centuries ago. It has been decided to remove the ugly spire added to the tower some seventy years since; but the question of the renovation or reconstruction of the tower itself is still the subject of some heated correspondence in the local Press.

LOVERS of horses who want to see a good lot will do well to be in Battersea Park at 11 a.m. tomorrow morning, where, by the permission of the London County Council, the inspection and parade of the horses, vans, and carts employed by Messrs. Eastwood and Co., Ltd., of Belvedere-road, S.E., will be held. The horses will be drawn up in the northern carriage-drive heading towards Albert Bridge, and after the inspection there will be a procession round the park and round the West-End back to Northumberland-avenue. The prizes offered are numerous. The judging commences at 11 a.m.

## MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Building Trades Exhibition, Royal Agricultural Hall. Papers on "Road-Making Materials and Appliances," by H. Percy Boulnois, Engineering Inspector, Local Government Board, and J. Vincent Elden, B.Sc. 4 p.m.

SATURDAY (TO-MORROW).—Northern Architectural Association. Excursion to Ryton and Newburn Churches. 2.30 p.m. from Newcastle.

Building Trades Exhibition, Royal Agricultural Hall. Papers on "Road-Making Materials and Appliances," by Sidney Stallard, Surveyor to Maidstone R.D.C., and J. Patten Barber, Surveyor to Islington Vestry. 4 p.m.

MONDAY.—Royal Institute of British Architects. Annual meeting. 8 p.m.  
Society of Arts. "Leather Manufacture." Cantor Lecture No. 3. By Professor Henry R. Proctor, F.I.C. 8 p.m.  
Liverpool Architectural Society. Closing Address by the President, W. E. Williams, M.A.

TUESDAY.—Sanitary Institute. Annual dinner, Whitehall Rooms.

WEDNESDAY.—Society of Arts. "Ætheric Telegraphy," by W. H. Preece, C.B., F.R.S. 8 p.m.  
Royal Archaeological Institute. 4 p.m.  
Edinburgh Architectural Association. Annual meeting. 8 p.m.

THURSDAY.—Iron and Steel Institute. Annual meeting at Institution of Civil Engineers, Great George-street, S.W. 10.30 a.m. Dinner at Hotel Cecil. 7 p.m.

Carpenters' Hall Free Lectures. "Strength and Strains in Wood," by F. R. Farrow, F.R.I.B.A. 8 p.m.

FRIDAY.—Iron and Steel Institute. Annual meeting at Institution of Civil Engineers, Great George-street, S.W. 10.30 a.m.

Building Trades Exhibition, Royal Agricultural Hall. Papers on "Road-Making Materials and Appliances," by J. Patten Barber and H. T. Wakelam, County Surveyor of Middlesex. 4 p.m.

SATURDAY.—Building Trades Exhibition, Royal Agricultural Hall. Papers on "Road-Making Materials and Appliances," by F. Smythe, Surveyor Finchley U.D.C., and J. W. Bradley, Borough Engineer, Wolverhampton. 4 p.m.

## Trade News.

GLASGOW.—Over 1,000 joiners in the Glasgow district went on strike on Friday for a halfpenny advance in wages. The stoppage of work, however, was of short duration, as at a meeting later in the day the members of the Master Wrights' Association affected decided to grant the increase. This brings the rate of wages in the district up to 10d. per hour.

PENRITH.—The painters of Penrith and district, who have been on strike for several weeks, returned to work on Friday. They have obtained 7½d. instead of 7d. an hour, with a week of 52½ hours instead of 54 hours. The plumbers and plasterers are still on strike.

TODMORDEN.—The plasterers' strike is now at an end, the men having resumed work at 7½d. per hour, which is an advance of ½d. per hour. They asked for an advance of 1d. per hour. The code of rules which the employers were asked to sign has not been signed, and is now in abeyance.

WIGAN.—For some time an agitation has been going on amongst the joiners and carpenters of Wigan for an advance in the rate of wages and a reduction in the working hours. Representatives of masters and men have met from time to time, but no basis of agreement could be come to. Eventually it was decided conjointly to ask the President of the Board of Trade to appoint an arbitrator to adjudicate upon the points in dispute. Mr. Ritchie selected Mr. A. A. Hudson, barrister-at-law, of London, and that gentleman recently sat in Wigan and heard representatives from both sides on the question. The arbitrator's award has just been received by the secretaries of the employers and workmen. The latter had asked for an advance of 1d. per hour and a reduction in hours from 53 to 49½. The award gives the men an advance of ½d. per hour, but no reduction in hours. This will bring the wages up to £2 0s. 10d. from £1 18s. 7d.

A bust of Mr. J. Passmore Edwards was unveiled on Thursday in last week at the free library, Pitfield-street, Hoxton. The bust is a mark of appreciation by the inhabitants of Shoreditch of Mr. Passmore Edwards' generosity towards the free library and other institutions in the parish.

The spring meeting of the Institution of Mechanical Engineers is being held in their new house, Storey's Gate, St. James's Park. The president, Sir William H. White, delivered his inaugural address last (Thursday) night. This evening a paper will be read by Mr. H. V. Oldham on "Evaporative Condensers," to be followed by a discussion.

## LATEST PRICES.

IRON, &c.			
	Per ton.	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	to £8 10 0	
Rolled-Steel Joists, English.....	6 10 0	" 7 0 0	
Wrought-Iron Girder Plates.....	5 15 0	" 6 10 0	
Bar Iron, good Staffs.....	7 5 0	" 8 5 0	
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	" 17 5 0	
Do., Welsh.....	5 15 0	" 5 17 6	
Boiler Plates, Iron—			
South Staffs.....	7 17 6	" 8 5 0	
Best Snedshill.....	10 0 0	" 10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £8 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
8ft. to 8ft. long, inclusive gauge.....	£10 15 0	... £11 0 0	
Best ditto.....	11 5 0	" 11 10 0	
Cast-Iron Columns.....	£8 5 0	to £8 15 0	
Cast-Iron Stanchions.....	6 5 0	" 8 15 0	
Rolled-Iron Fencing Wire.....	8 5 0	" 9 5 0	
Rolled-Steel Fencing Wire.....	8 5 0	" 9 5 0	
Galvanised.....	11 10 0	" 12 10 0	
Cast-Iron Sash Weights.....	4 2 6	" 4 5 0	
Cut Clasp Nails, 8in. to 6in.....	9 0 0	" 10 0 0	
Cut Floor Brads.....	8 15 0	" 9 15 0	
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9 per cwt.			
Cast-Iron Socket Pipes—			
8in. diameter.....	£6 2 6	to £6 7	
4in. to 6in.....	5 17 6	" 6 2 6	
7in. to 24in. (all sizes).....	5 7 6	" 5 12 6	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....	105s.	to 110s.	
Hot Blast, ditto.....	57s. 6d.	to 62s. 6d.	
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:—			
Gas-Tubes.....			75s.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 5cwt. casks.			
Per ton.			
Zinc, English.....	£30 10 0	to £31 10 0	
Do., Vieille Montagne.....	31 10 0	" 32 15 0	
Sheet Lead, 3lb. per sq. ft. super.....	16 5 0	" 17 5 0	
Pig Lead, in 1cwt. pigs.....	15 12 6	" 16 12 6	
Lead Shot, in 25lb. bags.....	19 5 0	" 20 5 0	
Copper Sheets, sheathing and rods.....	81 0 0	" 82 0 0	
Copper, British Cake and Ingots.....	78 10 0	" 80 0 0	
Tin, Straits.....	113 10 0	" 114 10 0	
Do., English Ingots.....	116 0 0	" 117 0 0	
Spelter, Silesian.....	27 0 0	" 28 0 0	
T I M B E R.			
Teak, Burmah.....per load	£13 10 0	to £16 15 0	
" Bangkok.....	11 15 0	" 15 15 0	
Quebec Pine, yellow.....	4 7 6	" 8 5 0	
" Pitch.....	8 10 0	" 8 15 0	
" Oak.....	9 5 0	" 4 0 0	
" Birch.....	3 10 0	" 5 10 0	
" Elm.....	4 12 6	" 5 15 0	
" Ash.....	4 0 0	" 5 5 0	
Danitic and Memel Oak.....	3 5 0	" 4 0 0	
" Fir.....	1 10 0	" 3 10 0	
Waincoat, Riga p. log.....	3 15 0	" 5 10 0	
Lath, Danitic, p.f.....	4 10 0	" 6 10 0	
St. Petersburg.....	4 0 0	" 6 10 0	
Greenheart.....	5 0 0	" 8 5 0	
Box.....	4 0 0	" 15 0 0	
Sequoia, U.S.A.....per cube foot	0 1 9	" 0 2 0	
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5½	" 0 0 7	
" Honduras.....	0 0 3½	" 0 0 4½	
" Mexican.....	0 0 3½	" 0 0 4½	
Cedar, Cuba.....	0 0 3½	" 0 0 4½	
" Honduras.....	0 0 3½	" 0 0 4½	
Satinwood.....	0 0 3½	" 0 0 4½	
Walnut, Italian.....	0 0 3½	" 0 0 4½	
Deals, per St. Petersburg Standard, 120—12½. by 1½in.			
by 1½in.:—			
Quebec, Pine, 1st.....	£18 15 0	to £25 5 0	
" 2nd.....	18 15 0	" 17 0 0	
" 3rd.....	6 15 0	" 10 0 0	
Canada Spruce, 1st.....	7 0 0	" 8 15 0	
" 2nd and 3rd.....	7 0 0	" 7 15 0	
New Brunswick.....	8 5 0	" 10 5 0	
Riga.....	9 15 0	" 14 0 0	
St. Petersburg.....	9 15 0	" 16 15 0	
Swedish.....	9 15 0	" 10 5 0	
Finland.....	10 15 0	" 18 0 0	
White Sea.....	5 0 0	" 16 0 0	
Battens, all sorts.....			
Flooring Boards, per square of lin.—			
1st prepared.....	£0 12 0	" £0 15 0	
2nd ditto.....	0 10 6	" 0 12 3	
Other qualities.....	0 5 3	" 0 6 6	
Staves, per standard M:—			
Quebec pipe.....	£36 0 0	" £42 10 0	
U.S. ditto.....	210 0 0	" 230 0 0	
Memel, cr. pipe.....	180 0 0	" 190 0 0	
Memel, brack.....			
O I L S.			
Linseed.....per ton	£17 10 0	to £18 0 0	
Rapeseed, English pale.....	32 10 0	" 32 15 0	
Do., brown.....	31 0 0	" 31 5 0	
Cottonseed, refined.....	16 10 0	" 17 0 0	
Olive, Spanish.....	30 0 0	" 32 0 0	
Seal, pale.....	20 0 0	" 20 5 0	
Cocunut, Cochín.....	29 0 0	" 29 5 0	
Do., Ceylon.....	25 10 0	" 25 15 0	
Palm, Lagos.....	23 10 0	" 23 15 0	
Oleine.....	18 15 0	" 19 15 0	
Lubricating U.S.....per gal.	0 6 8	" 0 7 6	
Petroleum, refined.....	0 0 6	" 0 0 6½	
Tar, Stockholm.....per barrel	1 0 0	" 1 5 0	
Do., Archangel.....	0 15 0	" 0 18 0	
Turpentine, American.....per ton	£3 15 0	" 39 0 0	



## LIST OF COMPETITIONS OPEN.

Frome—Science and Art School	£25, £10	Geo. W. Bradbury, Clerk, Public Offices, Frome	April 29
Ramsgate—Concert Hall, &c., Paragon Gardens, West Cliff	£50, £20, £10	T. G. Taylor, Borough Surveyor Broad-street, Ramsgate	30
Dover—Concert Pavilion for Promenade Pier (limit of cost £3,000; seating capacity 800 to 1,000)	£25	Ardlie Marsh, Secretary, Marine Parade, Dover	May 1
Stockton-on-Tees—Market Hall	£25, £15, £10	The Borough Engineer, Stockton-on-Tees	1
Arbroath—Public Shambles	£7, £5, and £3	W. F. Macintosh, Clerk to Commissioners, Arbroath	16
Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds	June 1
Okehampton—Workhouse and Infirmary (9 inmates)	£50, £25	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton	1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks	£31 (merged), £20, £10	The Borough Engineer, Salford	6
Wakefield—Central Premises	£50, £30, and £20	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield	30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	July 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor)	£100, £75, £50	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead	27
St. Thomas—Boys' School (600 places) and Teachers' Residence	150gs., 75gs., 50gs.	J. Champion, Clerk, St. Thomas, near Exeter	—
Fulham, S.W.—Public Baths	£75, £50, £25	Charles Botterill, A.M.I.C.E., Town Hall, Walham Green, S.W.	—
Edinburgh—Midlothian County Buildings, Parliament-square		A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh	—
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.)		G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea	—
Totnes—Cottage Hospital		The Chairman, Cottage Hospital Committee, Totnes	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Sheffield—Raising and Re-roofing Factory and Raising Water-Tower at Grimsthorpe Chemical Works	United Gas Light Co.	F. W. Stevenson, Engineer, Commercial-street, Sheffield	April 29
Durham—Two Dwelling-Houses at Claypath	Ingram Heslington	George Ord, Architect, 16, The Avenue, Durham	29
Londonderry—Additions to the City Factory	M. Intyre, Hogg, Marsh, and Co.	Young and Mackenzie, 7, Donegall-square East, Belfast	29
Ashford, Kent—Buildings at Gasworks	Urban District Council	Stevenson and Burstall, Engineers, 38, Parliament-st., Westminster	29
Chester—Public Baths, Union-street	Corporation	Douglas and Minshall, Architects, Abbey-square, Chester	29
Ellon—Double Cottage	James Milne	Wm. Davidson, Architect and Surveyor, Ellon	29
Dolphin's Barn, Dublin—School	Dublin Central Mission	Beckett and Medcalf, Surveyors, 10, Leinster-street, Dublin	29
Carlisle—Four Houses, Courtfield Gardens	Joseph Briggs	Joseph Briggs, House Furnisher, Market-street, Carlisle	29
Barrow-in-Furness—Cookery Centres at Rawlinson-street and Holker-street Schools	School Board	W. Hutchison, Clerk, School Board Offices, Town Hall	May 1
Lisburn—Four Houses	Hugh G. Larmour	Henry Hobart, Architect, Dromore, County Down	1
Hartley Row—Police Cottages and Cells	Hants County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	1
Barnsley—School, &c., Racecommon-road	Baptist Chapel Trustees	Senior and Clegg, Architects, 15, Regent-street, Barnsley	1
Newry—Additions to Station at Edward-street	Gt. Northern (Ireland) Railway Co.	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	1
Gwbert-on-Sea—Wings to Gwbert Hotel	Huddersfield Industrial Society	C. Morgan-Richardson, Cardigan	1
Dalton—Eight Dwelling-Houses at Greenside	Town Council	J. Berry, 9, Queen-street, Huddersfield	1
Redhill—Isolation Hospital	Hants County Council	W. H. Prescott, Borough Engineer, Market Hall, Redhill	1
Farnborough—Stables for Mounted Police	County Property Committee	W. J. Taylor, County Surveyor, The Castle, Winchester	1
Casob—Repair of Church Tower	Gt. Northern (Ireland) Railway Co.	Ernest Collier, M.S.A., Carmarthen	1
Longtown—Alterations to Police-Station	Watch Committee	Geo. Dale Oliver, County Architect, Carlisle	1
Dublin—Extension of Timber Goods Shed	Urban District Council	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	1
Gateshead—Police Station, Old Durham-road	Corporation	J. Bower, C.E., Borough Engineer, Town Hall, Gateshead	1
Kellas—Teacher's House	Stoke-on-Trent (U.D.) School Board	A. and W. Reid and Wittet, Architects, Elgin	1
Handsworth—Fire-Engine Station, &c.	Knopp and Son	E. Kenworthy, A.M.I.C.E., Engineer, Council House, Handsworth	1
Brighton—Twenty-eight Five-Roomed Artisans' Dwellings, St. Helen's-road	North Dublin R.D.C.	Francis J. C. May, M.I.C.E., Surveyor, Town Hall, Brighton	2
Coxhoe—Alterations, Primitive Methodist Chapel	Southgate Urban District Council	John Booth, Coxhoe	2
Fenton—Infant's School, Grove-road	School Board	R. Scrivener and Sons, Architects, Hants	2
Letcherenny—Four Houses	Corporation	Edward M'Ginty, General Merchant, Letcherenny	2
Colchester—Alterations, "Time Will Tell" Factory, Mersea-rd.	Asylum Committee	Goodey and Cressall, Architects, Victoria Chambers, Colchester	2
Finglas, Dublin—Thirteen Labourers' Dwellings	School Board	J. Morris, Clerk of Works, 24, Cabra Parade, Dublin	3
Whitehaven—Additions to Oddfellows' Hall	Board of Guardians	J. S. Moffat, Architect, 53, Church-street, Whitehaven	3
Palmer's Green, N.—Isolation Hospital, Tile Kiln-lane	Visiting Committee	W. M. Ellenor, Clerk, Council Offices, Palmer's Green, N.	3
Foveran—Schools	Guardians	L. Tait, Clerk, Mill of Foveran	3
Cardiff—Alterations to Manager's House at Roath Market	Urban District Council	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	3
Keighley—Workshop in Lawkholme-road	Gas Co.	W. H. and A. Sugden, Architects, Keighley	3
Ipswich—Extension of Administrative Block, Borough Asylum	Loftus Co-operative Society	E. Buckham, Borough Surveyor, Town Hall, Ipswich	3
Pontypool—Additions to Upper Heage Board School	Midland Railway Co.	Bernard Glossop, Bull Bridge, Ambergate	3
Pontypool—Workhouse Enlargement	Theo. Phillips	Lansdowne and Griggs, Architects, Bank Chambers, Newport, Mon.	3
Batley—Additions to Highfield	William Wilson	Walter Crawshaw, Architect, Branch-avenue, Batley	4
Bridgend—Chapel at Parc Gwylt Asylum	J. Brown	Giles, Gough, & Trollope, Archts., 28, Craven-st., Charing Cross, W.C.	4
Dungarvan—Improvements in Infirmary Baths	Building Committee	John R. Dower, Clerk, Dungarvan	4
Letcherenny—Shop and Dwelling-House in Main-street	School Board	Andrew M'Daid, Letcherenny	4
Featherstone—Fire Brigade House, &c.	School Board	W. A. Palliser, Engineer, Town Hall, Featherstone	4
Bridport—Offices, South-street	London County Council	The Chairman, Gas Co., South-street, Bridport	4
Spradley—Additions to Rectory	Corporation	Botterill, Son, and Bilson, Architects, 28, Parliament-street, Hull	4
Brotton—Butcher's Shop	Ashton Gate Brewery Co.	Arthur F. Newsome, M.S.A., Albert-road, Middlesbrough	5
Ecclesall, near Sheffield—Engine Sheds	Urban District Council	The Company's Architect, Cavendish House, Derby	5
Linthorpe—Semi-Detached Villas, Phillipsville Estate	Corporation	Arthur F. Newsome, M.S.A., Albert-road, Middlesbrough	5
Elgin—Buildings at White Horse Inn	Chas. Wills and Sons	Charles C. Doig, Architect, Elgin	5
Hayton—Additions to House	Vestry	A. W. Johnston, Architect, 81, Castle-street, Carlisle	5
Linthorpe—Small Villa	Great Western Railway Co.	Arthur F. Newsome, M.S.A., Albert-road, Middlesbrough	5
Alkmaar—Royal Naval Reserve Buildings	Bromley Rural District Council	Director of Works Department, 21, Northumberland-avenue, W.C.	5
Llanelli—Extension of National Schools	Barnes Urban District Council	W. Griffiths, F.S.I., Architect, Falcon Chambers, Llanelli	5
Halifax—Board Schools, Sunny Side	Great Northern (Ireland) Ry. Co.	W. Clement Williams, Architect, 29, Southgate, Halifax	5
Gloucester—School, Caretaker's House, &c., Hatherley-road	Vestry	Alfred J. Dunn, A.R.I.B.A., 31, St. Michael's-square, Gloucester	6
Victoria Embankment Gardens and Battersea Park—Super-structure of, and Painting New Band Stands	H.M. Commissioners of Works	The Architect's Department, 13, Spring Gardens, S.W.	8
Derby—Extensions to Electric Lighting Station	School Board	Arthur Eaton, Architect, 6, St. James's-street, Derby	8
Gorton—Alterations to British School	Bangor and Beaumaris Guardians	Edward Edwards, The Cwm, Gorton	8
Bedminster—Rebuilding Engineers' Arms, St. John's-lane	Rector and Churchwardens	Henry Williams, Architect, 24, Clare-street, Bristol	8
Ilford—Public Offices and Hall, High-road	Urban District Council	Benj. Wollard, Architect, 16, Finsbury Circus, E.C.	8
Darlington—Electric Lighting Station	Corporation	The Borough Surveyor, Town Hall, Darlington	8
Bristol—Additions to Warehouse and Factory	Chas. Wills and Sons	Henry Williams, Architect, 24, Clare-street, Bristol	8
Westminster—Alterations to Bluecoat School, Caxton-street, and Additional Schoolrooms, Teachers' House, &c.	Vestry	Beazley and Burrows, Architects, 17, Victoria-street, S.W.	9
Buckfastleigh—Cottage at Station	Great Western Railway Co.	G. K. Mills, Secretary, Paddington Station, London	9
St. Mary Cray, Kent—Fire Station, Market Meadow-street	Bromley Rural District Council	W. J. Winter, Surveyor, Station-road, Sidcup	9
Mortlake—Seventy-six Workmen's Dwellings, S. Worpole Way	Barnes Urban District Council	G. Bruce Tones, A.M.I.C.E., Council Offices, High-st., Mortlake	9
Donabate—Station Building and Wooden Goods Shed	Great Northern (Ireland) Ry. Co.	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	9
Hammersmith—Extension of Electric Lighting Station	Vestry	H. Mair, M.I.C.E., Surveyor, Town Hall, Hammersmith	10
Manchester—Extension of S.W. Branch Post Office	H.M. Commissioners of Works	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate	12
Billogan—Additions to School	School Board	Sampson Hill, Architect, Green-lane, Redruth	12
Bangor—Alterations at Workhouse	Bangor and Beaumaris Guardians	Richard Davies, Architect, Bangor	13
Tonbridge, Wilts—Technical School	Rector and Churchwardens	G. Fleetwood, 3, New Court, Lincoln's Inn, W.C.	13
Birkbeck—First Portion of Church of St. Michael	Urban District Council	A. H. Hoole, Architect, 21, King William-st., Charing Cross, W.C.	13
Boxhill—Electric Lighting Station and Chimney Shaft	Y.M.C.A.	A. H. Preece, 13, Queen Anne's Gate, S.W.	15
Finschley—New Hall, &c.	Blean Union Guardians	W. Hollis, Estate Agent's Office, Church End, Finchley Station	15
Herne Common—Additions to Union Workhouse	Northumberland County Council	The Master of the Workhouse, Herne Common	15
Morpeth—Three Detached Villa Blocks at Lunatic Asylum	Urban Sanitary Authority	John Cresswell, Architect, Moot Hall, Newcastle-on-Tyne	15
Llandegfan—Calvinistic Methodist Chapel	Guardians	Joseph Owen, Architect, Menai Bridge	17
Grimby—Electricity Works Buildings and Chimney Shaft	Committee	Marshall Petree, A.M.I.C.E., Town Hall Square, Grimsby	20
Tending—Infirmary Wards (91 beds), &c., at Union House	James Graham	F. Whitmore, Architect, Chelmsford	23
Cheltenham—Reconstruction of Montpellier Baths	G. W. Thomson	J. Hall, A.M.I.C.E., Borough Surveyor, Municipal Offices, Cheltenham	30
Talgarth—Asylum	Meltham Spinning Company	Giles, Gough, & Trollope, Archts., 28, Craven-st., Charing Cross, W.C.	30
Ravenook, Carlisle—Sixteen Dwelling Houses		P. and J. W. Hayter, Surveyors, &c., Bank-street, Carlisle	—
Claistor—Congregational Schoolroom		J. H. Cooper, Architect, Lincoln	—
Bradford—Alterations to Premises, Leeds-road		Empeall and Clarkson, Architects, 7, Exchange, Bradford	—
Clacton-on-Sea—Detached Residence, Marine-parade		James W. Martin, Architect, Station Chambers, Clacton-on-Sea	—
Ardnarurehan—Addition to Post-Office, Acharacle		Thos. J. A. Armstrong, Glenbarrisdale, Salen, Fort William	—
Barrow-in-Furness—Congregational Church		E. M. Young, Architect, 93, Duke-street, Barrow-in-Furness	—
Meltham—Circular Brick Chimney (50yds. high) at Brigg Mills		W. Carter, Architect, Meltham, near Huddersfield	—



## BUILDINGS—continued.

Ardnamurchan—House near Acharacle .....	Francis O'Neill .....	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....
Belfast—Shop and Dwelling-Houses, Falls-road .....	Provincial Bank of Ireland .....	W. J. Moore, Architect, Whitehall Buildings, Ann-st., Belfast .....
Chester—Four Shops, City-road .....	John McKenna .....	T. M. Lockwood and Sons, Architects, 80, Foregate-street, Chester .....
Fermoy—Bank Premises .....	Farmers and Cleveland Dairies Co. ....	Kaye, Parry, and Ross, Palatine Chambers, 63, Dawson-st., Dublin .....
Ardnamurchan—Two Workmen's Houses at Glenborrodale .....	P. Morris and Son .....	Thos. J. A. Armstrong, Glenborrodale, Salen, Fort William .....
Belfast—Improvements to Licensed Premises, Crumlin-road .....	James Graham .....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....
Hanging Heaton—Dwelling-House at Common Side .....	John Eadie .....	Walter Crawshaw, Architect, Branch Avenue, Batley .....
Doncaster—Additions to Premises, St. Sepulchre-gate .....	King and Sons .....	Athron and Beck, Architects, Dolphin Chambers, Doncaster .....
Ashfordby—Twelve Cottages .....	School Board .....	Holwell Iron Co., Ltd., Ashfordby, near Melton Mowbray .....
Hereford—Alterations to Premises, Widemarshe-street .....	Nottingham School Board .....	W. W. Robinson, Architect, 10, King-street, Hereford .....
Morecambe—Six Terrace Houses, Sandylands .....	S. Evershed .....	Walker and Collinson, Architects, Swan-arcade, Bradford .....
Carlisle—Sixteen Dwelling-Houses at Raven Nook .....	Ayrtton England .....	P. and J. W. Hayton, Surveyors, Bank-street, Carlisle .....
Alveley—Vicarage House and Stables .....	A. J. Caley and Son, Limited .....	A. E. Lloyd Oswell, Architect, Dana Chambers, Shrewsbury .....
Belfast—Improvements to the Waterloo Bar, York-street .....	Co-operative Wholesale Society .....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....
Belford—Rifle Range .....	Peter McKenna .....	George Reavell, jun., A.R.B.A., Alnwick .....
Hereford—Premises .....	Provincial Bank of Ireland .....	W. W. Robinson, Architect, 10, King-street, Hereford .....
Leeds—Basement and Foundations of Premises, Lands-lane .....	E. F. Chorley .....	W. A. Hobson, Architect, 82, Albion-street, Leeds .....
Arnold—Alterations at National Board School .....		John R. Swift, F.I.A.S., Front-street, Arnold .....
Bury, Lancs.—Rebuilding St. Peter's .....		Medland Taylor, Architect, 2, St. Ann's Churchyard, Manchester .....
Nottingham—Improvement of Forster-street Board School .....		R. C. and E. R. Sutton, Architect, Bromley House, Angel-row .....
Barwick-in-Elmet—Alterations of the Old Workhouse .....		Percy Robinson, Architect and Surveyor, 72, Albion-street, Leeds .....
Ashbourne—Additions to White Hart Hotel .....		Messrs. Garlick and Flint, Architects, Buxton .....
Longton, Staffs.—Workshops, &c., Baltimore Works .....		William Wood, Architect, Crown Buildings, Longton .....
Bingley—Additions to Gilstead Hall .....		Isitt, Adkin, and Hill, Architects, Prudential Buildings, Bradford .....
Bradford—Alteration of Shop, Park-road .....		James Young and Co., Architects, 62, Market-street, Bradford .....
Northwood—Seven-Story Factory (140ft. by 56ft.) .....		E. Boardman and Son, Architect, Queen-street, Norwich .....
Brentwood—Repairs, &c., to St. Charles's Schools .....		The Archbishop's House, Carlisle-place, London, S.W. ....
Armagh—Alterations, &c. ....		J. F. Glicerist, C.E., Architect, Armagh .....
Colchester—Villa, Maldon-road .....		J. W. Start, F.S.I., Architect, Colchester .....
Belfast—Rebuilding Licensed Premises, Millfield .....		W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....
Great Horton—House at Bank Bottom .....		Jackson and Priestman, Surveyors, The Exchange, Bradford .....
Fermoy—Bank Premises .....		Kaye, Parry, and Ross, Palatine Chambers, 63, Dawson-st., Dublin .....
Kendal—Eight Houses in Chapel Close .....		John Stalker, M.S.A., Architect, 57, Highgate, Kendal .....

## ENGINEERING.

Newport, Isle of Wight—Engine and Dynamo .....	The Committee of Visitors, County Asylum, Newport, I.W. ....	April 29
Hexham—Bridge at Dyehouse .....	The County Surveyor's Office, Moot Hall, Newcastle .....	" 29
Torphins—Cast-Iron Pipes (3in. and 4in., 1½ miles), with small Concrete Reservoir .....		
Blackford—Grain-Conveying and Malting Machinery .....	Jenkins and Marr, C.E. and Architects, 16, Bridge-street, Aberdeen .....	" 29
Leeds—Laying Water Mains .....	Harbourne MacLennan, Architect, 97, High-street, Dunfermline .....	" 29
London, W.—Removal and Reconstruction of Westbourne Terrace-road Bridge .....	The City Engineer, Waterworks Office, Municipal Buildings, Leeds .....	" 29
Reigate—Electric Lighting Plant .....	George Weston, Surveyor, Vestry Hall, Harrow-road, W. ....	May 1
Newry—Steel Principal Roof (172ft. long), Edward-st. Station .....	F. Hastings Medhurst, B.Sc., M.I.E.E., 13, Victoria-street, S.W. ....	" 1
Derford, Kent—Sanitary Appliances, &c., at Darenth Asylum .....	The Engineer-in-Chief, Amiens-street, Dublin .....	" 1
Leestock and Horwich—Laying Tramway Rails .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ....	" 1
Morecambe—Steelwork of Tower, Calton Lodge Estate .....	W. H. Brookbank, Surveyor, Town Hall, Bolton .....	" 1
Breamore—Bridge over River Avon .....	R. T. Gifford Road, C.E., 1, Great Chapel-street, Westminster .....	" 1
New Ross and Waterford—Railways (13½ miles) .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	" 1
Lancunston—Retorts, &c. ....	The Engineer of the Company, 1, Westland-row, Dublin .....	" 1
Horth—Steel Girder Bridge (175ft. long) .....	James Treleven, Manager, Lancunston .....	" 1
Queensbury—Sludge Pits at Sewage Farm .....	Gt. Northern (Ireland) Railway Co. ....	" 1
Clacton-on-Sea—Filter-Beds .....	Urban District Council .....	" 1
Abercromby—Steel-Rope Suspension Footbridge .....	Urban District Council .....	" 1
Southampton—Reconstructing Tramway, Shirley Route (1½ mi.) .....	Mountain Ash U.D.C. ....	" 2
Cubley—Bridge .....	Corporation .....	" 2
Southampton—Heating and Hot-Water Supply and Laundry .....	Sudbury Rural District Council .....	" 2
and Kitchen Fittings, Municipal Lodging House .....		
Southampton—Electric Lighting and Fittings for Municipal Lodging House .....	W. G. B. Bennett, Boro' Engineer, Municipal Offices, Southampton .....	" 5
Maybole—Gas-holder Tank .....	W. B. G. Bennett, Boro' Engineer, Municipal Offices, Southampton .....	" 5
Epsom—Electric Lighting Plant .....	P. Paterson, Solicitor, Maybole .....	" 6
Salford—Sewage Screens, &c. ....	W. C. C. Hawtayne, Consulting Eng., 9, Queen-street-place, E.C. ....	" 8
Winstanley—Precipitation Tanks and Filtration Works .....	L. C. Evans, Town Clerk (pro tem.), Town Hall, Salford .....	" 10
Kew Gardens—Filter-Bed .....	Sterling and Swann, Engineers, Town Hall, Chapel-en-le-Frith .....	" 13
Haverton Hill—Double Lines of Railway between Haverton Hill and Billingham Beck (1 mile 54 chains) .....	The Office of the Clerk of Works, Kew Gardens .....	" 16
Port Clarence—Double Lines of Railway between Port Clarence Goods Yard Junction and Greatham Creek (2 miles 50 chains) .....	North-Eastern Railway Co. ....	" 17
Egremont—Gas-holder and Tank .....	North-Eastern Railway Co. ....	" 17
Hampstead, N.W.—Electric Lighting Plant .....	Wallasey Urban District Council .....	" 17
Winwick—Siding Extension .....	Vestry of St. John .....	" 18
Ton Phillip—Single Line of Railway from Cefn to Ton Phillip .....	Lancashire Asylums Board .....	" 18
Battersea, S.W.—Electric Lighting Works .....	Ton Phillip Rhonda Colliery Co. ....	" 19
Shanghai—Electric Trolley Tramways (23 miles) .....	Vestry of St. Mary, Battersea .....	" 29
Naples—Harbour and Docks (estimated cost £162,400) .....	Municipal Council .....	" 29
Laaswade—Waterworks .....	County Lunatic Asylum Visitors .....	" 29
Prestwich—Steam Pipes, &c., for Electric-Light Installation .....		

## FENCING AND WALLS.

Wicklow—Boundary Walls, Convent-road .....	Urban District Council .....	F. W. MacPhail, Town Clerk, Wicklow .....	May 1
Burton-upon-Trent—Screen Fence at Bathing Place .....	Corporation .....	George T. Lynham, Boro' Engineer, Town Hall, Burton-upon-Trent .....	" 1
Leeds—Entrance Gates and Railings to Roundhay Park .....	Brecon County Council .....	The City Engineer, Leeds .....	" 4
Langrwyne—Concrete Wall .....	Burial Board .....	H. Edgar Thomas, Clerk, County Hall, Brecon .....	" 6
Bengeworth—Wall for Enlarging Cemetery .....	London County Council .....	G. Ellis Garrard, Clerk, High-street, Evesham .....	" 6
London, S.E.—Boundary Railings, Gates, &c., Nelson Recreation Ground, Kipling-street .....	Urban District Council .....	The Architect's Department, 13, Spring Gardens, S.W. ....	" 8
Hetton-le-Hole—Boundary Wall at Parish Churchyard .....		George Gray Forster, C.E., Hetton-le-Hole, R.S.O. ....	" 8

## FURNITURE AND FITTINGS.

Halifax—School Desks .....	School Board .....	W. H. Ooster, Clerk, 22, Union-street, Halifax .....	April 29
Southampton—Iron Bedsteads at Municipal Lodging House .....	Guardians .....	W. G. B. Bennett, Boro' Engineer, Municipal Offices, Southampton .....	May 5
Merthyr Tydfil—New Workhouse Infirmary (120 beds) .....		Frank T. James, Clerk, 134, High-street, Merthyr Tydfil .....	" 12

## PAINTING.

Totley Bents—Iron Fence Round Recreation Ground .....	Totley Parish Council .....	Arthur H. Ellis, Clerk, 49, Pearson-place, Meersbrook, Sheffield .....	April 29
Southport—Wood and Ironwork (outside) at Markets .....	Corporation .....	J. Davies Williams, Town Clerk, Southport .....	" 29
Rothwell—Painting and Papering Nine Houses at Haigh Park .....	Guardians .....	E. Barton Johnston, Architect, 6, The Grove, Ilkley .....	" 29
Chemical Works .....	Guardians .....	John Carter, 45, Hamilton-square, Birkenhead .....	" 29
Birkenhead—Union Hospital & Infirmary, Church-rd., Tramway .....	Common Lands Feoffees .....	E. J. Shrewsbury, A.R.B.A., Queen-st. Chambers, Maidenhead .....	" 29
Maidenhead—Interior of Workhouse Infirmary .....	Manchester Sanitary Committee .....	Geo. Armstrong, Architect, Bank-street, Carlisle .....	" 29
Carlisle—Painting and Glazing 15 Houses, Brook-street Estate .....		Edward Hutchinson, Surveyor, 18, Howard-street, Rotherham .....	May 1
Rotherham—Properties .....		The City Surveyor, Town Hall, Manchester .....	" 1
Newton Heath—Monsell Hospital .....			
Rochdale—Nineteen Houses and Thirty-Eight Cottages (outside) and One Shop .....	Rochdale Provident Co-op. Soc. ....	The Secretary, 2, Wood-street, Rochdale .....	" 2
Weston-super-Mare—Statutory Hospital .....	Urban District Council .....	Hugh Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	" 2
Littlehampton—Esplanade Shelter Seats &c. ....	Littlehampton U.D.C. ....	H. Howard, Surveyor, Town Offices, Littlehampton .....	" 3
Nelson—Interior of Borough Hotel .....		Thomas Horsfall, The Brewery, Brierfield .....	" 3
Thurgoland—Wesleyan Chapel and School .....		Thomas Laycock, Thurgoland .....	" 3
Pictou—Wesleyan Chapel .....		J. T. Rayfield, Pictou Junction .....	" 3

## PLUMBING AND GLAZING.

Belfast—New Water-Closet Apparatus at Workhouse .....	Guardians .....	Young and Mackenzie, Engineers, Donegall-square East, Belfast .....	May 2
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## ROADS AND STREETS.

Ashton-under-Lyne—Making New Road .....	East Sussex County Council .....	Fred. J. Wood, County Surveyor, County Hall, Lewes .....	April 29
Ashton-under-Lyne—Street Works, Wilkinson-street, Burlington-street, and Progress-street .....		J. T. Earnshaw, A.M.I.C.E., Borough Surveyor, Ashton-under-Lyne .....	" 29
Folkestone—Three New Roads (1,320ft.), Ashley Grange Estate .....	Urban District Council .....	Marler and Co., Surveyors, 95A, Gloucester-road, South Kensington .....	May 1
Beckenham—Paving Works in Harbert-road .....	Urban District Council .....	John A. Angell, Surveyor, Beckenham .....	" 1
Haywards Heath—Making and Sewering Heath-road .....		Edward Waugh, Clerk, Boltro-road, Haywards Heath .....	" 2



ROADS AND STREETS—continued.

South Tottenham—Victoria Stone Paving in St. Ann's-road	Urban District Council	P. E. Murphy, M.I.C.E., 712, High-road, Tottenham	May 2
Lindfield—Making and Sewering New Road	G. Masters	Horace W. Beach, Perrymount-road, Hayward's Heath	2
West Norwood—New Roadway at Schools, Elder-road	Lambeth Guardians	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E.	3
Grimsby—Road Formation & Drainage Works, Weelsby Estate	Lord Henage	William Waller, 243, Freeman-street, Grimsby	4
Church, Lancs—Paving, &c., Back Ernest-street	Urban District Council	W. E. Wood, Surveyor, District Council Offices, Church	8
Burnley—Paving, &c., Sixty Streets	Highways Committee	G. H. Pickles, Borough Surveyor, Town Hall, Burnley	13
Egham—Making-up By-Roads	Rural District Council	W. Menzies, Surveyor, Eglefield Green, Surrey	13
Chertsey—Street Works	Urban District Council	J. Freebairn Stow, Engineer, Windsor-street, Chertsey	16

SANITARY.

Garlands—Drainage Works at the Asylum	Newton Abbot Rural Dis. Council	John Little, Sanitary Engineer, Viaduct Chambers, Carlisle	April 29
Highweek—Sewers (700ft. of 12in. and 15in.)	Urban District Council	R. A. Rogers, A.S.I., Surveyor, Union-street, Newton Abbot	29
Mountain Ash—Stoneware Pipe Sewers (6,300 yards)	Romford Rural District Council	James Mansergh, C.E., 5, Victoria-street, Westminster	May 1
Upminster—Drainage Works	Wirral Rural District Council	J. Simmons, M.I.C.E., Bank Chambers, Doncaster	1
Heswall-cum-Oldfield—Pipe Sewer, Gent's-road	Urban District Council	Alfred Hughes, Surveyor, 54, Hamilton-street, Birkenhead	1
Thames Ditton—Sewers	Paving Committee	A. J. Henderson, A.M.I.C.E., Thames Ditton	3
Rochdale—Sewer	Corporation	S. S. Platt, M.I.C.E., Borough Surveyor, Town Hall, Rochdale	3
Middleton, Lancs—Sewering, &c., Boarshaw Clough	Urban District Council	W. Welburn, Borough Surveyor, Town Hall, Middleton	3
Watford—Sewers, &c.	Police Commissioners	D. Waterhouse, Engineer, 14, High-street, Watford	3
Perth—New Main Sewers	Town Council	Robert M'Killop, Burgh Surveyor, 12, Tay-street, Perth	6
Guildford—Drainage Works	Town Council	C. G. Mason, C.E., Borough Surveyor, Tuns Gate, Guildford	8
Todmorden—Sewerage Works	Sewerage Committee	C. R. Pease, Engineer, Town Hall, Todmorden	9
Oldham—Sewerage Works	Southam Rural District Council	The Town Clerk's Office, Town Hall, Oldham	10
Johannesburg—Sewerage Scheme		The Town Engineer's Office, Johannesburg	12
Stockton—Drains, &c.		Francis P. Trepass, Architect, Warwick	13

STEEL AND IRON.

Leeds—C.I. Water-Main (18in., 3,518 yards)	Waterworks Committee	The City Engineer's Waterworks Office, Municipal Bldgs., Leeds	April 29
Stockport—Cast-Iron Pillars, &c.	Rural District Council	H. H. Turner, Surveyor, Davenport-road, Hazel-grove, Stockport	May 1
Keighley—Socket Pipes (470 yards of 12in.)	Gas Committee	John Laycock, Engineer, Keighley	1
London, E.C.—Switches, Galvanised Wire, Eye-Bolts for Fencing, and Cast and Shear Steel	East Indian Railway Co.	A. P. Dunstan, Secretary, Nicholas-lane, London, E.C.	3
Morley—Cast-Iron Water-Mains and Specials (One Year)	Waterworks Committee	G. B. Rawden, Manager, Town Hall, Morley	6
Abercarn—Cast-Iron Pipes (400 tons)	Urban District Council	George Stevens, Engineer, Council Offices, Abercarn, Mon.	9
Salford—Steel Tramway Rails (5,000 tons)		The Borough Engineer's Office, Town Hall, Salford	9

STORES.

Paddington, W.—Creosoted Yellow Deal Blocks (1,260,000)	Vestry	The Surveyor's Offices, Vestry Hall, Harrow-road, W.	May 1
Camberwell—Tar-Paving Materials at Myatt's Fields	London County Council	The Parks Department, 9, Spring-gardens, S.W.	1
Great Driffield—Unbroken Whinstone (1,000 tons)	Urban District Council	Geo. B. Tonge, Clerk, Great Driffield	1
East Dereham—Granite (300 tons)	Urban District Council	Hedley G. Himson, Surveyor, Theatre-street, East Dereham	1
Chester-le-Street—Whinstone and Limestone (One Year)	Rural District Council	Geo. W. Aytton, Highway Surveyor, Chester-le-street	1
Hampton, Middlesex—Road Materials	Urban District Council	J. Kemp, Surveyor, Park House, Hampton, Middlesex	2
India Office, S.W.—Brass Boiler Tubes and Iron Panel Plates		The Director-General of Stores, India Office, Whitehall, S.W.	2
Diss—Belgian Granite (250 tons)		Samuel Lait, Surveyor, Diss, Norfolk	2
York—Railway Sleeper Blocks of Riga Redwood (200,000), and Fence Rails and Posts (200,000)	North-Eastern Railway Co.	The Secretary, York	3
Rochester—Drainage Materials	Urban District Council	William Banks, A.M.I.C.E., City Surveyor, Guildhall, Rochester	3
Bexhill—Granite (1,400 cubic yards)		George Ball, Surveyor, Town Hall, Bexhill	4
Croydon—Norway Granite Kerb (20,000ft.), Norway Granite Channel (20,000ft.)	Town Council	The Borough Road Surveyor, Town Hall, Croydon	5
Morley—Sluice Valves and Surface Boxes (One Year)	Waterworks Committee	G. B. Rawden, Waterworks Manager, Town Hall, Morley	6
London, W.—Wood Paving Blocks (1,109,000)	St. Marylebone Vestry	J. Paget Waddington, C.E., Court House, Marylebone-lane, W.	8
London, E.C.—Workshop Tools	South Indian Railway Co.	Henry W. Notman, Managing Director, 55, Gracechurch-st., E.C.	9
London, E.C.—Stores and Materials	Great Eastern Railway Co.	W. H. Peppercone, Secretary, Liverpool-st. Terminus, London, E.C.	11
Wolverhampton—Road Materials	Tramways Committee	W. Bradley, Borough Engineer, Town Hall, Wolverhampton	31
Blackpool—Australian Hard Wood Paving Blocks (350,000)	Corporation	J. Wolstenholme, Borough Surveyor, Blackpool	—

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## CHIPS.

A new workhouse infirmary was opened at Falmouth on Thursday in last week. It contains 40 beds, and has cost £2,100.

Messrs. Mainzer and Co., Limited, 18, Berners-street, W., have been intrusted with the carrying out of the mosaic floors at the New Heath Asylum, Bexley, of which Mr. G. T. Hine is the architect. The same firm have just completed the mosaic and terrazzo floors at the Whittingham Asylum, Lancashire, which has been erected from the designs of Messrs. Simpson and Duckworth, architects, Blackburn.

The Passmore Edwards Convalescent Home for Friendly Societies, Herne Bay, will be opened by the donor on Monday next, on which occasion special trains will run both in the morning and afternoon. The home, which was illustrated in the BUILDING NEWS for Nov. 5, 1897, by a perspective and plans, has been erected on the Beltinge Estate from designs by Mr. A. Saxon Snell, F.R.I.B.A., at a cost of £6,000, and accommodates fifty male patients.

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## TENDERS.

BIRMINGHAM.—For the enlargement of All Saints' Church, King's Heath. Messrs. J. P. Sharp and Co., Birmingham, architects:—

Gibbs, W. H., King's Heath, Birmingham (accepted) ... £2,630 0 0

ACTON.—For the erection of a girls' school in Cressfield-road, Acton, for the Managers of Aske's Haberdashers' School. Mr. Henry Stock, F.R.I.B.A., architect. Quantities by Messrs. Widnell and Trollope:—

Balsam Bros. ...	£23 555 0 0
Ferris Bros. ...	23,506 0 0
Akers, W., and Co. ...	23,415 0 0
Porter, A. ...	22,777 0 0
Marsland, J. ...	22,575 0 0
Wilcock, H., and Co. ...	22,364 0 0
Robinson, W. ...	21,650 0 0
Nightingale, B. E. ...	21,585 0 0
Turtle and Appleton ...	21,530 0 0
Christie, J. ...	21,400 0 0
Bowers, W., and Co. ...	21,300 0 0
Flint, H. ...	21,184 0 0
Godson, G., and Sons ...	21,152 0 0
Gough and Co. ...	20,824 0 0
Willmott, J., and Sons ...	20,798 0 0
Messom, T. J. ...	20,577 0 0
Hockley, R., and Son ...	20,574 0 0
Chessum, J., and Sons ...	20,036 0 0
Patman and Fotheringham ...	19,911 0 0

\* Accepted.

BEDDELEERT.—For the erection of farmhouse at Lydney, for Mr. T. E. Roberts. Mr. Thomas Roberts, A.M.I.C.E., architect:—

Jones, E. E., Nantmor, Beddeleert ...	£725 0 0
Jones, Roberts, & Jones, Pwllheli ...	693 0 0

\* Accepted. Architect's estimate, £740.

BOURNEMOUTH.—Amended tenders for painting the promenade pier. Mr. F. W. Lacey, M.Inst.C.E., borough engineer and surveyor:—

	A.	B.	C.
Miller and Sons ...	£348 10 0	£388 0 0	£389 0 0
Cutler, F. T. ...	342 0 0	380 10 0	378 0 0
Shears, G., and Sons ...	350 0 0	365 0 0	365 0 0
Jenkins and Sons ...	329 0 0	346 0 0	363 0 0

(Informal)

A.—Genuine white-lead paint. B.—Calley's Torbay oxide paint. C.—Ferrodor paint. \* Accepted.

BROMLEY, KENT.—For works of external painting and the pointing of the brickwork at the asylum in Dervous-road:—

Smith, J., and Son (accepted) ...	£2,579 0 0
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CROSSNESS, S.E.—For the provision of tidal flaps and culverts, &c., for the London County Council:—

Wall, C. ...	£2,569 11 3
Pethick Bros. ...	2,495 7 6
Johnson and Co. ...	2,439 1 0
Pedrette and Co. ...	2,212 4 0
Dickson, J. ...	2,190 0 0
Jackson, J. ...	2,070 0 0
Killingback, C. W., and Co. ...	1,970 1 0

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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, MAY 5, 1899.

### BUILDING INVENTION.

TO know the "latest thing" in building, as in everything else, is one of the accomplishments of the architect who desires to keep pace with the ever-increasing list of things necessary for the proper specification of a building. Very vexatious and annoying is the experience of the architect when he discovers that he might have hit upon a better and more approved plan, have constructed his floors and roofs on a more simple and economical system, or have employed a particular kind of flooring, or specified more perfect sanitary fixtures than he has. Yet this sort of experience occurs frequently. The knowledge of the invention, new material, or appliance comes just too late; the building is erected, and the architect finds that he might have done something so much better, or specified a thing that would have given more satisfaction. Invention does not come to all men. Some naturally possess the gift, others appropriate discerningly, the majority simply follow. The man who makes planning a study, and compares results, is more likely to attain his end in the least laborious manner; he is the man who produces the most agreeable elevations and treatments, the best plans. We have many more ways of inventing new plans than our ancestors. Our system of draughtsmanship is more perfect, and we have the advantage of seeing what others have done for the same class of building by means of the professional Press. Yet these advantages have failed to evoke fresh ideas, mainly because we are too contented to accept others' work for our own thought. In nine out of every ten cases an architect finds a plan that so nearly suits him that he does not trouble to think any further, but adopts it. This is what the process of reproduction has done: it has lightened labour and dispensed with thought.

Modern building invention is not only concerned in design and plan, though these will always be the highest. The modern building is made up largely of a variety of industrial products, from the materials of building to the thousand-and-one appliances which modern requirements have called into being. These are to a large extent independent of architecture. The construction of walls and floors has called out the ingenuity of inventors, who have vied in producing methods for securing economy of material, better bond, immunity from dampness, resistance to fire, and other objects. The architect may ignore some of these methods, but they exist nevertheless; concrete wall building, steel framing, and concrete cavity wall-construction claim his attention. In the new Admiralty and other buildings partitions are constructed of wonderful strength and resistance to heavy blows, that are made entirely of cement and breeze, that are much stronger than brick partition work of the same thickness, and which can be finished with plaster or cement, that will hold nails for battens and grounds, and are proof against fire. Or steel uprights with metal lathing for plaster, or to hold sheets of corrugated metal that can be plastered. Again, there are walls constructed of interlocking tiles and bricks with cavities. Though these modes of building walls are not generally used, they have their advantages under certain conditions, and for temporary structures they answer well.

The systems now in use for floor construction show the same ingenuity, and the

architect who specifies for large public buildings is responsible for not informing himself of the respective merits of each system. To say one is as good as another is to reflect on his knowledge, sagacity, or discrimination; he must know each system, to be able to determine which is the best or the most suitable for his purpose. Look, too, at the numberless examples of wood-block flooring in the market, and of which we see one or two good systems at Islington, such as the "Perfected" system, where each block is grooved and keyed to others. An architect would, indeed, be neglectful if he failed to make himself acquainted with each of the many plans before the profession. Imagine, indeed, the floor of any public building laid with ordinary boards on joists, when, at a slight increase of cost, a solid and practically indestructible floor can be laid upon solid steel and concrete.

These and sundry other inventions are being introduced into buildings to a larger extent than ever. It is not too much to say that at least 30 per cent. of our commercial buildings now adopt one or other of the so-called "fire-resisting" floor systems, while all our public buildings have them. As for other appliances, such as sanitary and ventilating contrivances, the numerous new improvements in traps, closets, baths, lavatories and their mechanism, which enterprising firms like that of Messrs. Doulton and others have introduced, the architect cannot afford to despise. The Building Exhibition, such as that now open at Islington, is one of the agencies by which these inventions can be brought to the notice of the profession. In these collections we can examine, take notes, and compare one system with another. The great industries of ironwork, terracotta, ceramics, lighting and glazing, electric lighting very closely ally themselves with architecture. We can hardly enter any new city or metropolitan building which does not possess improved modes of introducing daylight into the interior or basement like the "Luxfer" prism; or ceramic decoration applied to walls where light and cleanliness and decorative effect have to be combined; asbestos, Anaglypta, or some other kind of decoration for ceilings and walls; beautifully and artistically wrought brass or metalwork for electroliers and brackets, and a hundred other improvements in the shape of locks, fastenings, finger-plates. In the pressing duties of his calling, the architect has to take stock of all these details; he cannot afford to escape them, or to ignore them for old methods, without being open to rebuke; and the successful architect of the future will be he who can make an intelligent selection for his particular building without sacrificing the unity and integrity of his design. This no doubt is one of the perplexing problems of modern architecture: How to appropriate without destroying individuality? We have some buildings that are crammed with manufacturing specialities—odds and ends, as if the design were entirely a conglomeration of patented materials and specialities, where the architect's hand in detail is not seen, and where he has allowed himself to be effaced, the result of bewilderment and confusion—a grievous reflection on his ability, an excess that can only be averted by a large knowledge of what is best.

### ARCHITECTURE AT THE ROYAL ACADEMY.—II.

[WITH LITHOGRAPHIC ILLUSTRATIONS.]

LAST week we noticed some of the more prominent works exhibited in the Architectural Gallery, and in going round the room we missed several familiar names whose work a few years ago was generally to be seen at Burlington House. Among these absentees not a few are the possessors this year of rejected contributions. We are not really

so much surprised at that as we are to see some of the drawings chosen. Not, however, that this is any new experience, and possibly it may be inevitable. The enigma remains as to why certain things are selected, and the wonder is what canon of art or rule of taste contributed to such results. We have on previous occasions particularised to emphasise our difficulty, and we will do so again. No. 1621 shows a row of small shops at East Grinstead; they are quite devoid of interest; shops of very ordinary type with a first floor over. The only part of the building which is new, seemingly, is a high mansard roof providing another floor—indeed, so bald is the façade that the exhibitor has covered it up almost entirely with white sunblinds or sheets, of which, in fact, the drawing is mainly composed. The coloured chalks employed are intermixed with black, and we do not know why so prominent a place on the gallery wall is thus occupied, for surely such stuff as this is not actually architecture.

We will endeavour to follow round the gallery with the serial numbers so as not to overlook any distinguished example, though this method of reviewing a lot of drawings prevents anything like grouping types of the same class of work together. The Labourers' Cottages, Bromford, by Mr. H. T. Buckland, are too red in colour in the sketch; but the Dutch-like rounded gables are suitably simple. Hillington, Walton-on-Thames, with some quietly-handled bay windows, does justice (1618) to the good taste of Messrs. Niven and Wigglesworth. Messrs. Wimperis and East are ambiguous in the title of their proposed rebuilding of London newspaper offices (1620); but they display a fancy for a red brick curved front, well broken by ample fenestration. Mr. A. N. Prentice has three spacious drawings well hung of the same house, a big place in Suffolk called Cavenham Hall, with broad, massive brick-built chimneys, and the upper part of the fabric plainly rough-cast. There is considerable merit in this building, which is well planned; but the architect seems to have felt afraid of his own attempt at breadth, seeing that a creeper is introduced where it is not wanted for good effect in the drawing of the plain end wall. The actual fault is that this end mural treatment is not really wide enough. The proportion and fitness of the chimney stack forming part of the main building is far better. The silhouette style of these drawings is very emphatic and hard, and it is too conventional to be sympathetic (1624, 1634, and 1684). We shall illustrate the house shortly, and also will give Mr. John W. Simpson's softly-handled etching of his capable School for Ladies at Roedean, near Brighton (1615), one of the largest establishments of its character in England, and certainly among the most picturesque. The design for a Calvary in St. Bartholomew's big stock-brick church at Brighton by Mr. H. Wilson is drawn in charcoal with originality. The altar and choir seatings shown by the same architect last year for the same building have not yet been carried out. Messrs. Lancaster, Stewart, and Rickards show their design for Godalming Town Hall, a capital piece of work, though the cottage windows below along the front hardly harmonise with the monumental treatment introduced in the central part. We like the whole thing far better than the same architects' new Law Courts proposed to be built at Cardiff (1646). The drawing is bold in outline, strangely inadequate in parts, the detail being coarse, and, while aiming at originality, misses the grace of style and refinement. The new Higher Grade Schools and Teachers' Centre, Aston, Birmingham, by Messrs. Crouch and Butler, is a rather important work of its kind, well done. The village buildings (1653) and other Worcestershire domestic work by Messrs. Dawber and



Whitwell are very unassuming and pretty, and similar praise is well deserved by Messrs. Brewill and Baily's house at Aspley Heath, near Bedford, and Crosswell Schools. Their Presbyterian Church, Nottingham, is conspicuous for its plain western tower—so different from the popularly familiar gingerbread Gothic of similar buildings. Mr. E. P. Warren sends a low long village church at Bryanston, Dorset (1658), and Mr. Caröe shows the campanile of St. Mary Gate, Gloucester, as now completed (1675). The competition design by Messrs. Briggs and Wolstenholme for Bootle Fire Brigade Station looks imposing, and of a similar class of work is Newport and Monmouthshire Hospital, by Mr. R. J. Lovel. The new staircase and hall, Warnham Court (1641), a well-studied work by Mr. Arthur C. Blomfield, is clearly shown in pen and ink. Another interior is that of the south hall, Branksee Castle, Dorsetshire, designed to have colour decoration in a vaulted roof by Mr. R. S. Balfour, with refined reserve in quiet tones, rather perhaps scattered in effect (1698). Mr. Christopher W. Whall has an intensely keen appreciation of colour, and there is a thoroughness in his executed glass-work which we much admire. The small drawing of a private chapel window for Douglas Castle, Lanark, does not give a good idea of the real merit of Mr. Whall's work (1702), speaking generally. Mr. Thomas Davison hangs a coloured study in detail of the Trowbridge Technical School entrance bay (1703)—a plain building most capably handled. Mr. Roland W. Paul seems to be doing some good, quiet church work in Dorset and Somerset, showing three specimens. Chard Church, for example, is skilfully added to by him with new chancel and transepts (1787). Holy Trinity Church, Roehampton, is a typical work by Mr. G. H. Fellowes Pryne (1726), shown by an interior illustrating the stone screen of well-shaped florid tracery in front of the choir. Next to it is a new block of premises in Hanover-square by Mr. John Belcher, all in stone, with broad fluted pilasters dividing the upper part of the façade. The lower portion seems wanting in a base, and the superstructure might be described as a trifle commonplace, though this effect serves to set off the more original arrangement of the main fenestration below, with the range of sculptured figures ingeniously introduced over each window, after the manner adopted elsewhere by Mr. Belcher. Mr. Arnold Mitchell has a gabled small house at Rickmansworth, and Mr. C. F. A. Voysey shows some of his rough-cast-coated quaint cottage-like dwellings at Windermere and Oxshott. No. 64, Parliament Street, S.W. (1733), shown by Mr. Alfred Williams, has undoubted boldness, and a degree of play which attracts the passer-by; but we cannot like the polished granite ground-floor story. New College Buildings, shown by an outline elevation, is the latest addition to the architecture of Oxford by Mr. Basil Champneys. It is conceived in a late phase of English Gothic, picturesque enough, and comely. A less formal drawing would have done the work better justice. At any rate, Mr. Champneys has realised that an architect has to deal with hard facts which garnished drawings may mystify and lead, perhaps, to sad mistakes in actual building. Mr. Henry T. Hare's Henley Town Hall we mentioned last week (1765): to-day we illustrate the building. Our other illustrations in this connection are Mr. Aston Webb's Britannia Royal Naval College, Dartmouth (1671), and The Union Square Chapel, Brighton, by Mr. John W. Simpson (1753), both described in our previous article. St. Luke's Parish Church, Maidstone, is exhibited by Mr. W. H. Seth-Smith's interior perspective; and the New Spire, Saltburn Church, is contributed by Messrs. Clark and Moscrop. Hard by is a row of

gables quaintly distinguishing a house at Pyrford, Surrey, from the facile pencil of Mr. W. F. Unsworth. The new City Hall, Belfast, won in the late competition, makes a very striking work, by Mr. A. Bramwell Thomas (1785), a building of some promise. Messrs. Hall, Cooper, and Davis are well known for the quaintness of their designs, which are usually displayed in oddly-tinted drawings. Those shown on this occasion are no exception—viz., the Tower of New College, Scarborough; four houses at Scalby, Yorks; and more houses at Scarborough for the Gas Company. Another picturesque and clever example of Domestic design is furnished by Messrs. Silcock and Reay, in Holyrood Schools, Swindon, of which we shall give a reproduction. A drawing (1764) called 16, Stratton-street, Piccadilly, by Mr. C. J. H. Cooper, shows three diverse buildings, and there is nothing to indicate which is the number really referred to.

Mr. M. H. Baillie Scott has several coloured interiors, very decoratively furnished in an odd old-world and straight-backed fashion. The drawing-room of the Chaplain's House, St. Mary's Home, Wantage, is the first of these, with an arched roof; but the frame is too high to allow of a proper inspection. The Village Hall, Onchan, Isle of Man, seems ingenious, with a roof of green-coloured timber, and the hall of a house with an oratory leading out of it displays all the fetching fancies of this designer. Another hall is that from Kelly House, N.B., by Mr. William Leiper, who shows his staircase and gallery (1743) by a geometrical section. Mr. Thomas E. Pryce sends a highly-finished and well-tinted view of "Ifield Wood," an enlargement of an old Sussex farmhouse (1840). There can be no doubt as to the style of this brick-and-tile county, which Mr. Pryce evidently knows quite well. A crude, harsh drawing does an injustice (1810) to Mr. Charles H. M. Mileham's design for a new Pier Hotel, Southwold, a Suffolk seaside village much frequented by architects for their holidays. The Birmingham and District Counties Bank sent by Messrs. Bateman and Bateman pleases us well. The entrance, with its figure sculpture, is dignified and suitable. Mr. G. D. Martin has a coloured drawing of some tall flats at Kensington, and Mr. C. H. Townsend sends a small coloured view of the White-chapel Picture Gallery. The garden house, Fairlawn, Kent, is a Classic conservatory, added by Mr. C. J. Ferguson, of Carlisle. Miss Margaret Cooper is the architect, seemingly of a house, Dolgelly, North Wales (1843); but we do not like her green-washed stone walls and violet slates. Messrs. Wilson and Talbot send a row of cottages at Port Sunlight (1670), and Mr. J. J. Stevenson is represented by a pale washed view of Peter Memorial Church, Stirling. Mr. Edwin T. Hall shows (1868) the offices of the Metropolitan Asylums Board, already illustrated in the BUILDING NEWS. It has a very ingeniously contrived plan. The same architect exhibits a new wing to the British Home for Incurables (1866). The School Board Offices, by Messrs. Armstrong and Knowles, are being built at Newcastle (1871), and Mr. B. Pite has a washy view of a pretentious house lately erected on a corner site in Harley-street. The building has a strange lack of rhythm, with too evident an endeavour after novelty and strangeness. Its pretentiousness at any risk demands observation, while the skylights and glazed cockloft over the oriel bay make the structure look thin and ineffective. The same architect's little front in Bond-street is a far more meritorious work (1850). Mr. Mountford's Liverpool Museum and Technical School is hung far too high to allow its parts to be seen, and we anticipate the author would rather have had the drawing, which seems to be a painstaking elevational sheet,

returned than skied in this manner (1860). Mr. H. T. Buckland is further represented by a design for Port Elizabeth Public Library, sent in in competition (1824). A house with a formal garden (1818), the conceit of Mr. Allan F. Vigers, shows a tasteful ideal of a country demesne, the same remarks being equally applicable to Lea Park, Godalming (1809), by Mr. Paxton Watson, who shows his mansion house in elevation or nearly so. The Gardens by the River (1751) is another work of this class sent to the Academy by Mr. John S. Lee, of Putney. In harking back over the collection we notice a Farmery at Burton, Sussex, by Mr. Horace Field, and an oddly-shaped font with a domical cover by Mr. Ralph Knott (1711). On the corresponding splay of the gallery is a pulpit and bench-end, also of an uncommon form, for St. Brelade's Church, Jersey, the design of Messrs. Rogers, Bone, and Coles. Ipstones Church Screen (1623), Staffordshire, by Mr. G. C. Horsley, is represented by a strange-looking drawing intentionally queer. St. Luke's Church East End Decoration (1719) is the sole contribution of Mr. James Brooks. Mr. A. L. Gwatkin shows a nice design in browns for a frieze (1799), and Mr. Frank Murray is the author of a Ship Frieze for the P. and O. Company (1744) done in reds and golds with capital taste.

#### PICTURES AT THE ROYAL ACADEMY.—II.

AS we said in our first impression of the Academy last week, very few subject pictures of any distinction are to be seen this year. To some extent this loss has been atoned for by landscape, seascape, and portraiture. Many of our leading subject painters have given themselves up to the more lucrative branch of painting portraits of distinguished people. For instance, Mr. Hubert Herkomer has his full complement of pictures, all portraits, and Mr. W. Q. Orchardson four. One of the best of Mr. Orchardson's is the portrait of Lord Kelvin (87), the accomplished mathematician and authority in electrical science—a seated figure expressing both individuality and character; and equally perfect is the portrait of "Peter Russell, Esq." Perhaps his best and most characteristic portrait is in Gallery III., the "Presentation Portrait of the Earl of Crawford" (243), a careful study of the personality of the man, thoughtful, and looking at the ivory cover of an old manuscript in relief, with a jewelled crucifix. The face and head are refined and ably modelled. The colour, in tones of amber, old gold, and red, is harmonious. Mr. Herkomer's portrait, in the Second Gallery, of Dr. W. W. Baldwin (106) is a vigorous presentment of the man; the colour is natural, and not introduced to produce a harmony, and the work is solid and well painted. To these we may add the portraits of "The Lord Bishop of Truro" (92), by Walter W. Oulless; "Miss Octavia Hill," a presentation portrait, by John Sargent, R.A., and Edward J. Gregory's lady in a shot satin dress.

We now take up in more detail the principal pictures as they occur in the galleries. Seymour Lucas's work—a diploma work—(3) "News from the Front," noticed by us last week, is as accomplished as all Mr. Lucas's work is. The armoured cavalier is well drawn, seated back to an old-fashioned parlour fireplace, looking at a despatch just given to him by a bugler with top-boots, carrying a sword slung to his side. The plain deal table and furniture are scholarly and technical, and the colouring is admirable. We can hardly add anything to our description of the simple drawing and colour of two children in a wood (13), delightful in its harmony of the leafy background. Val C. Prinsep's stirring appeal to citizens, "La Marseillaise. 'Aux armes, citoyens!'"



(30) is spirited. Arthur Hacker, whose work is always of a high character, sends several pictures; his chief subject is in Gallery VIII., and is called "The Golden Hour," a charming group of maidens in a glade, to which we shall refer anon. Another work of his, "The Drone" (33), is a girl of dejected air in a field of fox-glove and larkspurs, cleverly painted. Strong and pathetically painted is George Clausen's "Going to Work," a young harvester, with scythe and basket, entering upon his day's labour, strong in sentiment and colour; and his "Allotment Gardens," in the next Gallery, a young married couple digging potatoes at sunset, also admirable in drawing and tone. Over Andrew C. Gow's brilliant and crowded canvas of the Queen at St. Paul's Cathedral, noticed by us last week, is Arthur S. Nowell's "Perseus and Andromeda," an ambitious subject, one of the principal pictures in Gallery II. The conception of the legend is masterly and bold. The standing figure of Andromeda tied to a rock surrounded by the coils of the sea monster, who is being slain by the spear of Perseus, is a subject that has often been told. The repetition of the story does not suffer in Mr. Nowell's hands; the figure of Perseus hurling the spear into the open jaws of the monster is well modelled and full of animation.

On either side of Sir E. J. Poynter's graceful portrait of the Hon. Violet Monckton in Gallery III. are some fine landscapes. Colin Hunter has hardly painted anything more effective than his "Kyles of Skye" (159), grey, limpid water and the setting of naked hills of pearly hues. Few can paint with more truthfulness and force these beautiful isles of the Hebrides. His "Signs of Herring," another picture of the same part of the coast, we noticed last week. H. W. B. Davis has given us a delightful piece of Wye scenery in his "Cerrig-Gwynnion" (189). Mr. Davis and Mr. Leader are both painters of English landscape, both conscientious delineators of nature, but each has his own favourite class of scenery and each his own scheme of colour. One takes the by-lanes, the meadows, the overhanging foliage of streams and nooks of woodland; the other the broader and more open fields, of commons, and wooded landscape.

In the place of honour, so long occupied by the choicest works of Leighton, hangs a large family group of schoolgirls by James Sant, uninteresting in subject, and of no artistic merit. One of the most attractive studies, in portraiture at least, of a young girl in a setting of sumptuous character and richness, is by Frank Dicksee (184), whose *penchant* for luxurious background and rich colour is well known. The young, plump-faced girl, in large black hat and feathers, with white dress and canary-coloured sash, her loose hair hanging down, is sitting or resting corner-wise on a settee in a listless manner. On one side is a mother-o'-pearl inlaid pedestal, on which is a silver bowl with purple anemones. Behind is a shaped mahogany buhl cabinet, with luxurious accessories, the warm and rich colours of which set off the white-frocked young maiden. Walter W. Oulless has a portrait of "The Bishop of Lincoln" (178) in a violet cassock, one of the best in the gallery. Richard Jack, in his full-length presentment of "Miss Evelyn Millard as 'Lady Ursula'" (188), has painted a characteristic portrait of this accomplished lady. She wears a pale yellow dress and a black hat, and is shown turning her head looking over her shoulder.

"Toil and Prayer" (192), by John W. Whiteley, nuns on a beach offering prayers for their toiling sisters of the sea, has pathos. John MacWhirter's "Crabbed Age and Youth" (196), an old Scotch fir gnarled with age by the side of a slender and graceful young birch, is, it is needless to say, perfect in study and colour. Several grand seapieces

are to be seen. We particularly mention J. H. C. Millar's very fine "Waves from the Atlantic, coming like White-plumed Squadrons to the Shore" (229); George Harcourt's "Westward," a noble piece of seapainting in the Hebrides, the horizon tinged by a streak of red light. J. C. Hook's delightful cliff scenes clothed with green verdure (232 and 244) are charming harmonies of blue and green, such as we may see on the Devonshire coast. In one of them we have a bay with open sea and jutting headland of cliffs; in the other there is an inner pool formed by the slips of rocks, in which a girl is looking for water-cresses, both are fresh and sunny.

W. P. Frith paints an incident recorded in "Pepys's Diary, 1667," where Charles II. is asking forgiveness, on his knees, of the imperious Lady Castlemaine. The lady looks haughty and frowning on the abject monarch. The scene shows a lady and gentleman looking through an open curtain, witnesses of the meeting. The toilet table before which her ladyship stands is laden with choice articles and jewelry, all painted with consummate care. Val C. Prinsep's subject "Cinderella" illustrates a country version of that popular character. The scene is a country kitchen, or, rather, chimney-corner of brick, with a wood fire in the hearth. A refined-looking maiden leans against the wall holding in her short skirt pieces of wood for the fire; on the floor is a large pumpkin, and hanging on the wall above some onions. There is a thoroughly country home simplicity in the piece. The dainty face and hair, the small, well-proportioned shoeless and stockingless feet and ankles of the maiden, are all painted with unquestioned accuracy. Grace and beauty are depicted in this simple country girl.

There are few subject pictures in this gallery. F. D. Millet's picture, "The Travelled Man" (221), is certainly one of the cleverest in its quiet humour and mystery. The young man, busy at a desk, in his embroidered dress, surrounded by theatrical properties, is apparently a strolling player or comedian. His table, the floor, and walls are laden with strange mechanical figures, Oriental devices, and toys from Burma, Siam, Sumatra, and other Eastern parts. The girl in light dress stands as if in waiting upon the industrious entertainer. There is something grotesque and humorous in Mr. Millet's strange heterogeneous collection of dolls, devil figures, mechanical contrivances, slippers, &c., the very weirdness of which contrasts with the business-like air of the traveller and his serving-maid.

Two large pictures confront the visitor in Gallery IV. One is John Charlton's "God Save the Queen," painted by command of Her Majesty (273). Mr. Charlton depicts the scene Mr. Gow has painted—the Queen's arrival at St. Paul's on the occasion of her Jubilee Thanksgiving—and selects a point of view facing north, showing a sharper perspective of the West portico, and of the masses of clergy and officials standing on the steps. The houses on the north side of the the Churchyard are brought into conspicuous view. We see Mr. Maskelyne's temporary structure packed on each tier, and the windows and roofs of adjoining houses crowded with sightseers. The large area in front of the Cathedral, with Queen Anne's statue, is thronged with cavalry, the Indian escort, and bright uniforms of the officers. The assemblage on the steps is skilfully painted; but the work is rather slight, and the portraits of the notabilities are less obvious. Mr. Charlton has performed with commendable talent a difficult task, and if his picture is not so well grouped, the fault is rather in the selection of this point of view. Both these representations of a splendid pageant are worthy of the occasion.

Above hangs Gerald M. Burns's colossal picture of the "Launch of the Battleship on

the Thames," a work seen better at a distance. We cannot judge of the merits of such a subject by the usual standard of criticism. A big, unlaunched vessel in the builder's yard is not a very artistic thing; we have to estimate its grand sweep of lines, the huge mass on its cradle, the vast assemblage gathered together to witness the launch, all of which Mr. Burns has very adroitly handled with artistic power and technical skill, and his colour is very successful. We cannot help thinking that in many hands such a subject would be uninteresting or monotonous. Frank Walton's picture (282), "The Sentinels," is a broadly-painted landscape; the old church and tower stands solitary as a landmark to the mariner, the sea skirts the horizon, and in the foreground, on grassy meadow, is an old yew tree. These, we presume, are the sentinels. E. Gouldsmith's "Sundown at Sea" (276), is a fine seascape, with rolling waves, vigorous and strong in colour. John MacWhirter paints a track of wild forest (288), in which the storm has wrought havoc amongst the trees, branches of which lie on the ground. Standing in the midst of devastation is a solitary tree which has mastered many a storm. Near this Edwin A. Abbey's large and impressive picture, "O Mistress Mine, Where are You Roaming?" is a dramatically-conceived work, exhibiting much power of composition and of colour. The lady, who is being hindered by an ardent Florentine lover in her passage through a rough cloister or open corridor of huge white, shapeless piers, through which is seen an orchard in full blossom, seems reluctant to say much. The gallant is clad in a scarlet cloak, which contrasts strongly against the white pillars of the background. The particular scene of the play, whether the maiden is a Silvia or Juliet, we are left to imagine. All that we can do is to admire the simple design and its broadly-handled masses of colour. The composition is decorative, and would make a grand panel or fresco in a public building.

There is little else in this gallery. Sir W. B. Richmond's portrait of the Dean of St. Paul's (318) possesses the value of a good portrait; but there is also life, character, and animation in the massive brow of the Dean. We have already spoken of H. H. La Thangue's work in other galleries. "Harrowing" (319), a young couple drawing the harrow over a ploughed field, their faces suffused with the reddened glow of sunset, is another example of the art of a painter who has an experience of the open air, country peasant's toil, who lives amongst the harvest fields and workers he paints with so much powerful realism.

#### ESTIMATES.—V.

BRICKWORK, PAVING, ETC.

WE have alluded to the difficulty of assessing some kinds of labour. In such items as "extra labour and materials, cutting and bonding new to old work," "rough-cut splays in brick," "squinquin," "skewback cutting," and the like, which are usually taken by the foot run, it is impossible to put a fair price without knowing particulars, the class of brickwork, the position and quantity of the work. The use of "constants of labour" come in very usefully here, and may be helpful. Work of this kind is often done with hammer and chisel. The constant for rough-cut splays is given by Hurst at '005 day of a labourer per foot; for birdsmouth the constant may be taken at '008, say, of a bricklayer; for skewback cutting as '020, and for cutting chases the constant may vary from '025 to '033 per foot superficial, the former for cuttings for small pipes, the latter for large chases for soil-pipes, measured per foot super.

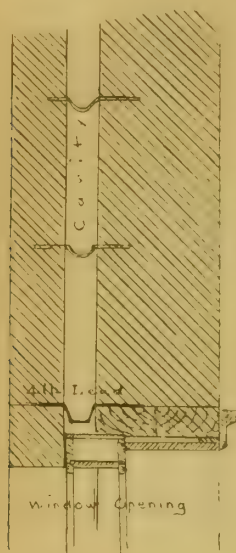


32ft. Extra labour and materials, cutting and bonding  $1\frac{1}{2}$  brick wall to old work.

To obtain a close approximation of the value of this item, we may assume one course in every foot in height would be let into the old wall  $4\frac{1}{2}$ in.; the new brickwork would be about  $\frac{1}{2}$ ft. reduced for every foot lineal, say 1d. The cutting may be put at 2d., and the mortar at  $\frac{1}{2}$ d.—say 3 $\frac{1}{2}$ d.

Laxton puts the price for labour and materials, cutting out fall of old wall, and pinning and bonding new work to same, average half-brick into old wall in cement at 10d. per foot super.

Hollow walls are measured and valued in two or three ways. In many bills the brickwork is measured nett and valued as extra only, per foot super.; or it is sometimes measured as solid, and the cavity deducted by the foot super. or cube. We think the best



plan is to take hollow walls as solid, as so much reduced brickwork, making no deduction for cavity, which is measured in the thickness to pay for the labour of forming the two separate walls; the iron or other ties being allowed for extra, though with some surveyors the ties are considered equivalent to the cavity being measured in. In most bills hollow walls are taken as so many super. feet, not brought into rods. Why this plan should exist we are unable to say, as it is much easier to bring all brickwork to the rod reduced, allowing a little extra price for hollow walls. We give two calculations.

62 rods. Hollow wall in two thicknesses of brickwork, 9in. and  $4\frac{1}{2}$ in., with  $2\frac{1}{2}$ in. cavity, bonded with galvanised wrought-iron wall ties, four to each superficial yard, and hollow kept clear of mortar droppings, &c.

Cost of a rod of reduced work solid, as before .....	£ s. d.
13 3 9	
Add for one galvanised-iron tie to every 3ft. super.; say 100 ties = 60lb.; say 3cwt. at 26s. ....	0 13 0
Labour and boards keeping cavity clear, say 4s. per rod .....	0 4 0
	14 0 9

Mr. Leaning gives an example of the calculation of the price per rod of a hollow wall of the above description. To the labour and materials required for a rod of solid reduced brickwork he adds the cost of keeping the cavity clear of mortar droppings, and by using movable boards at 5s. per rod, and the cost of wall ties as follows:—

Labour and materials per rod, say .....	£ s. d.
13 3 9	
Hay-bands or movable boards .....	0 5 0
120 wall-ties, 60lb. per 100 = 72lb., at 25s. per cwt. ....	0 16 1
	14 4 10
Deduct $\frac{1}{6}$ th of £13 3s. 9d. ....	2 3 6
	12 1 4

Damp-proof courses are of various kinds: slate in cement; a mixture of pitch, tar, and sand, boiled and laid hot on the bricks; asphalt, such as Claridge's patent asphalt; Val de Travers compressed asphalt, Callender's pure bitumen dampcourse or foundation felt, White's "Hygeian Rock" building composition, and perforated stoneware tiles or slabs, as those made by Messrs. Doulton and J. C. Edwards, Ruabon. The last are made in salt-glazed ware, vitrified, blue, red, and buff terracotta, and answer for air bricks as well as to prevent damp rising. Each of these kinds has its advantages. The asphaltes, White's Hygeian Rock composition and Callender's bitumen dampcourse are the most largely used (see advertisements).

260ft. super. Damp-proof course; two courses of slate in cement, lap-jointed.

This may be priced at 5 $\frac{1}{2}$ d. per foot.

If we suppose the cost of two slates to be 3 $\frac{1}{2}$ d. per foot, the item may be made up thus—

Slates .....	£ s. d.
10 per cent. waste cutting .....	0 0 3 $\frac{1}{2}$
Cement and sand .....	0 0 1
Labour laying .....	0 0 0 $\frac{1}{2}$
	0 0 5 $\frac{1}{2}$

320ft. super. Damp-proof course of the best mastic asphalt  $\frac{1}{2}$ in. thick.

This is priced in Laxton's at 3s. 9d. per yard super., laid in London, in quantities of 20 yards and over, which would be about 5d. per foot, including profit. For ordinary work in large quantities 2s. per yard is a fair price often charged by asphaltes, or, say, 3d. per foot without profit.

A dampcourse of pitch, tar, and sand  $\frac{1}{2}$ in. thick may be laid at 1 $\frac{1}{2}$ d. to 2d. per foot; but for any large quantity the best plan is to obtain a price from the manufacturer.

24 yards super. Damp-proof course laid with White's "Hygeian Rock" composition  $\frac{1}{2}$ in. thick.

It is stated that 1cwt. will cover  $2\frac{1}{2}$  yards  $\frac{1}{2}$ in. thick. The composition, including carriage, is stated to be £5 16s. 8d. per ton, therefore 1cwt. will be 5s. 9d., and the cost per yard about 2s. 4d.; add labour and profit. It is best to obtain a price for laying complete from maker.

22 yards. Portland cement paving to basement  $\frac{1}{2}$ in. thick, and trowelled smooth.

This item may be made up as follows:—

Cement and sand .....	£ s. d.
Labour .....	0 0 10
	0 1 0
Profit .....	0 1 10
	0 2 2
	0 2 0

In estimating the bed for paving, allowance has to be made for a thin layer of lime or cement mortar and the jointing. A preliminary calculation of the materials required for a cubic yard of cement mortar is necessary.

If we allow 1 of cement to 3 of sand we shall have:—

9c. ft. of cement at 1s. 6d. per foot .....	£ s. d.
27c. ft. of sand at 7s. per yard .....	0 13 6
Labour, mixing, screening sand, &c. ...	0 7 0
	0 2 3
	1 2 9

Divided by 27 will give about 10d. per cubic foot.

36 yards super. Paving of hard stocks laid on edge in sand, including cutting and waste.

Here, if we take 53 bricks, allowing 10 per cent for waste, at 34s. per 1,000, it will be 1s. 9 $\frac{1}{2}$ d., and add for one cubic foot of sand at 7s. per yard, say, 3d., and labour 10d., it will give 2s. 10 $\frac{1}{2}$ d. per yard.

If laid in mortar the cost would be about 3s. 9 $\frac{1}{2}$ d.

22 yards super. Hard stock paving laid flat in mortar:—

36 bricks at 34s. per thousand .....	£ s. d.
Mortar, say 1c. ft. ....	0 1 2 $\frac{1}{2}$
Add labour, say .....	0 0 7
	0 1 0
	0 2 9 $\frac{1}{2}$

12 yards. Tile paving, including laying, with tiles p.c. 10s. per yard at works.

Add for carriage. Obtain list of prices of manufacturer—Minton, Stoke-upon-Trent; J. C. Edwards, Ruabon; T. and R. Boote, Burslem; or other maker; also for cement and profit. If the price is, say, 12s. delivered, then add, say 6d. a yard for cement; laying, say 1s. 6d. per yard; in all, say 14s. per yard. But the price will vary much with the quantity required. A small vestibule or lobby laid in geometrical patterns with the best 6in. tiles will cost the above price.

The cost of a floated cement surface for paving or tile hearths may be found by taking the cost of 1 bushel of cement and 2 bushels of sand, which is calculated to cover 9 yards, added to labour. If we put the items down as follows:—

1 bushel of cement .....	£ s. d.
2 bushels of sand at 7s. 6d. per yard .....	0 2 0
	0 2 10
Say .....	0 0 4
Add labour .....	0 0 6
	0 0 10
Profit, &c. ....	0 0 1
	0 0 11

15 yards. Paving of 6in. red Staffordshire tiles laid on a cement surface.

Laxton gives the prices of 6in. by 6in. Staffordshire tile, 1in. thick, best pressed quality, red, blue, and buff, at 9s. 6d. per yard super., including labour, to which add cement floating, cost of laying, carriage, &c.

Tiles, including carriage, say .....	£ s. d.
Cement floated surface, say .....	0 10 6
	0 11 6
Add profit .....	0 1 3
	0 12 9

This is a high price, and for ordinary Staffordshire tiles 6s. 6d. may be taken as a fair price, including labour and laying.

#### CONFERENCE ON ROAD MAKING MATERIALS AND APPLIANCES.

ON Friday and Saturday afternoon last papers on "Road Materials and Appliances" were read and discussed in the Conference Room at the Agricultural Hall in connection with the Surveyor special exhibition in the north gallery, at the very successful Building Trades Exhibition now in full swing. The attendances were very good, the room being well filled by surveyors, clerks, and workers of urban and rural authorities, and a keen interest was manifested in the proceedings.

On the Friday the chair was occupied by Alderman C. W. Cope-Proctor, chairman of the Works Committee of the Bristol Corporation, who in his address referred to the improvements made during recent years in street paving and road construction.

#### STANDARDISING THE INEQUALITIES OF ROAD SURFACES.

Mr. H. PERCY BOULNOIS, Engineering Inspector to the Local Government Board, and late City Engineer of Liverpool, read the first paper, in which he remarked that this was the first occasion in which a collection of road-making materials and appliances had been brought together, and as such the exhibition was of very great interest. The lecturer gave a brief historical sketch of the making of roads from the mere foot-worn track to the days of the Romans, from which time, he observed, nothing was attempted until about a century ago, when John Metcalf, a native of Knaresborough, who became totally blind at the age of 25, began improvements which were continued by John Loudon Macadam, John Telford, and others. Having



alluded to the many patents for paving road surfaces taken out during the past 70 years, the author turned to the question of the designing and construction of roads, and remarked that for the former a theodolite, a good level, and some boning rods were all that an engineer really required to lay out a road. Movable screw templates were sometimes used in order to give the proper contour to a road; but this could be quite sufficiently carried out with boning rods in the hands of a skilful person. There was an instrument being shown in that exhibition for the first time, which he thought was an ingenious novelty. He referred to the "Viagraph," invented by a Mr. Brown, of Belfast, which was the first instrument he had ever heard of which would give a graphic delineation of the badness or otherwise of the surface of any road, and which enabled one to standardise a road surface. He knew nothing as to the inventor, and need hardly explain that he had no interest in the instrument, but brought it forward, as it impressed him as the germ of a useful auxiliary to the road surveyor, when he noticed it in the exhibition. The instrument consisted of two parallel straightedges, several feet in length, and 6 in. apart, looking like a long low sledge. It was drawn along the surface of any road at a speed of anything under eight miles an hour. Between the parallel straightedges or runners a recording instrument was placed. By a simple arrangement a saw-edged steel wheel, just sufficiently weighted, rested on the hard surface of the road, and when the sledge was pulled along, the wheel followed the depression or projections in the road, and by simple mechanism recorded these depressions and projections by means of a pencil on a drum of paper which unwound for the purpose as the machine was pulled along. A profile was thus secured which could be compared with any other road similarly tested. A second pencil marked a horizontal line on the paper which was the datum line. There was also an ingenious counter on the instrument which marked off the sum of the unevenness in the road, and thus a unit was arrived at which gave in feet per mile the sum of the unevenness. Thus on a trial with this machine on a good road between Guildford and Leatherhead, the sum of unevenness showed about 12ft. per mile, whereas on the Belfast and Lisburn road it amounted to 121ft. per mile, so that the Lisburn road was ten times worse than the Guildford road.

#### THE WEARING QUALITIES OF ROAD MATERIAL.

Mr. J. VINCENT ELSDEN, B.Sc., Lond., in a second paper, dealt at considerable length with the qualities of various granites, limestones, elvans, and other stones as road-making materials, remarking that the position of a substance was very different when regarded purely as a mineral aggregate, and when considered as to its power to withstand the attrition of road traffic. Again, a stone which would be discarded as valueless for paving setts might still be of great service when broken up for macadam or when used as a substratal pavement, as in Telford's system. Other stones which were deficient in the leading properties necessary in a good macadam might still be advantageously used in conjunction with some other material or when consolidated into an artificial concrete. Much inferior stone, quarry waste, was capable of being utilised in the manufacture of artificial paving slabs. Further, many stones had earned a bad reputation undeservedly, while the real fault was in the method of road construction. The tendency of modern experience was to provide a hard unyielding foundation, for a soft foundation was found to involve a considerable amount of wear and tear near the bottom of the road, whereas the aim should be to limit the wear to the superficial and easily-repaired surfaces. In dealing with granite it was necessary to consider the mineralogical composition, the size of grain, and the orientation of the crystals, for when the crystals did not lie in any definite position the strength was increased, and at the same time splitting was more difficult. The author drew attention to the errors in nomenclature in road materials. The present state of our knowledge of the wearing properties of good road stone was in a very backward state. The subject was well understood from a geological point of view, but not from a practical standpoint, though, thanks to the microscopical methods of examination, we were getting a fairly complete knowledge of the mineralogical composition of the most important road masses of these islands. But mineralogical composition,

although all-important as to durability, was not the only part for consideration. They had also to take into account the toughness or resistance to abrasion, binding properties, foothold, and ease of traction, amount of absorption, and other points. Unfortunately, also, some of these properties were in inverse proportion to others. Thus the tendency to wear to a smooth and polished surface characterised many of our hardest and most durable stones, and rendered them practically useless for paving purposes. Durability was frequently inversely proportional to the toughness as in the case of flints, which chemically was the most stable and unalterable of minerals, but of which many varieties were extremely brittle. How should they estimate the value of attrition tests? They had attrition tests, of which the most recent were those of Mr. Lovegrove and Professor Elliot; then there were drop tests, absorption tests, and comparative strength tests; but the author questioned if any one of these taken alone corresponded with the test of practical experience of the behaviour of a stone under actual traffic. What was really wanted was a series of careful trials performed upon a few typical stones, and the construction from the results of these tests of a definite scale, somewhat like the scale of hardness adopted by mineralogists. By this means a clearer idea would be conveyed of the character of a road stone than was possible from the present chaos of figures which represented the result of tests conducted perhaps with the greatest skill and accuracy. If a scale could be devised having ten typical stones arranged in a definite order as regarded resistance to abrasion, then any stone could be given its number on the scale. He might suggest Penmaenmawr stone might form No. 1 in the series, and such a material as inferior sandstone might form No. 10. He would also advocate a scale of comparative strength. The same chaos and difficulty of comparison pervaded the present method of estimating this feature of a stone, as in the case of abrasive tests, and the like applied to the question of comparative durability. The construction of such a series of scales would not be easy—its very difficulty showed its desirability; but he would suggest the following as a tentative illustrative list, subject to revision and amendment:—1, Penmaenmawr stone; 2, Clee Hills granite; 3, Mount Sorrel granite; 4, Hartshill quartzite; 5, Whin stone; 6, Mendip limestone; 7, Pennant grit; 8, Kentish rag; 9, Cornish stone; 10, flint. If they had to place these stones in their relative order of merit as regarded any one of the following properties—attrition, durability, foothold, absorptive power, and compressive strength—they should have but little difficulty in determining the beginning and end of the series, but the intermediate places would not be easy to arrange.

A short discussion followed, engaging Mr. J. Patten Barber, surveyor to the Islington Vestry (who thought the viagraph too delicate a mechanism for use on ordinary roads); Mr. T. H. Yabbicom, city engineer of Bristol; Mr. T. Longdin, borough surveyor of Warrington; Mr. John Brown, of Dunmurry, near Belfast, the inventor of the viagraph (who explained that he was not a surveyor, but a coach proprietor, and devised a rough implement to convince the rural authorities in his own neighbourhood of the unusual badness of certain main roads, when several surveyors told him the instrument would be of general use if strengthened and perfected); Mr. W. Nisbet Blair, surveyor to the St. Pancras Vestry; and Captain Aubert, chief engineer of roads under the Norwegian Government.

On Saturday the conference was resumed, the chair being occupied by Mr. T. de Courcy Meade, M.Inst.C.E., city engineer and surveyor of Manchester, who gave an interesting address on road-making.

#### NEW MATERIALS AND NEEDED MACHINERY.

Mr. SIDNEY STALLARD, Surveyor to the Maidstone Rural District Council, drew attention to a model of cross-section, showing drainage exhibited by Messrs. Blitchfield and Co., constructed of Rouge Royale quartzite setts, each 6 in. by 4 in., from the quarry of Pecherel. While in Paris recently the author had interviews with M. Boreux, the chief engineer of the bridges and roads of that city, and M. Deval, until recently the director of the laboratory for the testing of materials for the same city. The author also had the opportunity of inspecting the materials for road maintenance at one of the central depots of Paris. The Rouge Royale quartzite setts were classed by M. Deval, after

repeated theoretical and practical trials, as the best for paving important thoroughfares on account of their homogeneity and durability. They were used in the Rue de Rivoli and on some of the boulevards, and there had been no complaints of slipperiness. It was desirable on many grounds to get in homogeneous and level materials, but some setts possessing these qualities had the grave drawback of becoming polished and slippery with the action of traffic. Turning to the consideration of channels and gutters, Mr. Stallard remarked that in purely rural districts paved gutters were unheard-of luxuries, and with the present labour difficulties were likely to remain so. He had found ordinary tarred macadam formed a good gutter for country districts if carried to a width of 3 ft. from the curb edge. Hardly a morning passed without the average district surveyor being informed that someone had made the great discovery of an absolutely perfect gully or grating. The aim should be to get a gully which possessed a perfect seal for dry weather, such as that made for Mr. C. Mason, the surveyor to St. Martin's-in-the-Fields Vestry, or that shown by Mr. A. E. Collins, of Norwich, while the excellent gully designed by Mr. Read for the city of Gloucester, which was easily emptied and replaced by street-sweepers without outside mechanical contrivances. He held that no gully grating ought to be constructed that did not allow for the greater width between the bars being on the under side, to allow of stones dropping through. In the South of England stoneware gullies had not made the rapid progress that had attended their introduction into the Midland and Northern districts. The author called attention to the most useful tabular forms as to traction on roads, lent by Mr. W. Nisbet Blair, engineer to the St. Pancras Vestry, which would save surveyors many a weary hour classifying traffic and preparing working data. It was curious that no exhibit had been received for measuring the force of traction on roads, but such an apparatus was greatly wanted, and another need was a water-tight barrow for gully-emptying in rural districts.

#### MACHINERY AND TOOLS FOR ROADS AND ROAD-MAKING.

Mr. J. PATTEN BARBER said the continual increase of traffic on our roads, and the augmented cost of labour necessary for their maintenance, had opened up an extensive field for the exercise of mechanical skill. Many machines had been manufactured, and many more had probably had an ideal existence in the minds of inventors, but had not seen the light of day. Very many of the machines which had been made had failed to accomplish their purpose; but others were of great service to those engaged in road-work and to the public. One of the most recent inventions was the scarifier, which was in many places received at first with disapproval. The improvements made in these machines, and the small cost of working them compared with that of hand-picking macadamised roads, had effectually silenced their opponents. The earlier types consisted of a heavy trolley armed with tines at each end, raised and lowered by a screw worked from a hand-wheel. The machine was mounted on low wheels at the sides and a leading and trailing wheel, and was attached by chains behind a traction-engine or steam-roller. Having been drawn to the end of the length of road to be lifted, the engine was detached and brought to the other end of the scarifier, which was again set in motion over a parallel piece of road, a second set of tines being lowered and the first set raised. Some loss of time was obviously involved in changing the position of the engine, and the attachment of the scarifier not being rigid, the instrument was often diverted from its direct course, leaving strips of untouched surface to be subsequently picked-up by hand labour. A later and improved type of machine consists of a trolley with a wheel at either side. Two sets of tines were carried on an axis, along which they could be slid so as to lift the road metal at a distance of a foot from the last part dealt with on either side of the road without turning the engine. The tines were raised or lowered by a hand-wheel at the rear, and were so arranged that the raising of one set lowered the other. The machine could be attached to the rear of either a traction engine or steam roller, and could be worked forwards or backwards without turning the engine. One disadvantage of this improved scarifier was that one wheel of the engine travelled over a portion of the road which had been lifted. A still



later type was that in which the scarifier was attached to the side of a steam road-roller or traction-engine. Three machines of this description were in the yard of the hall. One of them was attached to a steam roller immediately behind the off-side driving wheel, a spring being fitted to each tine to prevent vibration on the engine; but this scarifier only worked when the engine travelled forward. Another variety had two sets of tines, and would work both forward and backward; it was attached by a bracket and plate to the driving-wheel axle of a steam roller at the off side of the tender, the front part of the plate being secured to the down-plate, and the rear part to another plate at the rear of the tender. When travelling forward, the roller ran clear of the lifted road metal, but when worked backward the metal lifted by the tines was immediately travelled over by the driving-wheel following them. Next to the machinery for lifting the metal of a road, that for consolidating the new material and producing a firm, even, and true surface, was to be noticed. For this purpose horse-rollers were little used; but when employed, they were now weighted with water, and the shafts were carried on a rotary table, which rendered it unnecessary to turn the roller bodily. Steam rollers were now largely used, not only on urban roads, but also in many country districts. Many improvements had been made in steam rollers during the last few years, such as the more extensive use of steel, improved arrangements for the supply of steam to the gland, improved steering gear and scrapers, renewable rims to the driving wheels, &c. The compound engines now made were not in all respects superior to the single-cylinder engine. The writer thought the following features advantageous in steam rollers:—The placing of the gearing between the bearings, instead of outside; the supply of steam to the cylinders from a dome, instead of through the two short pipes attached to the steam-chest; and the making of both rims of the driving rollers the same thickness throughout the entire width. The author also referred to the machinery for cleansing roads, including horse sweepers and brooms, and to the tools used in road-making, drawing special attention in the latter stage to the stone-rakes shown by Mr. J. Dunn, surveyor to the Cherterson Rural District Council, and a squeegee invented by Mr. F. Smythe, surveyor to the Finchley Urban District Council.

A short discussion ensued, in the course of which Mr. Hall, of Cheltenham, said Mr. Stallard's suggestion of a three-foot wide asphalted gutter channel suggested a coming paradise for cyclists. Mr. Howard Smith, late city surveyor of Carlisle, and now engineer to the British Traction Co., referred to the scarcity of reliable English facing setts. Mr. Thomson said the great fault of scarifiers was that they were generally set by the foreman to pick the road to too great a depth. Mr. Brooks and others having spoken, the chairman closed the discussion, and thanks were accorded the readers of papers and the chairman.

#### SPECIFICATIONS.\*

A SPECIFICATION may be either lengthy or curtailed, according to the particulars given upon the drawings. Some engineers favour a short specification, and prefer to put as much written information as possible upon the drawings, one reason for this being that engineers usually supply a number of detail drawings with their contract plans, which enables them to put many notes upon those drawings. On the other hand, architects do not usually supply many detail drawings; consequently somewhat lengthy specifications are necessary. To my mind, either method may be adopted if the requisite information be clearly given. I can conceive of a set of plans prepared and written up so fully in detail that a specification as a separate document might become unnecessary; this sometimes happens in a certain class of work. On the other hand, I can scarcely imagine a specification so full in detail as to dispense altogether with the plans, unless it related to a very small and simple erection or to general repairs or decorations. I would ask you now to assume that both plans and the specification are necessary for general work; I will then suggest

#### A FORM OF SPECIFICATION

which shall be curtailed and yet shall not detract

from the full and clear description of all parts of the work. A specification should not supersede the particulars given upon the drawings; but should more fully explain those parts which the drawings do not clearly illustrate, or which are in any way obscure. It is impossible to show every detail, or give every particular upon the drawings, consequently a full description of those parts becomes absolutely essential in the specification. The plans give the general arrangement of the building, and the specification should describe the details of that arrangement. The plans should have figured upon them every important dimension, such as the lengths, widths, and heights of the various distinct parts of the building; the thickness of walls; the depth and width of the concrete foundations; the sizes of floor joists, roof and flat timbers; the widths and heights of doors and windows; and all other similar and important parts and items. It is seldom that plans to a small scale are so accurately drawn as not sometimes to be obscure with regard to the sizes of certain parts unless these parts are given in figures. The only other particulars in writing to be put on the plans would be the names of the rooms and other parts of the building, together with any notes or references which might assist the description in the specification. With regard to small-scale drawings, do not labour the elevations by showing every brick and slate. Working drawings will be far clearer without too many lines, and there is no need to finish them like a picture. But

#### IN THE SPECIFICATION INCLUDE EVERYTHING

except the general dimensions of the various parts of the building. Of course, the sizes of the joists and roof-timbers are always described in the specification, as well as sometimes being given on the plans; and I see no harm in stating the thickness of the various walls, the depth and width of the concrete under the walls, or any other detail of the building. A specification which is full, but at the same time concise and to the point, will prevent mistakes and misunderstandings when the building is in progress. Need I remark that the specification should always agree with the drawings? Presuming, then, that the plans are before you, but not in too great detail, and that you have decided to write a rather full specification—what, then, is the first consideration? You must have a complete knowledge of each subject—that is, a full grasp of the details of building construction, and of the value and properties of materials. In other words, you must know what you want to describe, and, knowing that, you must be acquainted with the requirements attendant upon those wants; and you may take it for granted that until you are proficient in these matters you will never be able to commit to writing the proper descriptions needful to the erection of a building. Therefore, I say that

#### A COMPLETE KNOWLEDGE

of all the requirements and details of the various trades coming within the scope of the architectural profession is the first consideration to efficient specification writing; and I might also add a knowledge of the various Acts relating to buildings. But it may be said that it is impossible to know everything, and when in doubt, the only way is to put a provisional amount to cover any such point, and to obtain afterwards the information from a friend or specialist. This is true, and may be the only course to adopt at the time; but ready and accurate knowledge will benefit all parties concerned. The question then arises, What is the best way to obtain such knowledge? I know of only two ways—study and observation. What I do myself is first to read any works obtainable which bear upon any doubtful point, and I would also add that much useful information can sometimes be gained from trade catalogues. I then discuss the matter on every possible occasion with anyone I come across who has any knowledge of the subject, and, further, I keep my eyes open and learn all I can from what is going on around me. You have only to pass down any street where building operations are in progress to gain many practical hints. You now proceed to write the draft specification. This is often hurriedly written, much being left to alter and supplement when revising for fair copying. This is a great mistake. A draft specification should be written with care and thought. Being fresh to the matter, even so dry a subject creates a certain amount of interest, and if you con-

centrate your mind upon the subject you will be less liable to omit many small items. Therefore,

LET THE FIRST DRAFT BE AS COMPLETE AS POSSIBLE.

I might suggest that when engaged upon the plans, it will be found of great assistance if notes are made of any obscure item coming under your observation at that time. Just a reminder here. When sending out a number of fair copies, see that they all agree. Should the quantity surveyor write the specification for the architect? In the abstract it seems absurd to ask such a question were not this practice so frequently followed. Personally, I think

#### THE ARCHITECT SHOULD WRITE HIS OWN SPECIFICATION.

and not delegate the work to another. A quantity surveyor cannot know what is in the architect's mind, therefore it is impossible for him to describe fairly that which embodies the architect's best ideas. It is unjust to the quantity surveyor to ask him to attempt to do so. It is also unjust to the client, and the architect has no right to accept payment for work done by another. One other word with reference to the quantity surveyor. When he takes out the quantities it is usual for him to make notes of any omitted items on the architect's specification. Should he not do so, however, the architect must run through the bills of quantities, and adjust the specification to them before the contract is signed. Reverting to the subject-matter,

#### A FULL SPECIFICATION

will save many an anxious moment. Constant disputes occur with the builder, many extras crop up owing to imperfect wording and omissions—ordinary care would prevent all this. And remember always that a specification is a legal document. Bearing somewhat on this incomplete description of work, attention might be called to the fact that one so often sees in a specification wording to this effect:—"That the builder is required to perform a certain work all complete," or "all as required," or "as necessary." This generalising shows the architect's ignorance of what is required; and it is not reasonable to ask a man to estimate for something of which you yourself do not know the requirements. Consequently you either get an unfair estimate or an incomplete work, or else a squabble ensues with the builder as to what was intended or required. Should you ever be in this difficulty of not knowing what is necessary, then the best plan is to put a provisional amount and let the item work itself out in execution. Therefore let your terms be definite and clear. Some make a great point as to which is the correct word to use, "provide" or "supply." I think it very unimportant. There certainly is a slight difference; but, at the same time, to provide you must supply, and to supply you must provide. Agreeing, then, upon this point that a specification must be somewhat full, and, consequently, lengthy, what then is the

#### BEST WAY TO CURTAIL THE DESCRIPTIONS

without detracting from the merits of the document? There are several ways. Many items which will apply to several parts of the building under similar conditions may be generalised. Thus, take for example the skirtings to a building. A general clause applicable to all skirtings may be inserted, somewhat to this effect: All skirtings to be rebated to floors, tongued and mitred at angles, tongued at heading joints, housed into architraves, returned and mitred at ends, and fixed to double splayed narrow-framed grounds with dovetailed backings and filling-out blocks, and plugged to walls. The only further description then necessary will be to refer to each particular skirting, such as:

Attic skirtings 7in. by 1in. plain deal.

First-floor skirtings 9in. by 1 1/2 in. moulded deal.

And so on. Here, then, the description of the fixings to each separate class of skirtings is avoided. In the same way the backings to door and window linings, and many other items where the conditions are similar, may be generalised.

(To be continued.)

The stained-glass window which has been placed in the east end of St. Keverne Church, Cornwall, to the memory of the 106 victims of the *Mohegan* disaster was unveiled on Wednesday week by Mr. A. S. Williams, manager of the Atlantic Transport Company, and was dedicated by Archdeacon Cornish. It was designed by Mr. G. F. Bodley, A.R.A.

\* By F. W. MACEY. A paper read before the London Architectural Association on April 23, 1899. (See p. 623 post.)



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## Our Illustrations.

BRITANNIA ROYAL NAVAL COLLEGE, DARTMOUTH.

LAST week we referred to Mr. Aston Webb's important exhibit at the Royal Academy illustrating the Naval College on the Mount Boon Estate overlooking the river Dart, some short distance from Dartmouth. To-day, as then promised, we publish the drawing alluded to. The college site is some 200ft. above the river level, and is situate directly above the spot where the *Britannia* is stationed. The college will accommodate 260 cadets and staff. In the central block is a large hall measuring 90ft. by 50ft., having classrooms on two floors on either side, as well as lecture-room, chart-room, steam study, and also reading-rooms. The seamanship room is located at the end of the hall. The captain's room and chief officer's apartments occupy the front of this block, and here are placed the instructors' rooms. The dormitories and dayrooms range on either hand of the central block, each wing taking 130 cadets. The dayrooms are below, and the dormitories, each for 33 cadets, are over them. Hammocks and sea-chests are used, and the lieutenant's room is situated between the dormitories. The sanitary blocks extend on the north side, with shower-baths and changing rooms on the ground floors, and lavatories, bath-rooms, &c., as adjuncts to the dormitories over. The cadets' dining-room is approached from the end of the main corridor by way of a large lobby at the western end of the building. This refectory is 80ft. by 40ft., and is provided with serving-room, cadets' kitchen, and the usual stores, and scullery. Overlooking the prospect are placed the wards for officers, and their mess-room adjoins, with kitchen and stores *en suite*. The petty officers' rooms and mess are contrived on the north side. At the east end of the college is a block of corresponding scale, comprising the captain's house as well as the chapel, accommodating 350 worshippers. The spacious terrace towards the south, along the front of the College, is 34ft. wide, from whence a view is obtained of great beauty towards the mouth of the Dart. A curved ascending drive forms the approach at each end, as shown by the perspective, and in the centre a flight of steps makes a great feature. Under the terrace are covered playgrounds. Gardens will occupy the space inclosed by the terraces and roads. Mr. Marshall, of Plymouth, is the contractor, and the terrace walls are being faced with local limestone. Mr. H. E. Milner is supervising the grounds, roads, and playing fields. Portland stone will be used for the buildings, with red brick and green slates. Infectious and non-infectious blocks for the sick quarters will stand to the west of the main structure, and there will be a doctor's house and residence for the nurses. The architect is Mr. Aston Webb, A.R.A., F.S.A.

## HENLEY TOWN HALL.

THIS design, illustrated from the architect's Royal Academy drawing, was selected in a limited competition early last year, and the work was commenced in December last. The buildings contain municipal offices, council chamber, and large meeting hall. The materials being used are red-brick facings, with dressings of Bath stone, and the roofs are covered with Colley-Weston stone slates. The whole of the floors are of fireproof construction. The architect is Mr. Henry T. Hare, F.R.I.B.A., architect, of 13, Hart-street, Bloomsbury-square, W.C.

## UNION CHURCH, QUEEN SQUARE, BRIGHTON.

WE illustrate this week from the Royal Academy a double-page perspective of Mr. John W. Simpson's bold and clever scheme for the rebuilding of the late Rev. Paxton Hood's Chapel, at Queen-square, in the centre of Brighton, at the top of North-street. The site, as will be seen by the accompanying plan, is V-shaped, the apex being occupied by the Congregational Church, to the north of which are three private houses, and beyond these a Baptist chapel. It is proposed to clear this entire area, having a frontage of 290ft., and a maximum depth of 104ft., and to build thereon a chapel seated for 2,000 persons, and to the north of this a lecture-hall, surrounded on three sides by classrooms. The south end or apex of the site will be occupied by an entrance-hall, secretary's office, and cloakrooms. The site is somewhat restricted in width, and has a considerable variety in level, there being a rise of 20ft. on the Air-street side from north to south. This has enabled the architect to provide entrances to the floors on various levels without necessarily using the staircases—a somewhat uncommon advantage. The central portion of ground floor is entered from the corner of Air-street; the side seats are raised, and are approached from a main corridor which runs between Queen-square and Zion-gardens. Three ample staircases provide for communication between upper and lower portions of the church. Retiring rooms are provided off the main corridor, and the vestries for minister and deacons and the choir practice room are conveniently placed along the eastern side and Air-street frontage, but do not form a part of the actual church. The exterior of the building will be entirely faced with stone, and the interior of the chapel will also be of white stone up to and including the main cornice at the springing of the dome, except where oak panelling is introduced. The dome will have an external diameter of 65ft., and will rise from the springing at the main cornice, which is 58ft. above the floor level, rising to a height of 85ft. above the pavement. It will be constructed of concrete, covered with lead, and, internally, the surface will be plastered. It is hoped, eventually, to cover the internal surface with designs in mosaic, taken from Francis Quarles' "Emblems." The seating of the chapel is proposed to be by chairs, and the flooring of hard wood-blocks. In the Queen-square front, under enriched niches beneath pediments, will be statues of Oliver Cromwell and John Knox. At an early date we shall give further drawings of the building, including an interior view, which is also now at the Royal Academy.

The Council of the Royal Archaeological Institute had decided to hold the annual meeting at Ipswich this year, from July 21 to August 1, and excursions will be made in the neighbourhood each day.

Messrs. Thompson and Sons, of Peterborough, the contractors for the restoration of the cathedral in that city, have been authorised to proceed with further works at a cost of £964, chiefly in connection with the pinnacles of the south-west tower.

By order of the Local Government Board, Colonel A. G. Durnford, R.E., has conducted a public inquiry at Barry, Glam., into an application of the urban district council for power to borrow £12,835 for private street works, £2,350 for public offices, and £1,900 for works of surface-water drainage.

A mission church in the parish of Nunney, near Frome, was opened the other day. It is a substantial structure, with wood-block floors and walls of local stone, and windows and dressings of Bath stone, the roof being open-timbered, boarded below, and covered with dun-coloured Bridgewater tiles, and a western spirette. It consists of nave, chancel, and vestry, and has been erected at £2 ls. 3d. per sitting by Mr. Charles Barnes, of Frome, for the plans and under the superintendence of Mr. E. H. Lingen Barker, of London and Hereford.

## THE ROUND TOWERS OF IRELAND.

MR. ANTHONY SCOTT, of Drogheda, read a paper on this subject illustrated by lantern views of the principal structures of the kind remaining, before the Society of Architects at their meeting held at St. James's Hall, Piccadilly, on Thursday evening in last week. Mr. Walter Emden, the President, occupied the chair. Our knowledge of the origin and history of these towers was, Mr. Scott remarked, deplorably scanty, owing to the wholesale destruction of Irish manuscripts by the representatives of English rule in Ireland, and, as Dr. W. K. O'Sullivan told us, even down to "the first part of the 18th century, the possession of an Irish book made the owner a suspected person, and was often the cause of his ruin." Most of our reliable information on this topic was due to the researches of the late Dr. George Petrie, who wrote in 1833 an essay to which the Royal Hibernian Academy awarded three gold medals. Under Sir Thomas H. Deane, the official superintendent for the last thirty years of the National Monuments of Ireland, it had been the author's pleasing duty for some twelve years to supervise the restoration of these ancient towers and temples of past ages—to trace in the ecclesiastical ruins the rise, development, and transition from the primitive tiny quadrangular church with its western doorway, having inclined or sloping jambs, to the beautiful groups of Romanesque monastic buildings of more modern times. All lecturers were agreed that the stone-built churches were the work of the Early Christians; but great uncertainty and doubt had hung about the neighbouring round towers. After close study of the buildings themselves, he had, however, formed very decided opinions as to their origin. The theory advanced by the late Canon Ulick Bourke that they were primitive Pagan structures adapted to Christian uses, and the suggestion of Archdeacon Lynch that they were first erected by the Danes, he dismissed as equally untenable, the lecturer's belief being that they were developed from the circular beehive cell of the Early Christians, and those again from the round raths used in still earlier times as places of defence. The workmanship and materials employed in the towers was analogous, and in many instances later than that in the adjoining churches, as was notably evident at Ardmore, Devenish, and Kilmacduagh. The lecturer described the construction and characteristic features of the towers in detail, and showed how much variety they exhibited, showing a gradual evolution and development. The stones used varied with the locality in which they were built, and there was a wide range of height and treatment and great diversity in the character and amount of ornamentation. In many cases they were decorated with crosses in relief over the doorway, and probably the conical cap often once terminated in a cross.

## CHIPS.

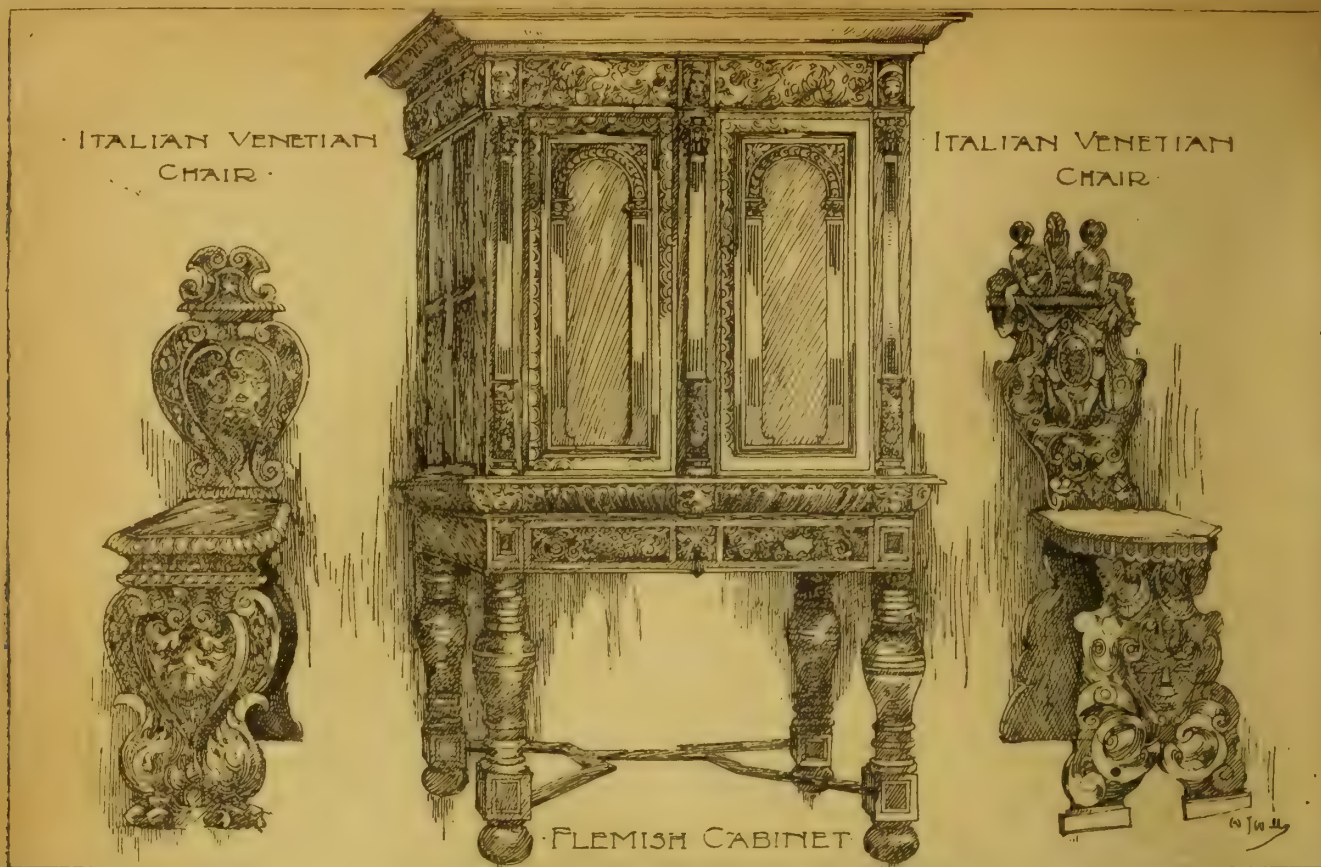
The memorial-stone of the new Friars' School was laid at Bangor last week by the recently-consecrated Bishop. The building will be Elizabethan in style, and built of Llysfaen stone with red sandstone dressings. On the first floor is an assembly hall 58ft. long, and over the dining-hall are dormitories for 20 boys.

The Wesleyan chapel at Pool, Cornwall, was reopened on Thursday in last week, after re-seating in pitch-pine, redecorating, and the addition of a new heating apparatus. Mr. Sampson Hill, of Redruth, was the architect, and Mr. W. C. Hodge the contractor.

Dr. Bilsborrow, Bishop of Salford, recently laid the foundation stone of a new Roman Catholic school-church, to be called St. Augustine's, at Accrington. The school-church will cost £6,470, and will provide accommodation for 670 children. Later on a church will be erected, together with a presbytery. The present building will then be utilised as a school. The architect is Mr. Hill, of Manchester.

The Leith parish council have under consideration a report furnished, on their instructions, by Mr. W. M. Thomson, architect, Edinburgh, as to the desirability of providing an entirely new poorhouse to take the place of the present inadequate and unsuitable houses in North and South Leith. Mr. Thomson recommends the selection of a site of 9½ acres at Easter Duddington, and the building thereon of a house for 500 inmates, the estimated outlay being £57,000 for site and buildings. He estimates the market value of the existing poorhouse site at £22,000.





ITALIAN AND FLEMISH FURNITURE.

## ITALIAN AND FLEMISH FURNITURE.

**T**HE Oak Cabinet is Flemish. It is profusely carved with floral and foliage designs, the panels to folding doors having fluted pilasters with carved caps, surmounted by circular heads, the spandrels of which are also carved. The body of the Cabinet is mounted on turned legs, the whole forming a handsome and useful piece of furniture. The sketch was made at Messrs. Christie's Rooms.

The two Venetian Chairs come from the South Kensington Museum. They are of walnut wood, partly gilded, and boldly carved with grotesque figures. They were acquired by the museum authorities from the Soulagre Collection, at a cost of £10 and £15 respectively, and date back to the 16th century.

## THE SURVEYORS' INSTITUTION.

**A**T the ordinary general meeting, held on Monday last, a discussion took place on Mr. Channing's new Bill for amending the Agricultural Holdings Act of 1883. Several members took part in the discussion, the consensus of opinion being that the Bill, if carried, would be, at best, useless or unworkable, or more probably mischievous, as tending still further to restrict freedom of contract between landlord and tenant, in the case of agricultural leases.

Mr. W. Wright, speaking as a Midland County land agent, did not believe there was any demand among the tenants for new legislation, or for any interference between them and the landlords, as between man and man each bent on carrying on his business with convenience and profit to himself. All that both parties wished was to be let alone to carry out their own contracts.

Mr. Sanday, speaking as a member of a firm of land agents, whose practice extended from Lancashire to Hampshire, agreed that there was no general demand among the tenants for new legislation. The appointment of official arbitrators to fix rents, cut, as he thought, at the root of all freedom of contract. Why should the rent of land be the only thing to which a judicial value might be fixed? He was sure that neither landlords nor tenants desired the change.

Similar sentiments, based on practical experience, were expressed by Mr. W. R. Eve, Mr. H. Cobb, Mr. F. Austen, and other members, and the President (Mr. R. Vigers), in summing

up the discussion, gave it as his opinion that, if the legislation now proposed were to follow the lines of that already existing in Ireland, the result would be as disastrous to agriculture in this country, as from his experience he knew it had proved to be on the other side of St. George's Channel.

## FIRE-TESTS WITH GLASS.

**A** REPORT of the British Fire Prevention Committee's official test on three casements glazed by the British Luxfer Prism Syndicate, Ltd., is instructive, as showing how certain methods of glazing will withstand very severe fire tests and the application of water without breaking away or allowing the glass to fall out. The report describes in detail the manner in which the glazing in question was tested. The special method of glazing adopted by the British Luxfer Prism Syndicate, we very lately described. Any glass, plain, prismatic, plate, can be used. The importance of the investigation is to be found in the fact that by this method of glazing there is no necessity for shutters or blinds to window openings, and that in case of a fire breaking out within a building it will be practically confined within the walls, and that those engaged in rescue or fire extinction are not imperilled by the bursting out of flames through cracked glass or inflammable sashes. The report describes the construction of the testing chamber, which was built of stock bricks and lime mortar 10ft. square internally, and was 7ft. 5in. in height. The ceiling was of wood joists and beams placed side by side to make a solid soffit. The fuel used was gas, regulated by valves, and two Roberts-Austen pyrometers were introduced in recording the temperatures. The Luxfer prisms were electroglazed, built into teak casements. The duration of the test was 30 minutes, and in the first 15 minutes the temperature was gradually raised to 1,000° Fahr., after which water was turned on to the outside of prisms for two minutes; then for 15 minutes the temperature was gradually increased to 1,500° Fahr. At the expiration of this period water was to be applied on the inside three minutes. Three casements were tested, each of them 3ft. by 4ft. clear glazing. The result of the test is thus summarised. The Luxfer prisms of 4in. square remained in position, while the

whole area of glazing began to bulge inwards to the extent of 1in., 1½in., and 2½in. respectively after 12 minutes. In 21 minutes the top part of the centre casement left a space between the glazing and the teak frame; 317 squares out of the 324 withstood the action of fire and water, except being cracked, and the remaining seven squares were broken. The glazing was left intact. The teak casements were charred to a depth of about ¼in. on the inside. Plans and sections of the testing-chamber and details of the Luxfer Prism plates are shown as fixed to teak frame. The detailed observations of the test, and the photo-illustrations of the appearance of the three struts after the test had been applied, internally and externally viewed, are given. The report is of practical interest to all interested, and may be obtained at the offices of the committee, Waterloo-place, Pall Mall.

## CHIPS.

The members of the Society of Architects visited the Building Trades Exhibition at the Royal Agricultural Hall yesterday (Thursday) afternoon.

A meeting of art students will be held at 20, Fitzroy-street, W., at 5 o'clock to-morrow (Saturday) afternoon, to determine upon an effective protest against the decorations of Sir W. B. Richmond in St. Paul's Cathedral.

The United Asbestos Co., Ltd., have issued a supplementary catalogue containing illustrations of their new designs in "Salamander" for the present season, which is well worth the perusal of architects and others using this excellent material.

A large hotel is about to be built at St. Mawes, near Falmouth, from plans by Mr. Silvanus Trevail, of Truro.

Bradford parish church has been re-opened after restoration carried out at an expenditure of some £10,000, under the care of Messrs. T. H. and F. Healey, architects, Bradford.

Col. W. R. Slacks, R.E., an inspector from the Local Government Board, conducted an inquiry at Stanground, Peterborough, last week, with respect to an application made by the Norman Cross Rural District Council for leave to borrow £15,500 for purposes of providing a sewage scheme for the three parishes of Fletton Rural, Woodstone Rural, and Stanground. The scheme proposed to be carried out is prepared by Messrs. G. Hodson and F. W. Hodson, engineers, of Loughborough and London, both of whom attended the inquiry in person.

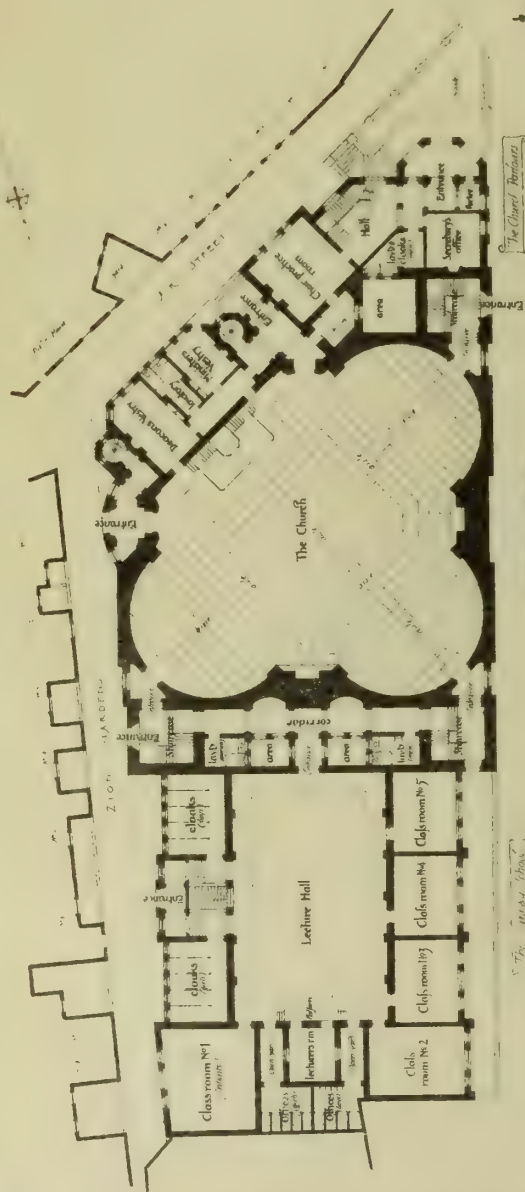




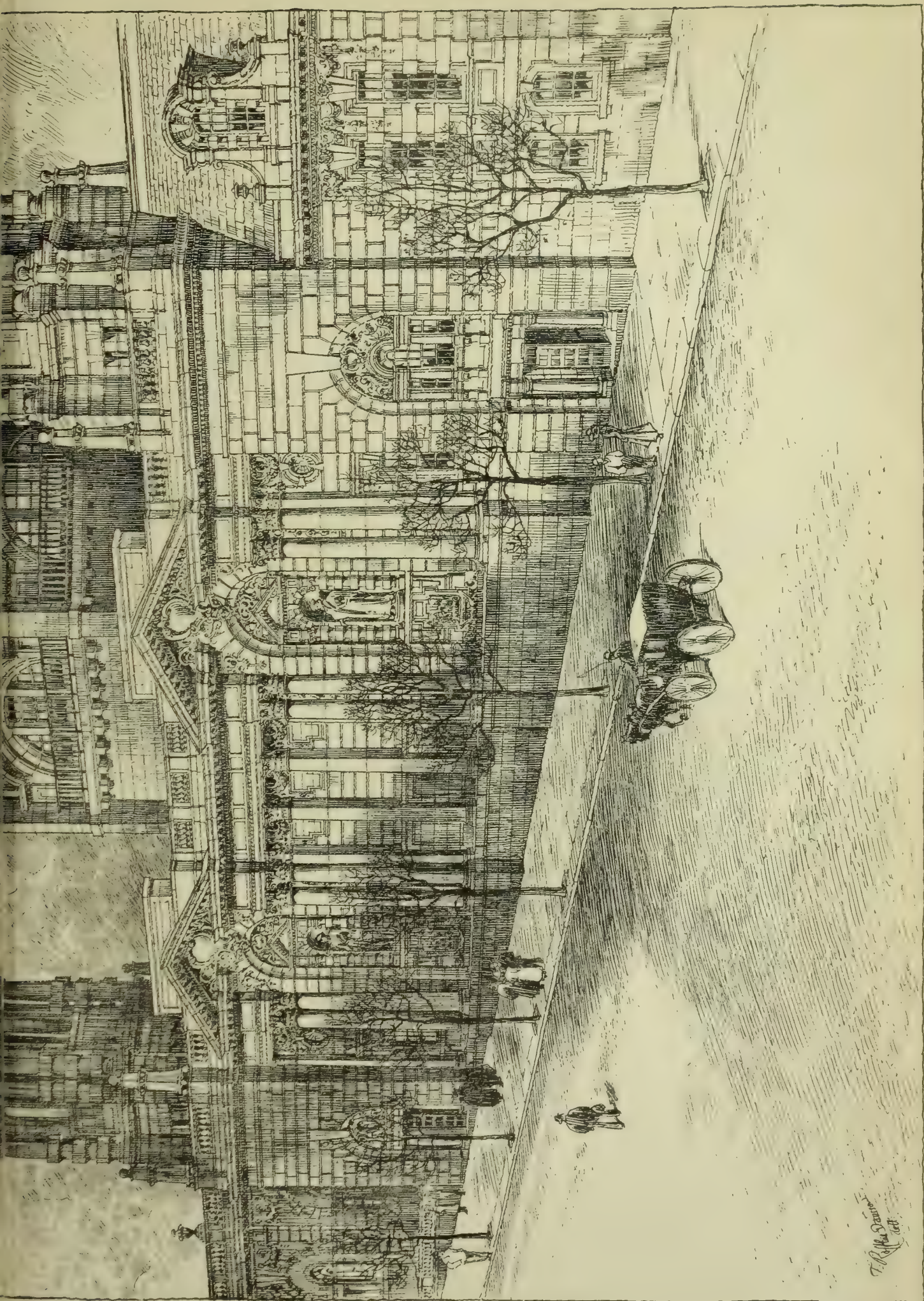


# UNION CHURCH, QUEEN SQUARE, BRIGHTON.

JOHN W. SIMPSON, ARCHITECT.







T. B. Dewar  
del.













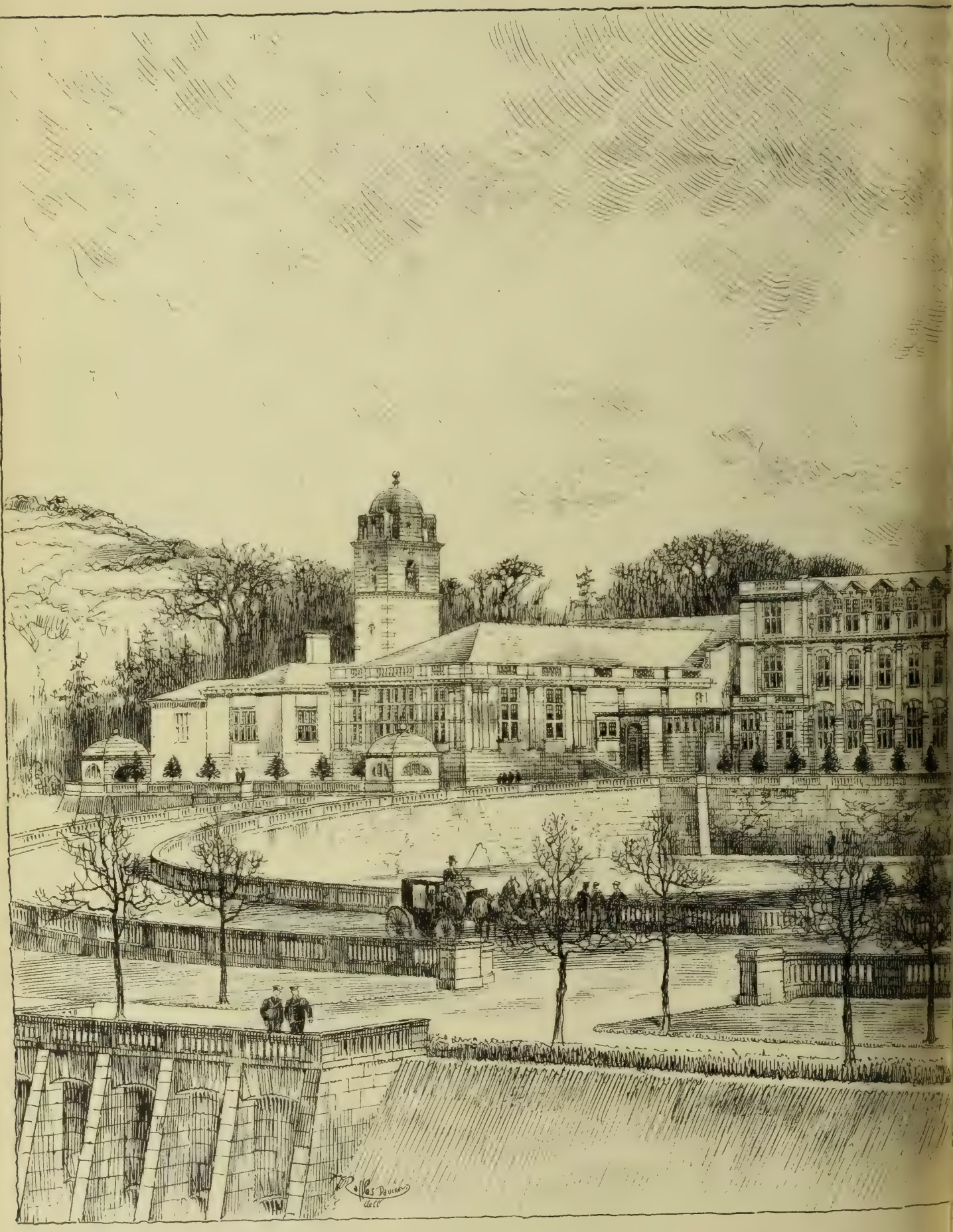




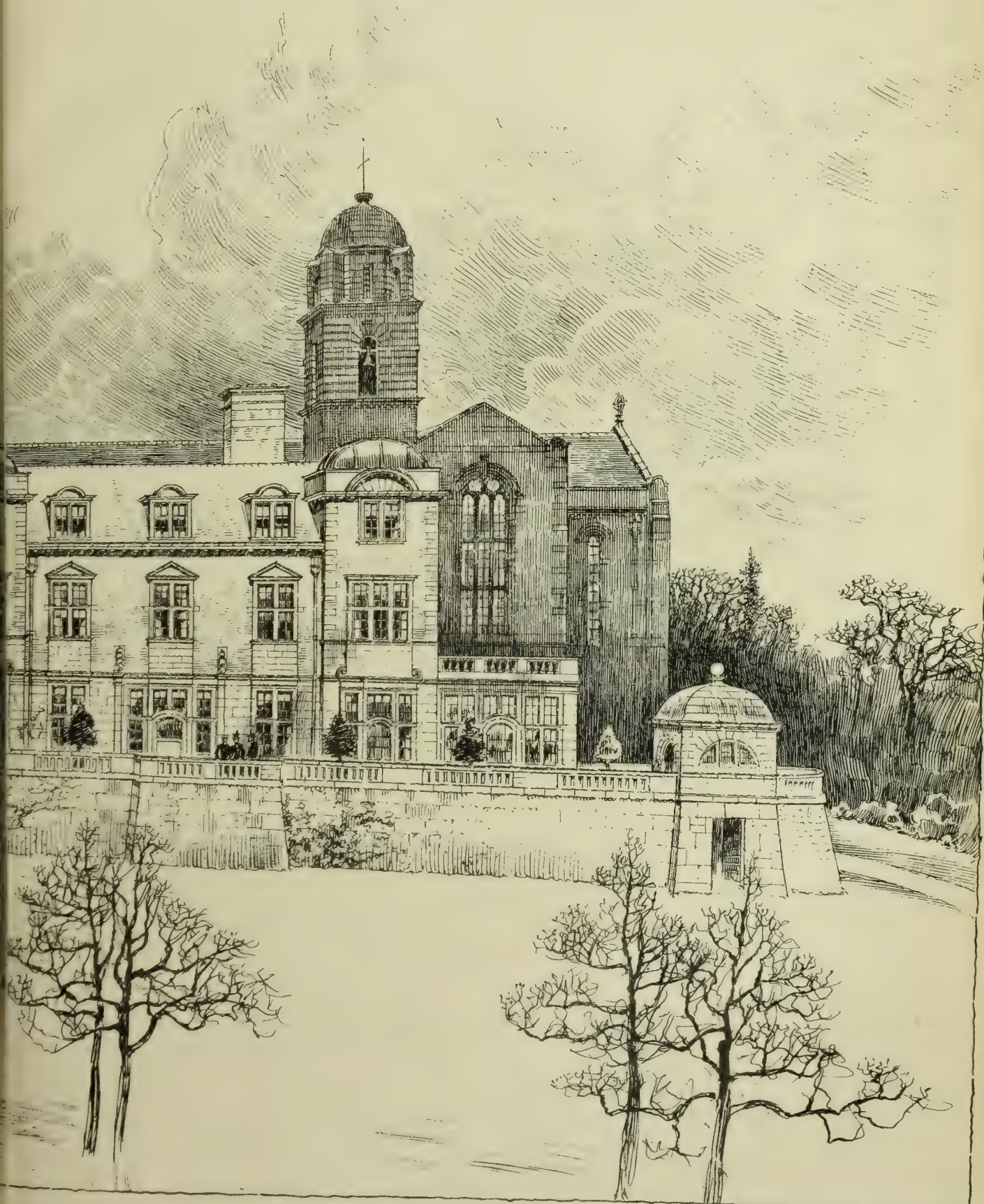
BRITANNIA ROYAL NAVAL COLLEGE, DARTMOUTH.

ASTON WEBB A.R.A. F.S.A. ARCHITECT











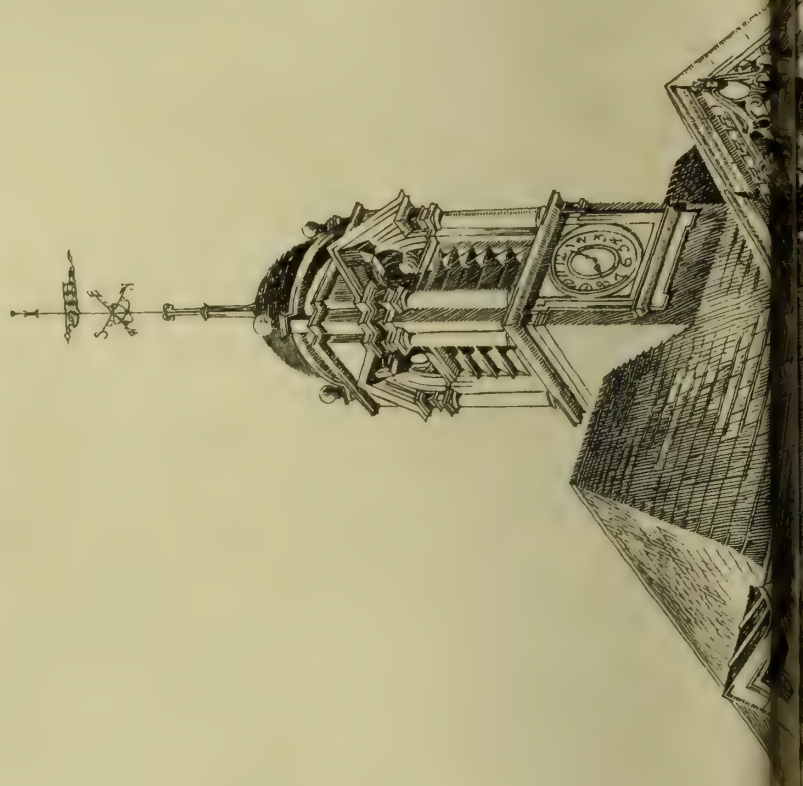




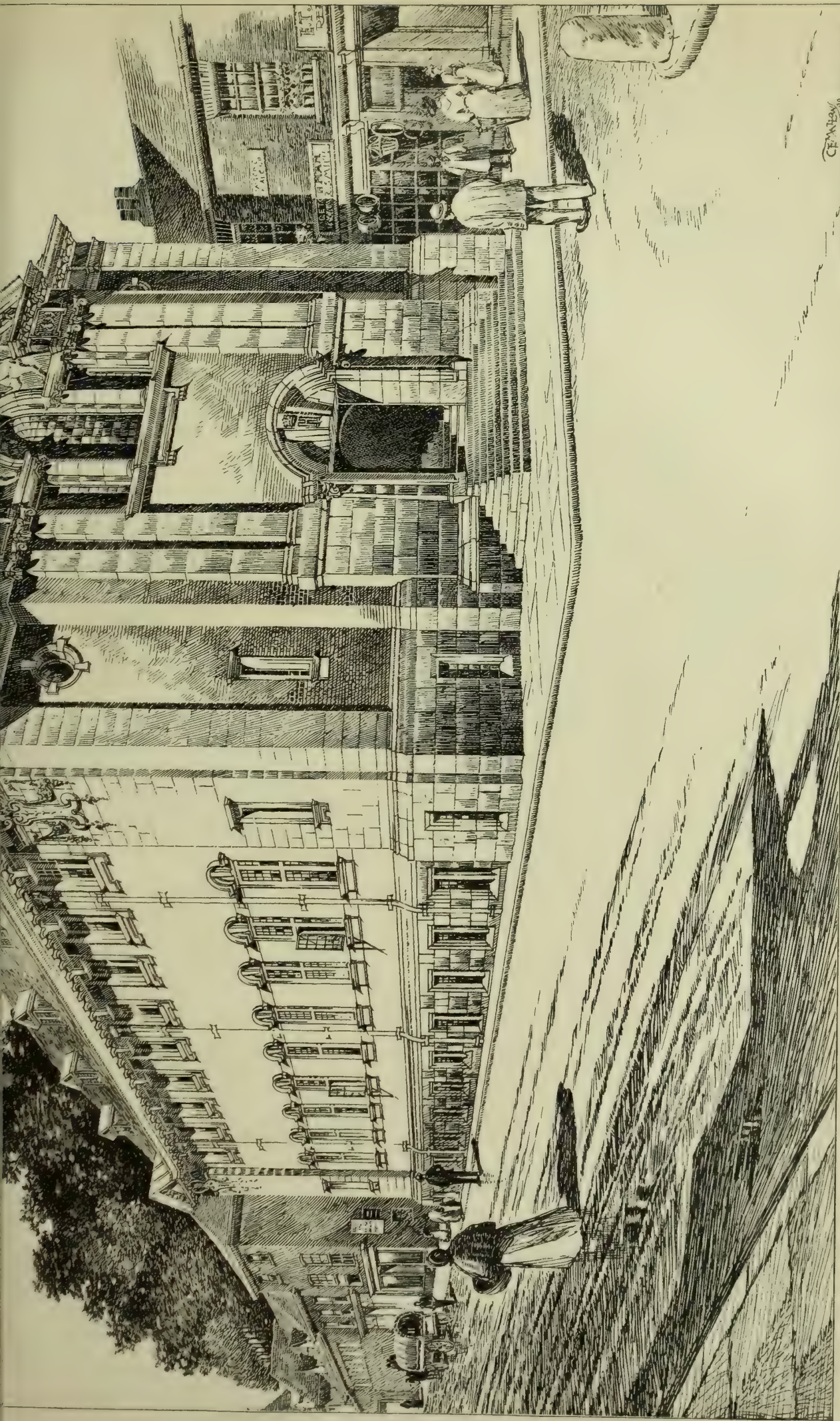




NEW TOWH HALL : HENLEY HENRY T. HARE ARCHT .







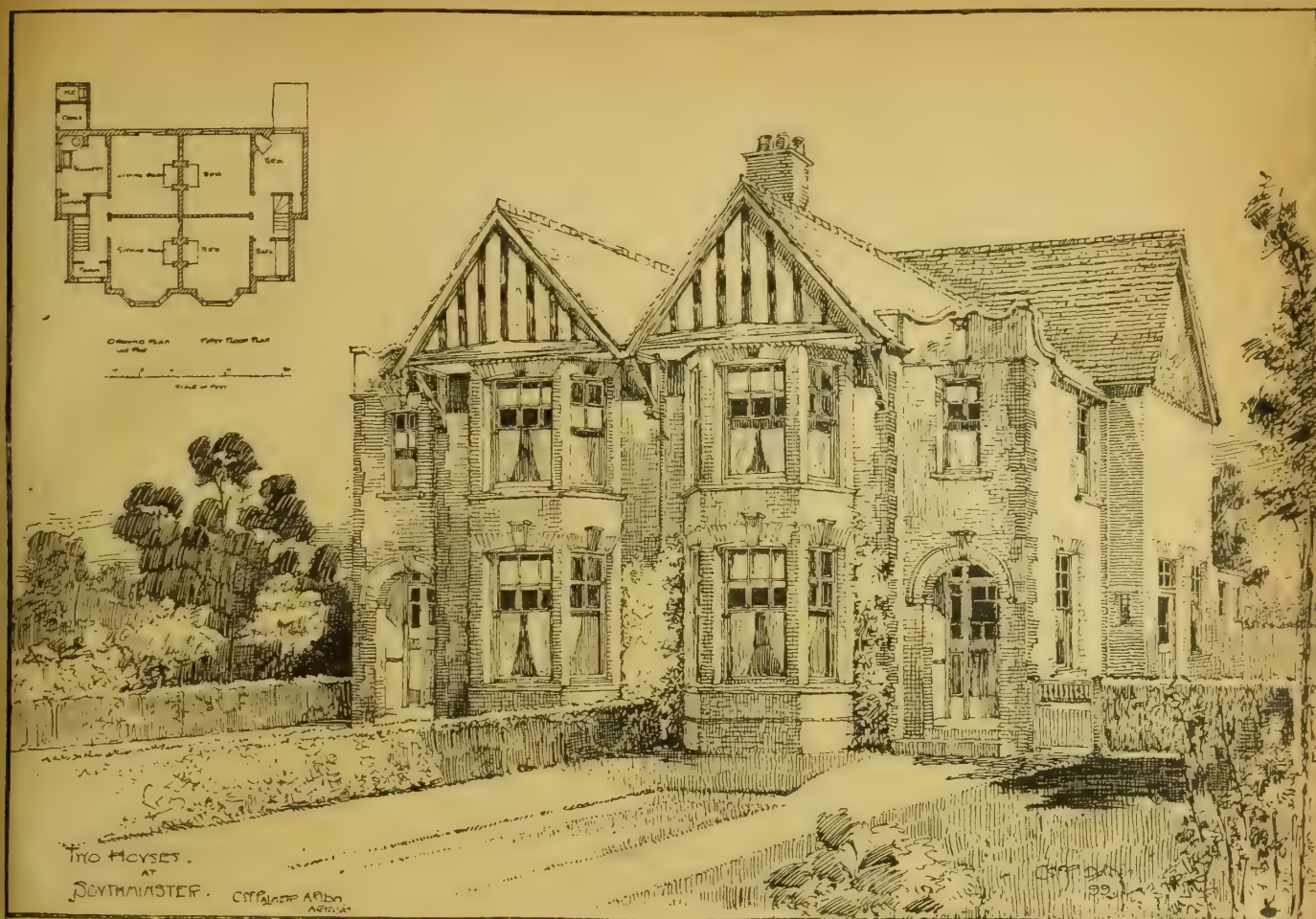
CEMENT

Photo Lithograph by T. Agnew & Sons, Limited, London & New York









TWO HOUSES, SOUTHMINSTER, ESSEX.

**THIS** pair of houses was erected at Southminster, Essex, for Mr. D. Drysdall at a cost of £680 15s., exclusive of drainage. The external walls are of hollow construction, faced with local red bricks with white pressed brick quoins, tile porch, oak posts and entrance gates, and tiled path. Mr. C. S. F. Palmer, A.R.I.B.A., is the architect.

L. AND N.W.R. GOODS WAREHOUSES.

**T**HE new goods warehouses now approaching completion in Eldon-street and Wilson-street, to the north of Broad-street Station, for the London and North-Western Railway Company, were visited by the members of the Society of Architects on Thursday afternoon in last week. The party were received in the drawing office by Mr. Joseph Randall, of the firm of Messrs. Kirk and Randall, and President of the Institute of Builders, who acted as guide, and Mr. Thomas Kyte, the resident engineer. The buildings form an extension westwards of existing warehouses built for the same railway company some years since at an outlay of £120,000, and will cost over £100,000, exclusive of all cartage of materials and certain provision of ironwork, which is done by the company, and is estimated by them to be worth an additional one-fourth. The buildings have been designed by Mr. Francis Stevenson, M.Inst.C.E., the engineer-in chief at Euston, assisted by Mr. E. Baylis Thornhill, M.Inst.C.E., with Mr. Kyte as resident engineer. The contractors for these warehouses and the ones previously erected are Messrs. Kirk and Randall, of Woolwich, represented on the works by Mr. Walter Randall, the general foreman being Mr. Coates. The buildings now in hand cover an area of 223ft. by 212ft., or about  $3\frac{1}{2}$  acres, and consists of four floors in addition to two basements, the height of the stories varying from 15ft. on the ground area to 10ft. at the top. The bricks have chiefly been supplied from Market Harbrough, the stocks coming from Sittingbourne, and blue bricks of special make from Beddowes. Bangor slates and Hartley's ribbed glass are employed for the roofs. Of the ironwork some 2,000 tons were supplied by Messrs. Cochran and Co., of Dudley; the rolled joists by Messrs.

Dorman, Long, and Co., of Middlesbrough; the steel roofing by Messrs. Kirk and Randall; while the smaller lifts and machinery and many details were prepared at the railway company's works at Crewe. The foundations are carried to a depth of 40ft. below the sub-basement, and rest on a bed of solid concrete; in this are set monoliths of Darley Dale stone, each 9ft. square, and from 2ft. 6in. to 3ft. thick, weighing 15 tons each, on which the main piers are borne, and Mr. Randall mentioned that his firm paid a bonus of £5 for each of these stones to have it quarried and delivered at the specified time, so as to avoid delay in carrying out the work. There are two lines of railway carried—one at the ground floor, the other at the first-floor level, through the buildings from the adjoining yards and warehouses, and in addition to a staircase of stone provided at either end of the warehouse, there are two lifts, capable of carrying loaded trucks, one 35ft. and the other 25ft. square, communicating with every floor, and supplied by Messrs. Tannett and Walker, of Leeds. The necessary power for working these lifts and the transport of goods is provided from the hydraulic mains from the works in Worship-street, belonging to the company, and already utilised for the older warehouse. The lighting throughout is by electricity, on the incandescent system, no gas being introduced into the building. The work throughout, as might be expected, is exceedingly plain, but substantial, and the interest of visitors centred in the precautions taken against the outbreak and spread of fire. The floors throughout are of concrete, granite chippings and Portland cement, in the proportion of two to one, strengthened by internal ironwork, and faced on the surface with a solution of silicate of soda, which penetrates to some depth, and will form a wear-resisting surface. The only wood introduced to the outer doors is poplar, which is even more fire-resisting than teak. The flaps in floors for hoisting goods are of this wood, protected on the upper surface by a sheeting of iron. These leaves run on rollers, and are counterpoised by weights secured by cords which would snap, automatically closing the aperture, should the heat exceed 130° Fahr. All the steel girders and piers on the lower floor are inclosed in iron netting, with a coating of Canadian asbestos and plaster. Along

the surface of every ceiling runs a network of mains, provided with automatic sprinklers, operated by fusible plugs which yield at a temperature of 155°. These mains are charged from a tank placed in the brick tower which rises above the main level of the warehouse near the south-east angle. The floors are calculated to bear a working load of 4cwt. to the foot, while the actual strain on the steel girders is estimated at 7½ tons and on the rolled joists at 6 tons. The roofs have caulked joints with cast-iron gutters; but in reply to a question Mr. Randall stated that if the work had to be done again lead would be used for the gutters. At the close of the visit a hearty vote of thanks was accorded to Mr. Randall for kindly acting as cicerone, on the motion of Mr. Ellis Marsland, hon. secretary, seconded by Mr. J. R. Manning, member of Council of the Society.

The memorial-stones of the John Pennington Primitive Methodist Mission Hall were laid at Fellside, Kendal, on the 21st inst. Mr. John Thomson is the architect.

The Bishop of London will lay the foundation-stone of the new school and technical institute of Sir John Cass's Foundation in Jewry-street, Aldgate, on Wednesday next, May 10.

At the last meeting of the Cranbrook Rural District Council, the plans for the sewerage and sewage disposal for the district of Halkyn, prepared by Messrs. Sands and Walker, civil engineers, Nottingham, were approved.

Messrs. E. H. Shorland and Brother, of Manchester, have just supplied some more of their patent Manchester grates to the Royal Albert Edward Infirmary, Wigan.

The Ripon and Wakefield Diocesan Training College at Ripon has been enlarged at a cost of more than £9,000. The new buildings, which include a chapel, hostel, lecture-room, laboratory, &c., will be dedicated and opened on Monday next.

Operations were commenced last week, in connection with the widening of the Tweed Bridge, Peebles. The plans have been prepared for the Commissioners by Messrs. M'Taggart, Cowan, and Barker, C.E., Glasgow, and the contractors are Messrs. Dickson and Clyde, Peebles, their tender being £5,454 7s. 6d. The bridge as widened will be 40ft. between parapets, the present width being 21ft. The bridge was last widened in 1834.



## HORSE PARADE IN BATTERSEA PARK.

**F**EW firms connected with the Building Trades have more effectually mastered the secret of securing good service from all in their employ—and that means prompt and careful attention to customers' wishes—than the old-established house of Eastwood and Co., Limited, of Belvedere-road, Lambeth, which, under the management of Mr. George E. Wragge, has during the past few years developed to so gratifying an extent.

A most interesting inspection and parade of cart-horses, vans and carts belonging to the firm was held last Saturday at 11 a.m. in Battersea Park, by the kind permission of the London County Council. The prizes offered varied from 10s. downwards, and the points of merit were the perfect grooming of the horses, well-kept harness, and well-kept vehicles. The judges for the horses were Mr. Sulman and Sergt. Redding; for the harness, Mr. Bristowe and Mr. Howard; and for the vehicles, Mr. Townsend and Mr. Bines. The umpire was Mr. Henry J. Byrne, who is always the zealous seconder of the fruitful suggestions of the energetic managing director of the firm, Mr. George E. Wragge, for the encouragement of healthy emulation. Mr. Lawson, the principal wharf manager, was no less active; and, thanks to the co-operation of these gentlemen, the awards were promptly made. The prizes were distributed as follows:—For Pair-horse Vans: 1st, John Dedman (38 years in the employ of the firm). For Single-horse Vans: 1st, Causton (24 years' service); 2nd, Sharp (17 years' service); 3rd, Hine (15½ years' service); 4th, Mayhew (11 years' service); 5th, Christmas (5 years' service); 6th, Pegg (1 year's service). Four Light Vans: 1st, Dark (14 years' service). After the announcement of the prizes, the horses and vehicles, nearly 80 in number, formed a procession, and, leaving the park, proceeded over the Victoria Bridge, and by the way of Sloane-street, back through the West-end to Northumberland-avenue, where each section broke off for its own headquarters—some at Greenwich, and some at Lambeth, Southwark, Woolwich, Chelsea, &c.

## THE HOLBORN-STRAND NEW THOROUGHFARE.

**A**FTER a fortnight's consideration and the examination of many professional witnesses, the select committee of the House of Commons has passed the preamble of the London Improvements Bill, providing, among other works, for a new street from Southampton-row, Holborn, to the Strand, subject to the following conditions:—“That the preamble is proved so far as regards the Strand and Holborn improvements; that the land south of the Strand be excluded from the betterment area, also the property of the *Financial Times*; that the number of years in which betterment may be proved be limited to ten—namely, seven for works and three for improvement; that the Danes Inn property remain as proposed in the Bill; that the making of the road remain in the hands of the County Council. It is not proposed to insert in this Bill section 133 of the Land Clauses Act, but that the Sardinia-street works of the Metropolitan Electric Supply Company be reinstated in such a way that there be no interference with the business, and on such a site as will protect them from any proceeding for making a nuisance. With regard to Clause 20, the committee think some Government authority should give a certificate of approval before property is taken under the valuation provided under section 21 of the Housing of the Working Classes Act, 1890.”

A receiving order has been granted in the case of John Alfred Langston, of Lonsdale-square, Barnsbury, N., late Took's-court, Chancery-lane, W.C., architect.

The Leigh (Lancashire) rural district council have selected Mr. Thomas W. B. Gent, of Bolton, out of 37 applicants to be their first surveyor, at a salary of £180 per annum.

The Select Committee of the House of Commons have considered the North-West London Railway Bill, under which power is sought to construct an underground railway to be worked by electricity, connecting the Marble Arch with Cricklewood. It stated that the line would be four miles long, and would have intermediate stations at Maida Vale, Kilburn, and Brondesbury, and was estimated to cost £1,065,183, or about £450,000 a mile. The Committee passed the preamble.

## OBITUARY.

THE death took place on Tuesday of Mr. ARCHIBALD PAUL BREVITT, architect, of Wolverhampton, and brother of the town clerk of the borough. The deceased, who was fifty-nine years of age, has been in ill-health for a considerable period. He served his articles with Mr. Taubshaw, of Stafford, and commenced practice at his native place, Darlaston, removing about fifteen years ago to Wolverhampton. He married a daughter of the late Rev. J. Y. Rooker, vicar of Lower Gornal, who survives him.

## CHIPS.

A new illuminated turret clock has been erected for the London City and Midland Bank, Carlisle, by Messrs. W. Potts and Sons, clock manufacturers, Leeds and Newcastle-on-Tyne, under instructions received from Mr. J. Taylor Scott, F.R.I.B.A., architect, Carlisle. Messrs. Potts and Sons are also making the new clock for Heaton Park, Newcastle-on-Tyne, for the Birkett Memorial Committee.

At the last meeting of the Edinburgh Architectural Society a paper entitled “Minor Points in Practice” was read by Mr. J. Fairweather, of Glasgow. Mr. A. Greig, vice-president, was in the chair. The lecturer confined himself to practical points on materials and constructions, and dealt with true and false economy in building operations at some length.

The Queen's Hotel, on the north side of Leicester-square, was opened last week. It is Italian Renaissance in style, and erected on the site of the old Hôtel de Paris. There are five stories, and fifty bedrooms. Within the hotel is a Masonic temple, with a dining-room adjoining. Messrs. Saville and Martin were the architects.

Mr. R. Pawley, of Hull, who was selected by the Bristol Docks Committee to fill the gap caused by the death of their late engineer, Mr. McCurric, has decided not to go to Bristol, but to continue his duties as sole engineer to the Hull and South Yorkshire Railway Company, for whom he is about to carry out an important extension of the Alexandra Dock at Hull. The Docks Committee have therefore appointed to the post Mr. William Wilkinson Squire, M.Inst.C.E., until November last chief engineer to the Bombay Port Trust, under whom he had served 17 years. Mr. Squire is 44 years of age.

At Toddington, near Dunstable, a new town-hall was opened last week. It contains an assembly-room seated for 200 persons, and two committee-rooms. Mr. Muckleston, of Toddington, was the builder.

The memorial-stone of a technical institute in course of erection in St. George's-street, Norwich, was laid with much civic ceremony last week. The institute is being built from plans by Mr. Arthur E. Collins, the city architect, the contractor being Mr. S. Warburton, of Norwich.

A Select Committee of the House of Commons has passed the preamble of the Great Northern and Strand Railway Bill. The line will extend from Wood Green to opposite Somerset House in the Strand, will be 6½ miles in length, and is estimated to cost £2,300,000.

At a special meeting of Paisley Town Council on Friday, Mr. James Lee, Stanley Green Farm, Paisley, was elected to the vacant post of Master of Works by 13 votes to 10 for Mr. Stewart, Edinburgh. Mr. Lee is 35 years of age, and for the past ten years has been employed in the Glasgow Gas Corporation department under Mr. William Foulis, C.E. He has acted as resident engineer for much of the work carried out by the Gas Trust. The salary is £350.

At Kew Parish Church, on Sunday, a stained-glass window, erected to the memory of the late Duchess of Teck, was dedicated. The window comprises two main lights. In the northern is a life-size representation of St. Peter holding the keys, and beneath this is depicted the giving to him of the commission recorded by St. Matthew. In the southern light are represented St. Paul's conversion and the Apostle holding the word of Life and the sword of the Spirit.

In the early days of the typewriter prejudice in official circles against its use was extreme, notwithstanding the undoubted advantages to be derived from it. The appearance, however, of the elegant, light, and compact Yost, with its beautiful characters and wonderful ink-pad, was the signal for the abolition of this adverse feeling. Shortly after it was put on the English market it was adopted by the Emperor William, the King of Wurtemberg, the Emperor of Austria, the Duke and Duchess of York, and many other members of royalty and aristocracy. The latest addition to the list of eminent users of the Yost Typewriter is President Loubet, who is loud in his praises of the best of modern writing-machines.

## COMPETITIONS.

BRADFORD.—Lord Masham visited Bradford on Tuesday to approve the plans for the Masham-Cartwright Memorial Hall, towards the erection of which, in Lister Park, Bradford, he has contributed £40,000. His lordship approved the selection made by the assessor, Mr. Alfred Waterhouse, R.A., and the awards for the plans were announced as follows:—First prize (£150), Mr. J. W. Simpson and Mr. J. Milnor Allen, 10, New Inn, Strand, W.C.; second prize (£100), Mr. A. R. Jemmett, 21, Great College-street, Westminster; third prize (£50), Mr. W. A. Pite and Mr. R. S. Balfour, 3, Upper Montague street, W.C.

GRAMMAR SCHOOL HOUSE, DONCASTER.—Mr. Alfred Aitchison, of Messrs. Roumieu and Aitchison, A.A.R.I.B.A., Law Courts place, Strand, W.C., was appointed by the R.I.B.A. to adjudicate upon the designs sent in competition for the Grammar School. The first prize of £50 is awarded to Messrs. R. and W. Dixon, architects, Barnsley, Yorkshire; the second prize to Mr. J. B. Royle, of 340, Green-lanes, Finsbury Park, N.; and the following were honourably mentioned:—Messrs. Seward and Rawcliffe, of Preston; Mr. L. H. Dutch, of 5, John Dalton-street, Manchester; Messrs. Taylor and Son, of Aylesbury; Mr. James Withers, of West Bromwich; Mr. F. W. Edwards, Newhall-street, Birmingham; and Messrs. Sharpe and Quail, of Old Trafford, Manchester.

SHOREDITCH TOWN HALL.—The Shoreditch Vestry were informed on Tuesday by the Town Hall Committee that only four sets of designs had been received for the proposed extension of the present town-hall buildings. The committee placed as first in order of merit design No. 2; and as second, design No. 3; and they recommended the vestry to confirm that award. The opening of the sealed envelopes showed that the author of No. 2, awarded the first premium of £50, was Mr. W. J. Hunt, 12, Bedford-gardens, Kensington; and of No. 3 design, to whom the second premium of £25 was given, was Messrs. Spalding and Cross, of Cheapside. The author of No. 1 design was Mr. Charles Bell, of Cannon-street, and of No. 4 design, Mr. C. E. Jackson, of 39, Wigmore-street. The vestry left for future consideration the question of a final selection of the design for the extension of the town hall.

The London County Council resolved, on Tuesday, to build a tunnel between Rotherhithe and Shadwell at a cost of 2½ millions, and also agreed to contribute £50,000 to the widening of Lower Thames-street, the City paying the other three-fourths necessary.

Ings parish church has been fitted with the latest improved “small tube” hot-water heating apparatus by John King, Limited, engineers, Liverpool, employing their well-known special economical coil-heater with watertight firebrass.

The supply of properties at Tokenhouse-yard Auction Mart last week was smaller than in the corresponding week of the last two years, but the prices realised were satisfactory. There was a total realisation of £201,709. The principal private treaty sale of the week was that of the Chalkwell Hall Estate, near Southend-on-Sea, with over half a mile of sea frontage, and comprising 262 acres, for £100,000, the purchaser being Mr. E. E. Raynor, of London.

Mr. Justice Day and a special jury heard last week a libel action brought by Mr. James Sanders, builder, and the mayor of South Molton, Devonshire, against his cousin, Mr. William Sanders, sen., a builder of the same town, for alleged libel. The matter complained of was published on a placard when the plaintiff was a candidate for a vacancy on the Devon County Council, and referred to several acts of his in connection with local questions. The defendant pleaded justification, but on the second day of the trial he withdrew any imputations he might have made on plaintiff in the heat of political controversy, and the case was settled out of court.

The Marlborough College Mission having built St. Mary's Church and Vicarage at Tottenham, are now completing their scheme by erecting a parochial building, consisting of a church hall, men's club-house, and caretakers' cottage, the memorial-stone of which was laid by H.R.H. the Duchess of Albany on Saturday afternoon, the dedication service being laid by the Bishop of London. The whole group of buildings is from the designs of Messrs. Cutts. The Duchess takes a great interest in this mission, the late Duke having been a governor of Marlborough College.



## Building Intelligence.

**BANSTEAD CHURCH.**—The restoration and repairs which have been in progress for the last nine months are now completed. A clerestory has been formed over the nave arcade of six 3-light traceried windows filled with leaded lights; the roofs have been stripped, repaired, and retiled; the stonework generally repaired, drains relaid, &c. Through the liberality of a parishioner the interior has been beautifully decorated with frescoes. Mr. F. J. Shopland, contractor, of Sutton, carried out the restoration and repairs to the fabric, the decorative work being done by Messrs. Heaton, Butler, and Bayne, under the superintendence of Mr. J. Hatchard Smith, F.R.I.B.A., 41, Moorgate Station Buildings, E.C.

**SHIRLEY, WARWICKSHIRE.**—The church of St. Patrick was reopened on Friday, having been almost entirely rebuilt. The only existing portion of the previous church, which was erected half a century ago, is the tower, a new nave and chancel having been built. The architect is Mr. W. H. Bidlake, M.A., of Birmingham. The church is Gothic in style, and is built of red brick with stone facings. Messrs. Smith, of Leamington, were the builders. The interior will accommodate nearly 300 people.

### CHIPS.

The partnership heretofore existing between J. W. Cobb and W. Bottrill, practising as architects, at Trafalgar Buildings, Northumberland-avenue, W.C., under the style of Cobb and Bottrill, has been dissolved.

The partnership hitherto existing between Mr. J. S. Gibson and Mr. S. B. Russell, architects, has been dissolved. Mr. Gibson will continue to practice at No. 4, and Mr. Russell at No. 11, Grays' Inn-square, W.C.

An inquiry was held on Friday by Colonel Hepper in connection with the application of the St. Marychurch District Council for £7,700 for sewerage. Mr. Worth, C.E., the engineer for the scheme, explained the proposals.

At Earldown, Coventry, a new coffee-house and public-hall were opened on Saturday. The building has been built at a cost of £1,700, and contains a hall for 350 persons, eight beds, and the usual coffee tavern accommodation. Mr. T. G. Golby, of Coventry, was the builder.

At the Edmonton Free Library, on Saturday afternoon, Mr. Frederick Harrison, M.A., performed the ceremony of unveiling two medallion portraits of Charles Lamb and John Keats, to whom the library had been erected by Mr. J. Passmore Edwards as a memorial. Lamb died and was buried at Edmonton, and Keats spent a part of his life there. The tablets were executed by Mr. George Frampton, A.R.A.

Col. J. T. Marsh, R.E., held a Local Government Board inquiry at the offices of the East Dereham Urban District Council on April 27, relative to an application for permission to raise a loan of £2,350, for the purpose of making additions and alterations at the Waterworks.

At Thetford, last week, a new road, 1,320ft. long and 28ft. wide, connecting the Norwich and Croxton main roads, was taken over by the town council. It forms a shortened route from the Norwich-road to the railway-station, and will eventually be lined on either side by the landowner with houses, opening out a new district for building.

The result of the voting of the ratepayers of Newcastle-on-Tyne on the corporation Bill for the construction of tramways and the carrying-out of certain improvements has been made known. The corporation resolved to ask power from Parliament to make tramways at a cost of £400,000, and to carry out other works—chiefly street improvements—which were to cost £770,000. They resolved also to work the tramways themselves. Forty thousand voting papers were issued, and the result was declared as follows:—For the Bill, 12,633; against the Bill, 11,416. More than 7,000 voting papers were returned blank.

The Bishop of Coventry has just consecrated a portion of Brandwood End Cemetery, a new burial-ground which has been acquired and laid out by the King's Norton and Northfield Urban District Council. The area of the burial ground covers 31 acres 2 rods, of which twelve acres have been left for future extension, and five acres remain unappropriated. The cost of the land was £6,800, the fencing, laying-out, &c., £3,900, and the buildings £8,000. The principal buildings are two chapels (English decorated in style), situated about the centre of the ground. Mr. J. Brewin Holmes was the architect.

## PROFESSIONAL AND TRADE SOCIETIES.

**THE ARCHITECTURAL ASSOCIATION.**—The fortnightly meeting of the Association was held on Friday evening, the President, Mr. G. H. Fellowes-Pryne, in the chair. Mr. A. E. Nightingale was reinstated as a member. A cordial vote of thanks was proposed by acclamation to Messrs. G. B. Carvill, Gervase Bailey, and Leonard Butler, the authors and composers of "The Archdukes Elect," the burlesque presented at the *soirée* a week previously, and the thanks of the members were also accorded to the Prime Wardens, to Mr. Howard Chatfield Clarke, and Mr. J. D. Crace for facilities recently granted the members to visit and inspect Fishmongers' Hall. In reference to the house list of nominations for next session's council and officers, the President announced that one fresh nomination had been made, Mr. E. W. M. Wonnacott having been nominated by Messrs. J. W. Stonhold and C. H. Freeman as librarian, and Messrs. W. A. Jeckells, A. Smithers, and W. A. Webb were appointed as scrutineers. A paper on "Specifications," written by Mr. F. W. Macey, was read, in the absence of the author, by Mr. G. B. Carvill, hon. secretary, and will be found on p. 602. At the close a short discussion took place, in which Messrs. Henry Lovegrove, F. T. W. Goldsmith, B. F. Fletcher, C. H. Brodie, Max Clarke, G. M. Nicholson, and the President took part, and thanks were accorded to the author and reader of the paper.

**NORTHERN ARCHITECTURAL ASSOCIATION.**—In the annual report for the fortieth session the council again record the increasing success of the association. During the session, since the last annual report, one member, nine associates, and fourteen students have been elected, and there are now 50 members, 59 associates, and 44 students, making a total of 153 on the roll. The association records the death of Mr. W. Livesey, who joined the association as a member in 1879. At the last annual meeting Mr. Frank W. Rich, F.R.I.B.A., was re-elected president, and during the meeting prizes were presented to Mr. A. K. Tasker and Mr. E. E. Shepherd, the successful students competing for the best sets of drawings as required by the R.I.B.A. for their intermediate examination. The finances were in a satisfactory condition, there being a balance in hand of £32, and the library is doing useful work. Meetings have been held for the discussion of papers and excursions made during the session.

**THE GLASGOW INSTITUTE OF ARCHITECTS.**—A special meeting of the council of this institute was held on April 28 at 115, St. Vincent-street, under the chairmanship of Mr. David Barclay, F.R.I.B.A., president, to consider the principle of the Bill recently introduced into the House of Lords by Lord Russell of Killowen relating to illicit commissions. The President stated that one of the objects of the institute is to insure that the business carried on by its members would be free from anything dishonourable, and that they welcomed any action, through such a Bill or by any other means, which would insure fair trading in business and honourable dealing amongst all professional men. The following resolution was then unanimously passed:—"That the council of the Glasgow Institute of Architects, in the interests of honest trade, and to show its disapproval of illicit commissions in whatever form, resolves to support the principle of Lord Russell's Bill."

New Sunday-schools in Vine-street, Coventry, were opened on Wednesday week. Mr. C. Haywood, of Coventry, was the builder.

Archdeacon Sheringham, of Gloucester, makes an appeal for £1,200 more to preserve Tewkesbury Abbey, "the noblest church in England," from impending disaster. Nearly £1,700 has already been expended, and an effort is being made "to renew decayed roofs and sodden walls."

The town-hall in Kensington High-street, built ten years ago from plans by the late Mr. Robert Walker, has been enlarged by extensive additions to the back, and was reopened by Lady Mary Glyn yesterday (Thursday). The alterations have been carried out by Messrs. Leslie and Co., builders, of Kensington-square, from plans prepared by the joint architects, Mr. W. Weaver, M.I.C.E., surveyor to the vestry, and Mr. W. G. Hunt, of Bedford-gardens, Kensington. The cost of the site was £6,728, and the contract price of the building was £13,747. Another £2,000 will have to be spent on furniture and fittings before the scheme is completed.

## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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RECEIVED.—J. M. and Son.—W. B. G.—A. W. K. Co.

### "BUILDING NEWS" DESIGNING CLUB.

EIGHTH LIST OF SUBJECTS.

H.—A Golf Club Pavilion for links near the sea on a flat site, well protected from the north by a belt of trees and high ground. The general room to be 30ft. by 26ft., and a small bar parlour with counter, leading out of the entrance-hall lobby, and opening by a doorway into the club-room. There is to be a ladies' room about 18ft. by 14ft., with separate entrance lavatory and w.c. Provide a club dressing-room 14ft. by 12ft., and a drying-room adjoining, as well as a lavatory, urinals, and w.c. On the first floor there is to be a luncheon-room 30ft. by 18ft., with covered balcony 12ft. deep on the S.W. side, partly projecting over the front wall below and carried by brackets, not posts. The room for committee to be on this floor. A club kitchen and a bedroom to be contrived for an attendant and his wife. Materials: red brick, stone, and timber, with tiled roof. The front to face south-west. Scale 8ft. to the inch. Sketch view to be included. The plans, if necessary, may be shown to one-sixteenth scale.

DRAWINGS RECEIVED.—"Hoopoe," "Quadrant," "Ulk," "Levenach," "Oak," "Swan," "Arc."

## Correspondence.

### THE NEXT PRESIDENT OF THE INSTITUTE.

To the Editor of the BUILDING NEWS.

SIR,—It is all very well for Mr. Woodward to object to the writers of the correspondence on this subject because they have not proclaimed their identity, and, after all, it is the pertinence of what people say which is of importance, and not so much who they are. The real difficulty of effectively withstanding the Council in their continued determination to keep the administration of the Institute entirely in their own hands, of course consists in the chronic apathy of the members as a body. I am confident of this, however, that a large number of men would be only too glad to co-operate in a serious endeavour to mend matters and help to invest the policy of the Institute with more vital energy if only a leader could be found of impartial and catholic views determined to upset this "corner" which too long has kept things close, giving no chance to anyone unacceptable by the clique in power. Men whom I know personally on the Council have told me how hopeless it is to attempt any reforms, and how soon they realised the impossibility of emancipating the Institute from its dead-and-alive existence. It seems too much to expect Mr. Emerson to withdraw, and, having secured a majority on the Council, no one is likely to come forward to contest the election against him. Mr. Woodward suggests that the candidate has only done work in India, but Mr. Emerson has built some admirable works in England, notably the red-brick and groined church of St. Mary in St. James-street, Brighton. He commenced St. Mary's Hospital at Paddington, besides some houses at the West-End, and at Turnham Green. It is now nearly 30 years since he left India. He was the favourite pupil of the late William Burges, A.R.A., and we all remember what Burges thought of the Institute!

If there is no chance—and I see none—of obtaining a really popularly-elected president this year, do let us accept the legal nominee of the Council with a good grace, and help him with our loyal support to signalise his term of office, if not with striking reforms, at any rate by a more open-handed way of doing things all round. You may be very high and very clever in snubbing people; you may work-in all your own set; but this style of conducting a chartered body can only end one way. You can see it illustrated at Conduit-street any day.—I am, &c.,

PAX.

### RESTORATION WESTMINSTER ABBEY W. FRONT.

SIR,—Your correspondent "An Antiquarian Architect" might, without loss of dignity on his



part, have ascertained Mr. Micklethwaite's connection with the restoration now proceeding at the west end of the Abbey, before so hopelessly involving himself as he does in his letter.

I am in a position to know that the work on the buttress at the west end was commenced under the direction of Mr. Pearson, and at the time of his death was nearing completion. Consequently Mr. Micklethwaite never had anything to do with it, nor, as a matter of fact, has he now.—I am, &c., F. C.

### CHURCH OF THE SACRED HEART, MONTMARTRE.

SIR,—Mr. Hems is in error, I think. Was not this church designed by the late M. Abadie, whose instructions have been carried out with slight modifications? The best view is obtained from the higher ground at the end of the Boulevard Magenta.—I am, &c., A. NEEDHAM WILSON, A.R.I.B.A.

## Intercommunication.

### QUESTIONS.

[12232].—**Damp Basement.**—The basement of a large suburban house near London is very damp; the subsoil is dense clay, the floor brick on edge. Is there any material that can be applied to the walls inside, and that will adhere to the walls, and what is the best plan to proceed?—PUZZLED.

[12233].—**Obstruction in Lead Pipe.**—A trapped lead waste-pipe from lavatory basin on first floor discharges into eastern head at top of iron down-pipe, which latter empties on to the top of a trapped gully at yard level. About every 18 months the lead pipe becomes choked, and a plumber has to be called in to remove the obstruction by means of a force pump. The deposit consists of a black jelly-like substance. Both warm and cold water are used in the lavatory, and for the most part "hard" supplied from the town main. Is the obstruction a coating of salts of lime deposited by the hard water over the inner surface of the pipe? If so, how can it be prevented? Could any chemical be occasionally poured down the pipe to dissolve the coating in the pipe without injuring the latter or the lavatory basin? Any information would be gratefully accepted.—ASSISTANT.

[12234].—**Damp Room.**—Can any of your correspondents give suggestions for improving a room which is at present damp? The room in question is on the basement floor, and used as a sitting-room. When built, it was not intended as a sitting-room, but as a cellar, hence the damp-course is above the floor. We have recently built an area wall outside; but this does not seem sufficient. The floor of the room is cemented, and also the walls inside to about 4 ft. high. The soil is red clay, and therefore retentive of damp. Suggestions for making this room dry will very much oblige.—BRISTOL.

[12235].—**Strength and Durability.**—It is stated by an authority on building stones that "the compressive strength of a stone, though it may reach many thousands of pounds to the square inch, may be found to bear no relationship yet recognised to qualities concerned in durability." The same writer says the resistance of a stone to atmospheric attack is largely modified by climate—uniform conditions of climate and temperature are favourable to stones of low and high compressive strength. Have these facts been confirmed as regards our ordinary building stones? If so, the architect in selecting a durable stone would have to consider the constituent minerals contained rather than the resistance; in other words, according to these statements the least resisting the stone to pressure the better it may be as a weathering stone. Can we wonder at the mistakes of architects in selecting building stones under these circumstances?—STUDENT.

[12236].—**Workmen's Compensation Act.**—Would an architect be liable under the Workmen's Compensation Act for an accident to his pupil taking place upon a building in course of erection, the said pupil being sent in the ordinary course of his duties to make an inspection, but not being in receipt of any salary or wages? Would he also be liable for an accident to an assistant under similar circumstances, the said assistant being in receipt of salary?—A. M. A.

[12237].—**Wall.**—Can any reader inform me the way of working out the following? A rectangular wall, 1 ft. high, has to resist a thrust of 500 lb. per foot run applied at an angle of 60° to the horizon, at a height of 8 ft. above the ground level. Taking the weight of wall at 100 lb. per foot cube, what must be its thickness, supposing it to be unstable, without taking into consideration the strength of the mortar?—LEWIS KERRY.

### REPLIES.

[12237].—**French Concrete Piles.**—I should recommend Mr. Dowling to write to Mr. L. G. Mouchel, Britonferry, South Wales, for the information he requires respecting these; or if he will write to me at General Post Office, Southampton, I would communicate with him. A quantity of these piles have been driven in this neighbourhood with excellent results.—AJAX.

[12238].—**Louvre Chimney-Pots.**—My attention has been called to the question in your issue of the 21st ult. by a Mr. Frank Marriott as to who invented the Louvre chimney-pot. I thought someone who remembered the incident would have answered this question instead of my being called upon to speak for myself. About 30 years ago, when foreman for Messrs. W. Bailly and Sons, 71, Gracechurch-street, E.C., the writer designed the Louvre chimney-pot, and had the first one made in copper. One member of the firm (viz., Mr. H. Bailly) is still living, and will, I have no doubt, remember and be

able to confirm the fact.—ROBT. CRAM, Consulting (Domestic) Engineer, 143, Cannon-street, E.C.

[12238].—**Louvre Chimney-Pots.**—I think it was at the exhibition in South Kensington in 1862 that I saw the model a man named Cosser, a builder and carpenter, York-road, Lambeth (his mother carried on the business of her deceased husband, who died 40 or 50 or more years ago) made a small model, and I think registered it about the year 1861. I saw it in a shop next door to a scale-maker's. The eldest son, Frederick, who took the business, left some time back. If he is not dead he would be between 60 and 70, and the premises are now, and have been for two or more years past, dining-rooms. I do not remember anything of the sort at the 1861 Exhibition.—REGENT'S PARK.

[12239].—**Mastic.**—Brick, burnt clay, or limestone, powdered, mixed with oil and litharge, or some other drier. The best was called Hamelin's mastic, but it has been superseded by Portland cement, latter being cheaper.—REGENT'S PARK.

### PARLIAMENTARY NOTES.

**THE DECORATION OF ST. PAUL'S CATHEDRAL.**—Earl Wemyss has asked her Majesty's Government whether they could put a stop to the decorative destruction of St. Paul's Cathedral that was now going on apace under the orders of the Dean and a committee of taste; and whether, if this were beyond their power, they would take such legislative action as would save our other cathedrals from the possibilities of a like evil fate. Lord Salisbury had no answer to give to the first question except an absolute negative. The Government had no authority and no power over the management of the structure of St. Paul's Cathedral or of any other cathedral. It had been said that the ultimate decision of the question would rest with the Judicial Committee of the Privy Council, but everybody must admit that the duties of that body were sufficiently extensive already. With regard to the second question, the state of public business in the other House was not likely to be such as to enable the leader of that House to undertake legislation upon so thorny a question. Lord Kimberley thought the Dean and Chapter of St. Paul's ought to pay more attention than they had done to the memorial presented by a body of men who had, he considered, the right to express an opinion concerning the decorations.

**NATIONAL MONUMENTS IN CHURCHES BILL.**—In the House of Lords last week, the Earl of Camperdown moved the Second Reading of this Bill, the object of which he said was to provide that where Parliament had contributed, either wholly or partly, to the construction of a national monument in our cathedrals and national churches, it would not be possible for that monument to be altered or removed without the assent of her Majesty, and without Parliament being informed. Viscount Cross, on behalf of the Government, assented to the principle of the Bill. The Archbishop of Canterbury also intimated that there was no objection on the part of the Bishops to the Bill, which was read a second time.

**NEW GOVERNMENT BUILDINGS.**—Mr. Akers-Douglas, in answer to Mr. Allhusen, said: The designs of Mr. Young and Mr. Brydon, for the new Government buildings, were approved by her Majesty's Government before they were submitted to the House. I have carefully considered the sketch elevation prepared at the suggestion of Lord Wemyss, and I regret that, although externally attractive as a design for a Royal palace, it is unsuitable for Government offices. There would be no useful purpose served in placing this design in the Tea-room unless it is accompanied by a plan and sections showing the nature and arrangement of the accommodation it would provide. In reply to Mr. John Ellis, Mr. Akers-Douglas added: Certain alterations in matters of detail have been suggested, and these suggestions will be carefully considered. Generally the plans have been most favourably received, and I shall proceed with the work without any unnecessary delay.

Linings were granted at the last fortnightly Dean of Guild Court in Glasgow for the erection of property of the value of about £109,000. Of this total, however, about £70,000 was represented by the International Exhibition buildings to be erected in Kelvin-grove Park.

In anticipation of the Wolverhampton Corporation's Bill for the purchase of the existing tramways and the construction of electric tramways passing this session of Parliament, preparations are in progress for the work. The committee have already issued invitations for the supply of 3,100 tons of steel girder tram rails, 915,000 creosoted deal paving blocks, and 12,000 tons of granite setts.

Col. A. J. Hepper, D.S.O., R.E., of the Local Government Board, held an inquiry at the school, Coates, near Cirencester, on Thursday last week, into an application by the Cirencester Rural District Council, for sanction to borrow money for providing a water supply for the village of Coates. The scheme is estimated to cost £1,757 19s., and by it water will be distributed to the parish by pipes from a well already sunk on the glebe land.

### LEGAL INTELLIGENCE.

**A KENSINGTON APPEAL.**—Mr. Arthur Cates (president), Mr. J. W. Penfold, and Mr. A. A. Hudson (legal adviser) sat at the Surveyors' Institute, Strand, last week, for the purpose of deciding an appeal brought against the London County Council by the trustees of the Phillimore Estate, Kensington, under the London Building Act. Mr. Macmorran, Q.C., for the appellants, explained that the trustees of the Phillimore Gardens Estate, Kensington, desired the sanction of the tribunal to a scheme for the laying out of certain streets in Kensington. During his life the late Captain Phillimore, who died in February, 1887, let Moray-lodge, Kensington, for a term of 80 years, together with the land surrounding it, on lease. The leaseholder at once proceeded to develop the estate, and borrowed largely from Captain Phillimore to lay out the land. At the captain's death large sums borrowed by the lessee were outstanding, and became due to the personal estate of Captain Phillimore. These the lessee was unable to meet, and by an arrangement came to with the Chancery Court he was released from his liability under certain terms. Since then the advisability of dealing with the estate and land had been gone into, and, under advice, the trustees had decided to develop it by laying out streets, widening the existing thoroughfares, and erecting properties more marketable as a letting commodity than those at present existing. The plans of the proposed improvements had been submitted to the London County Council, and that body had refused to sanction them. Mr. E. J. A. Balfour, Mr. E. Chesterton, and Mr. William Weaver, chief surveyor to the Kensington Vestry, also gave evidence in support of the appeal. Mr. Seager Berry, for the respondents, said the London County Council refused to sanction the plans because, according to the general scheme, the proposed streets to be formed would not at and from the time of laying-out afford direct communication with the existing streets. The object of the Building Act was to prevent such streets from being formed. The tribunal disallowed the appeal, but made no order as to costs.

**ARBITRATION AT TOWYN.**—An important arbitration case was concluded on Towyn, North Wales, on Friday. It concerned an action brought by Messrs. Harrison and Co., contractors, Swansea, against the Towyn Urban District Council with reference to the balance claimed by these contractors from the council for constructing a reservoir for water supply to the Aberdovey part of the council's district. Mr. Morgan W. Davies, Swansea, was the umpire. Messrs. Veevers, Harrison, and Torlby, contractors, gave evidence in support of their claim, and the council's witnesses were Mr. T. T. Marks (Llandudno), Mr. E. Evans (Carnarvon), Mr. T. Smith (Towyn, clerk of the works), Mr. W. R. Davies (clerk to the council), and several members of the council. The chief point of contention was as to whether it was a lump sum contract or whether the work should be paid for according to the schedule of prices attached to the tender. The umpire will issue his award in due course.

### CHIPS.

At a public meeting held at the town-hall, Leicester, recently, under the presidency of the Mayor, it was decided to take steps for restoring the fine parish church of St. Mary, at an estimated cost of £1,500.

Sunday-school premises were opened by the Wesleyans of Wadebridge on Thursday last week. The work, which has cost £820, has been carried out by Mr. T. Williams and Sons, builders, Wadebridge, the architects being Messrs. Kerley and Ellis, Exmouth.

A peal of five bells, placed in the tower of the parish church of Arbroath, N.B., was rung for the first time last week. One of the bells, the tenor, has been hung some time since; the other four have been cast by Messrs. J. C. Wilson and Co., of Glasgow.

Branch offices are about to be built at the Tramways centre, in St. Augustine's, Bristol, for the Star Life Assurance Society. The building will be from designs by Mr. A. Blomfield Jackson, of London, and the contract has been intrusted to Mr. A. J. Beaven, of Bedminster. The cost will be about £15,000.

The directors of the Burton-on-Trent Artisans' Dwellings Company accepted tenders for the construction of the first block of 40 houses to be erected between Horninglow-road and Wyggeston-street. The land will provide accommodation for 150 cottages when it is fully occupied. The architect is Mr. Thomas Jenkins, 35, High-street, Burton-on-Trent.

On the recommendation of the Public Health Committee, the London County Council passed, on Tuesday, a code of by-laws dealing with the drainage of buildings in the Metropolis.



## Our Office Table.

AFTER many years of discussion, reference, report, amendment, report, reference, and discussion, a code of new building by-laws for Cardiff is so near being issued that the consent of the Local Government Board has been given to the proposals made on behalf of the corporation. The main controversy with the Local Government Board appears to have been over the width of new streets or continuations of existing thoroughfares. In the final settlement the Local Government Board have conceded to the Cardiff Corporation a width of 50ft. in streets not less than 300yds. long and of 60ft. width in continuations of certain specified streets and roads.

THE annual report of the council of the City and Guilds of London Institutes states that there had been a satisfactory increase in the number of students attending the Central Technical College. Of the 240 students in regular attendance 111 were taking the civil and mechanical engineering course, 83 the electrical engineering course, 24 the chemical course, and 22 the special course. At the close of the last session 40 matriculated third-year students were awarded the diploma of Associate. At the beginning of the present session 79 entered the college as matriculated students out of 107 who presented themselves at the examination. The total number of the County Council and other scholarships held by students now attending the college is 41, and these are of the value of £2,200. The number of day students at the Finsbury College during the year was 185, a decrease of three on the previous year, and the number at the evening classes was 760, more than half of whom were occupied as civil, electrical, mechanical, and hydraulic engineers and electricians and their apprentices. Progress had also been made at the South London Technical Art School, where there were 131 students against 118 in the previous year.

THE old offices, No. 20, Temple-street, Birmingham, occupied by Mr. J. A. Chatwin, architect, and by a firm of solicitors, are shortly to be demolished and replaced by a modern building. The offices are a portion of an early Georgian professional residence, which originally possessed a strip of garden extending to New-street. The head of the doorway is decorated with carving, while inside the entrance is a quaint archway springing from fluted pilasters. Some of the lower rooms retain the oak wainscoting of former days, and the balustrade of the staircase is also ancient. Mr. J. A. Chatwin has been the tenant of the upper floor since 1858. The rise in the value of property in Birmingham is illustrated by the fact that a forty-two years' lease of the premises was granted in 1846 at a yearly rent of £85. The land is now worth about £400 a year, or £1 per yard per annum.

PROFESSOR J. B. JOHNSON, of Washington University, St. Louis, has made some interesting tests of the behaviour of iron or steel stirrups, as used for hanging floor-beams from brick walls, when exposed to fire, and finds that, under such circumstances, they soon become red-hot, and then burn their way rapidly through the end of the beam, while, at the same time, they soften and bend down, the result being that the beam drops out of its bearing in fifteen or twenty minutes after the fire reaches it.

The schools built at Hythe, near Southampton, for the Fawley School Board were formally opened last week. Messrs. Mitchell, Son, and Gutteridge, of Southampton, were the architects, and Mr. Cole, of Hythe, was the builder. The buildings include a main room, 60ft. by 20ft., and a classroom for 40 children. The walls are of red brick with stone designs. The cost for the 268 school-places provided was £2,696, or just over £10 per head.

An installation of electric lighting, carried out at a cost of £7,000, was inaugurated last week at the Millwood Workhouse Infirmary, belonging to the West Derby board of guardians. The system consists of 1,400 16c.p. lamps, run on a 110-volt circuit. The contractor for the building operations was Mr. W. Hall, Liverpool, and for the electrical portions of the installation the following firms:—Engine-room plant, Mr. Scott Anderson, Sheffield; batteries, the Chloride Electrical Company, Manchester; wiring, Messrs. Woodward and Craig, Glasgow. The buildings were designed by Mr. Charles H. Lancaster, of Liverpool, the architect to the board, and the electrical plant is to the designs and specifications of Mr. Thomas A. Miller, Tower Buildings, Liverpool.

## MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Building Trades Exhibition, Royal Agricultural Hall. Papers on "Road-Making Materials and Appliances," by J. Patten Barber and H. T. Wakelam, County Surveyor of Middlesex. 4 p.m.

SATURDAY (TO-MORROW).—Building Trades Exhibition, Royal Agricultural Hall. Visit by the Architectural Association. 3 p.m. Papers on "Road-Making Materials and Appliances," by F. Smythe, Surveyor, Finchley U.D.C., and J. W. Bradley, Borough Engineer, Wolverhampton. 4 p.m. Edinburgh Architectural Association. Visit to Peebles. Train from Waverley Station, 2.10 p.m.

MONDAY.—Society of Arts. "Leather Manufacture," Cantor Lecture No. 4, by Professor Henry R. Proctor, F.I.C. 8 p.m. Bristol Society of Architects. "Speculative Builders and their Little Ways," by Frank W. Wills. 8 p.m.

WEDNESDAY.—Carpenters' Hall Free Lectures. "Temporary Structures and Shoring," by Professor T. Roger Smith, F.R.I.B.A. 8 p.m. Society of Arts. "Fruit-Growing in Kent," by George Bunyard. 8 p.m.

THURSDAY.—Society of Arts. "The Revenue System and Administration of Rajputana," by Michael Francis O'Dwyer. 4.30 p.m. Home Arts and Industries Association. Fifteenth Annual Exhibition opens in Gallery of the Royal Albert Hall. 2.30 p.m.

FRIDAY.—Architectural Association. "Soil and Aspect in Relation to the Dwelling House," by Dr. G. V. Poore, L.R.C.P. 7.30 p.m.

SATURDAY.—Northern Architectural Association. Visit to South Shields.

## THE ARCHITECTURAL ASSOCIATION.

MAY 12th.—ORDINARY MEETING, 9, Conduit-street, W. 7.30 p.m. Dr. G. V. POORE, L.R.C.P., on "SOIL AND ASPECT IN RELATION TO THE DWELLING-HOUSE." ELECTION OF OFFICERS for Session 1899-1900.

E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

## CHIPS.

The Norfolk County Council have decided to enlarge the auxiliary lunatic asylum at Thorpe, near Norwich, at an estimated cost of £20,000. About 150 additional beds will be provided.

The building of a new cotton manufactory for Messrs. Bury Bros. is to be commenced almost at once at the bottom end of Hyndburn Park, Darwen. The new concern will be of brick. It will be lighted throughout by electricity, and will contain 1,008 looms. The architects are Messrs. Soames and Green, Blackburn and Darwen.

A new club house is being erected at Harrogate, from the designs of Messrs. Milson and Oglesby, architects, Leeds, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

In the case of the application on behalf of George Frederick Bushell, Margate, builder, trading with William Bushell as Bushell and Son, the discharge from bankruptcy has been suspended for three years, ending February 27, 1902.

The new board schools at Bedford were opened last week. They consist of a mixed school, with central hall for 460 boys and girls, and an infant school to accommodate 410 children. The cost of the buildings was £7,050. The schools are warmed and ventilated by Shorland's Manchester grates. The window openings are fitted with Burt and Potts' lights and Leggett's patent fastenings. The contract was carried out by Mr. J. Wharton, builder, Bedford, from designs and under the superintendence of Mr. Henry Young, architect to the board.

Mr. Charles Smith, chairman of the Nottingham Board of Guardians, has laid the foundation-stone of a new workhouse which is being erected on a pleasant site on the outskirts of the city at a cost (exclusive of land and furnishing) of £250,000. The buildings are intended to accommodate 1,650 persons. The work is to be completed in three and a half years.

Major-General H. Darley Crozier, R.E., on behalf of the Local Government Board, held an inquiry at the Guildhall, Walsall, recently, regarding an application by the corporation for approval of the borrowing of money to purchase land as a site for municipal buildings, sanction for borrowing £8,000 for the provision of sanitary depots at Walsall and Bloxwich, and £1,230 for the construction of sanitary conveniences in various parts of the borough.

The new list of members of the Institution of Civil Engineers, just published, shows that on April last there were enrolled 20 honorary members, 2,004 members, 3,953 associate members, 326 associates, and 984 students, making a total of 7,267 names in all classes, an increase of 89 on the aggregate for the previous twelve months, the growth being most marked in the classes of members and associate members.

## LATEST PRICES.

IRON, &c.		Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0 to	£8 10 0	
Rolled-Steel Joists, English.....	6 10 0	7 0 0	
Wrought-Iron Girder Plates.....	5 15 0	6 10 0	
Bar Iron, good Staffs.....	7 5 0	8 5 0	
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	17 5 0	
Do., Welsh.....	5 15 0	5 17 6	
Boiler Plates, Iron—			
South Staffs.....	7 17 6	8 5 0	
Best Snedshill.....	10 0 0	10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £8 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 6d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 13 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	£11 0 0	
Best ditto.....	11 5 0	11 10 0	
Cast-Iron Columns.....	£8 5 0 to	£8 15 0	
Cast-Iron Stanchions.....	8 5 0	8 15 0	
Rolled-Iron Fencing Wire.....	8 5 0	9 5 0	
Rolled-Steel Fencing Wire.....	8 5 0	9 5 0	
Galvanised.....	11 10 0	12 10 0	
Cast-Iron Sash Weights.....	4 2 6	4 5 0	
Cut Clasp Nails, 3in. to 6in.....	9 0 0	10 0 0	
Cut Floor Brads.....	8 15 0	9 15 0	
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.	9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9	per cwt.	
Cast-Iron Socket Pipes—			
6in. diameter.....	£6 2 6 to	£6 7 6	
4in. to 6in.....	5 17 6	6 2 6	
7in. to 24in. (all sizes).....	5 7 6	5 12 6	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....		105s. to 110s.	
Hot Blast, ditto.....		57s. 6d. to 62s. 6d.	
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. :—			
Gas-Tubes.....		75p.c.	
Water-Tubes.....		70	
Steam-Tubes.....		62½	
Galvanised Gas-Tubes.....		60	
Galvanised Water-Tubes.....		55	
Galvanised Steam-Tubes.....		45	

10cwt. casks. 5cwt. casks.		Per ton.	Per ton.
Zinc, English.....	£30 10 0 to	£31 10 0	
Do., Vieille Montagne.....	31 10 0	32 15 0	
Sheet Lead, 3lb. per sq. ft. super.....	16 5 0	17 5 0	
Pig Lead, in 1cwt. pigs.....	15 12 6	16 12 6	
Lead Shot, in 28lb. bags.....	19 5 0	20 5 0	
Copper Sheets, sheathing and rods.....	81 0 0	82 0 0	
Copper, British Cake and Ingots.....	78 10 0	80 0 0	
Tin, Straits.....	113 10 0	114 10 0	
Do., English Ingots.....	116 0 0	117 0 0	
Spelter, Silesian.....	27 5 0	28 5 0	

T I M B E R.		per load	£13 10 0 to	£16 15 0
Teak, Burmah.....		11 15 0	15 15 0	
" Bangkok.....		4 7 6	6 5 0	
Quebec Pine, yellow.....		8 10 0	8 15 0	
" Pitch.....		3 5 0	4 0 0	
" Oak.....		3 10 0	5 10 0	
" Birch.....		4 12 6	5 15 0	
" Elm.....		4 0 0	5 5 0	
" Ash.....		3 5 0	4 0 0	
Dantsic and Memel Oak.....		1 10 0	3 10 0	
Fir.....		3 15 0	6 5 0	
Wainscot, Riga p. log.....		4 10 0	5 10 0	
Lath, Dantsic, p.....		4 0 0	6 10 0	
St. Petersburg.....		8 0 0	8 5 0	
Greenheart.....		4 0 0	15 0 0	
Box.....		0 1 9	0 2 0	
Sequoia, U.S.A. ....per cube foot				
Mahogany, Cuba, per super foot		0 0 5½	0 0 7	
lin. thick.....		0 0 3½	0 0 4½	
" Honduras.....		0 0 3½	0 0 4½	
" Mexican.....		0 0 4	0 0 4½	
Cedar, Cuba.....		0 0 4	0 0 4½	
" Honduras.....		0 0 3½	0 0 4½	
Satinwood.....		0 0 3	0 1 9	
Walnut, Italian.....		0 0 8	0 0 7	
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in.:				
Quebec, Pine, 1st.....		£18 15 0 to	£25 5 0	
" 2nd.....		13 15 0	17 0 0	
" 3rd.....		6 15 0	10 0 0	
Canada Spruce, 1st.....		8 5 0	10 5 0	
" 2nd and 3rd.....		7 0 0	8 5 0	
New Brunswick.....		7 0 0	7 15 0	
Riga.....		8 5 0	9 5 0	
St. Petersburg.....		9 15 0	14 5 0	
Swedish.....		9 15 0	18 15 0	
Finland.....		9 15 0	10 5 0	
White Sea.....		10 15 0	18 0 0	
Battens, all sorts.....		5 0 0	18 0 0	
Flooring Boards, per square of lin.:				
1st prepared.....		£0 12 0	£0 15 3	
2nd ditto.....		0 10 6	0 12 3	
Other qualities.....		0 5 3	0 6 6	

Staves, per standard M:—		—	—
Quebec pipe.....			
U.S. ditto.....	£35 0 0	£42 10 0	
Memel, cr. pipe.....	210 0 0	220 0 0	
Memel, brack.....	180 0 0	190 0 0	

O I L S.		per ton.	£17 7 6 to	£17 10 0
Linseed.....		22 13 0	23 0 0	
Rapeseed, English pale.....		21 5 0	21 10 0	
Do., brown.....		16 10 0	17 0 0	
Cottonseed, refined.....		30 0 0	32 0 0	
Olive, Spanish.....		20 0 0	20 5 0	
Seal, pale.....		25 10 0	25 15 0	
Cocoonut, Coochin.....		23 10 0	23 15 0	
Do., Ceylon.....		15 15 0	19 15 0	
Palm, Lagos.....		0 6 3	0 7 6	
Oleine.....		0 0 6	0 0 6½	
Lubricating U.S.....per gal.		1 0 0	1 5 0	
Petroleum, refined.....		0 15 0	0 18 0	
Tar, Stockholm.....per barrel		25 15 0	29 0 0	
Do., Archangel.....				
Turpentine, American...per ton				



## LIST OF COMPETITIONS OPEN.

Arbroath—Public Shambles .....	£7, £5, and £3 .....	W. F. Macintosh, Clerk to Commissioners, Arbroath .....	May 16
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50 .....	The City Engineer, Municipal Buildings, Leeds .....	June 1
Okehampton—Workhouse and Infirmary (9 inmates) .....	£50, £25 .....	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton .....	" 1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks .....	£31 (merged), £20, £10 .....	The Borough Engineer, Salford .....	" 6
Wakefield—Central Premises .....	£50, £30, and £20 .....	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75 .....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	July 3
Plumstead—Municipal Buildings and Public Library, Glossop- road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor) .....	£100, £75, £50 .....	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead .....	" 27
Edinburgh—Midlothian County Buildings, Parliament-square .....	£75, £50, £25 .....	A. G. G. Asher, W.8., County Clerk, County Rooms Edinburgh .....	" —
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.) .....		G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea .....	" —
Totnes—Cottage Hospital .....		The Chairman, Cottage Hospital Committee, Totnes .....	" —

## LIST OF TENDERS OPEN.

## BUILDINGS.

Halifax—Board Schools, Sunny Side .....	School Board .....	W. Clement Williams, Architect, 29, Southgate, Halifax .....	May 6
Gloucester—School, Caretaker's House, &c., Hatherley-road .....	School Board .....	Alfred J. Dunn, A.R.I.B.A., 31, St. Michael's-square, Gloucester .....	" 6
Slights Bridge—Entrance Lodge to Woodlands Estate .....		Clark and Moscrop, Architects, Darlington .....	" 6
Middlesbrough—Alterations to County Hotel .....	Cawtheray and Ramsden .....	Robt. Moore, Architect, 29, Albert-road, Middlesbrough .....	" 6
Chapelton—Infants' School at Lound .....	Ecclesfield School Board .....	G. A. Wilson, Architect, Hartshead Chambers, Sheffield .....	" 6
Victoria Embankment Gardens and Battersea Park—Super- structure of, and Painting New Band Stands .....	London County Council .....	The Architect's Department, 13, Spring Gardens, S.W. .....	" 8
Derby—Extensions to Electric Lighting Station .....	Corporation .....	Arthur Eaton, Architect, 6, St. James's-street, Derby .....	" 8
Govilon—Alterations to British School .....	Ashton Gate Brewery Co. .....	Edward Edwards, The Cwm, Govilon .....	" 8
Bedminster—Rebuilding Engineers' Arms, St. John's-lane .....	Urban District Council .....	Henry Williams, Architect, 24, Clare-street, Bristol .....	" 8
Ilford—Public Offices and Hall, High-road .....		Benj. Wollard, Architect, 16, Finsbury Circus, E.C. .....	" 8
Barnstable—Store at Rolle Quay .....	Seaton and Camerton School Board .....	A. Lauder, Architect, Barnstable .....	" 8
Sidick—Schools .....	Corporation .....	Donald and Tate, Architects, 14, John-street, Worthington .....	" 8
Taff's Well—Welsh Baptist Chapel .....	Urban District Council .....	Thomas Rowland, Architect, Market Buildings, Pontypridd .....	" 8
Darlington—Electric Lighting Station .....	Chas. Wills and Sons .....	The Borough Surveyor, Town Hall, Darlington .....	" 8
Mexborough—Boiler-House Extension, &c. .....	John Fitzgerald .....	G. Fenwick Carter, Surveyor, Market Hall, Mexborough .....	" 8
Bristol—Additions to Warehouse and Factory .....	Corporation .....	Henry Williams, Architect, 24, Clare-street, Bristol .....	" 8
Preston—Four Acres of Buildings .....	Ayrton England .....	Benjamin Sykes, C.E., 33, Winckley-square, Preston .....	" 8
Middlesbrough—Shop and Offices .....		J. Mitchell Bottomley, 28, Albert-road, Middlesbrough .....	" 8
Derby—Extensions to Electric Lighting Station .....		Arthur Eaton, Architect, 6, St. James's-street, Derby .....	" 8
Bradford—Additions to Gilstead Hall .....		Leit, Adkin, and Hill, Prudential Buildings, Bradford .....	" 8
Westminster—Alterations to Bluecoat School, Caxton-street, and Additional Schoolrooms, Teachers' House, &c. .....	Vestry .....	Beazley and Burrows, Architects, 17, Victoria-street, S.W. .....	" 9
Buckfastleigh—Cottage at Station .....	Great Western Railway Co. .....	G. K. Mills, Secretary, Paddington Station, London .....	" 9
Dray—New Wing, &c., at Grammar Schools .....	Bromley Rural District Council .....	T. S. Ullathorne, Selby .....	" 9
St. Mary Cray, Kent—Fire Station, Market Meadow-street .....	Barnes Urban District Council .....	W. J. Winter, Surveyor, Station-road, Sidcup .....	" 9
Mortlake—Seventy-six Workmen's Dwellings, S. Worpole Way .....	Great Northern (Ireland) Ry. Co. .....	G. Bruce Tones, A.M.I.C.E., Council Offices, High-st., Mortlake .....	" 9
Donabate—Station Building and Wooden Goods Shed .....	Sheffield School Board .....	The Company's Engineer-in-Chief, Amiens-street, Dublin .....	" 9
Sheffield—School at Western-road .....	Pease and Partners, Ltd. .....	Holmes and Watson, Architects, St. James's Chambers, Sheffield .....	" 9
Ushaw Moor—Thirty Cottages .....	Harry Forbes .....	Pease and Partners, Ltd., Crook .....	" 10
Aberdeen—Additions to Steading, Muirton of Barra .....	Vestry .....	Chalmers and Son, Advocates, 18, Golden-square, Aberdeen .....	" 10
Hammersmith—Extension of Electric Lighting Station .....	John Law .....	H. Mair, M.I.C.E., Surveyor, Town Hall, Hammersmith .....	" 10
Tredegar—Extension and Reseating, English Baptist Chapel .....	Miss Emily C. Talbot .....	Edward T. Morgan, Architect, 13, Park-row, Tredegar .....	" 10
Port Talbot—Roofing of Offices at Lochend .....	Corporation .....	Chalmers and Son, Advocates, 18, Golden-square, Aberdeen .....	" 10
Port Talbot—Swimming-Bath and Gymnasium .....	S. Dickinson .....	Frank B. Smith, Architect and Surveyor, Port Talbot .....	" 10
Cudworth—House and Shop .....	Corporation .....	Herbert Crawshaw, Architect, 13, Regent-street, Barnsley .....	" 11
Stafford—House and Shop .....	Co-operative Society, Ltd. .....	W. Blackshaw, Borough Engineer, Borough Hall, Stafford .....	" 11
Coundon—House .....	Mrs. Wm. Smith .....	F. H. Livesey, Architect, N.E. Bank Chambers, Barnard Castle .....	" 11
Beeston, Nottingham—Wesleyan Chapel .....	Corporation .....	J. Willa, Archt., Victoria Chambers, St. Peter's Churchyard, Derby .....	" 11
Stafford—Ten Cottages .....	H.M. Commissioners of Works .....	W. Blackshaw, Borough Engineer, Borough Hall, Stafford .....	" 11
Burton-on-Trent—Alteration of Cottage into Shop .....	School Board .....	T. Jenkins, Architect, 35, High-street, Burton-on-Trent .....	" 11
Nuneaton—Theatre Royal .....	Rev. William Coughlan, P.P. .....	Chas. Wm. Smith, M.S.A., Architect, Nuneaton .....	" 11
Barnard Castle—Five Houses .....	Bangor and Beaumaris Guardians .....	F. H. Livesey, Architect, N.E. Bank Chambers, Barnard Castle .....	" 11
Stafford—Workshop in the Market Hall .....	Bangor and Beaumaris Guardians .....	W. Blackshaw, Borough Engineer, Borough Hall, Stafford .....	" 11
Barnsley—House in Huddersfield-road .....	Bangor and Beaumaris Guardians .....	George Moxon, Architect, Central Chambers, Barnsley .....	" 11
Manchester—Extension of S.W. Branch Post Office .....	Bangor and Beaumaris Guardians .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate .....	" 12
Illogan—Additions to School .....	Bangor and Beaumaris Guardians .....	Sampson Hill, Architect, Green-lane, Redruth .....	" 12
Whitehaven—Restoration Hogarth's Church, Mount Pleasant .....	Bangor and Beaumaris Guardians .....	J. S. Moffatt, Architect, Whitehaven .....	" 12
Milford, Cork—Church .....	Bangor and Beaumaris Guardians .....	M. A. Hennessy, Architect, 74, South Mall, Cork .....	" 12
Arbuthnot—House on Picarles Farm .....	Bangor and Beaumaris Guardians .....	Alexander Donald, Forester, Parknock, Arbuthnot .....	" 12
Bangor—Alterations at Workhouse .....	Bangor and Beaumaris Guardians .....	Richard Davies, Architect, Bangor .....	" 12
Trowbridge, Wilts.—Technical School .....	Bangor and Beaumaris Guardians .....	G. Fleetwood, 3, New Court, Lincoln's Inn, W.C. .....	" 12
Baltinglass—Converting Old Bridewell into a Town-hall .....	Bangor and Beaumaris Guardians .....	J. J. O. Ramsey, M.E., Baltinglass .....	" 12
Moreton-in-Marsh—Four Cottages .....	Bangor and Beaumaris Guardians .....	A. W. Drury, Secretary, Moreton-in-Marsh .....	" 12
Weston-super-Mare—School of Science and Art .....	Bangor and Beaumaris Guardians .....	Hans F. Price, Architect, Weston-super-Mare .....	" 12
Birkbeck—First Portion of Church of St. Michael .....	Bangor and Beaumaris Guardians .....	A. H. Hoole, Architect, 21, King William-st., Charing Cross, W.C. .....	" 12
Manorbury—Alteration of Chapel Dwelling-House .....	Bangor and Beaumaris Guardians .....	W. Hughes, Blaenffon, Pembroke-shire .....	" 12
Withington—Office in Town's Yard .....	Bangor and Beaumaris Guardians .....	A. H. Mountain, Surveyor, Town Hall, Withington .....	" 12
Ryton-on-Tyne—Rebuilding the Jolly Fellows Inn .....	Bangor and Beaumaris Guardians .....	T. C. Nicholson, Architect, Blaydon .....	" 12
Bexhill—Electric Lighting Station and Chimney Shaft .....	Bangor and Beaumaris Guardians .....	A. H. Preece, 13, Queen Anne's Gate, S.W. .....	" 12
Finchley—New Hall, &c. .....	Bangor and Beaumaris Guardians .....	W. Hollis, Estate Agent's Office, Church End, Finchley Station .....	" 12
Bristol—School at Redfield, St. George .....	Bangor and Beaumaris Guardians .....	Herbert J. Jones, M.B.A., 12, Bridge-street, Bristol .....	" 12
Herne Common—Additions to Union Workhouse .....	Bangor and Beaumaris Guardians .....	The Master of the Workhouse, Church End, Finchley Station .....	" 12
Morpeth—Three Detached Villa Blocks at Lunatic Asylum .....	Bangor and Beaumaris Guardians .....	John Cresswell, Architect, Moot Hall, Newcastle-on-Tyne .....	" 12
Ripley—Additions to Burnt Yates School .....	Bangor and Beaumaris Guardians .....	C. Hodgson Fowler, F.S.A., Architect, The College, Durham .....	" 12
Stockton-on-Tees—Offices .....	Bangor and Beaumaris Guardians .....	J. J. Wilson, Architect, West Hartlepool .....	" 12
Lewisham and Forest Hill—Two Libraries .....	Bangor and Beaumaris Guardians .....	John Andrews, 13, Rasinghall-street, E.C. .....	" 12
Upper Edmonton, N.—Schools, Silver-street .....	Bangor and Beaumaris Guardians .....	J. Moule, Clerk, Brettenham-road, Upper Edmonton .....	" 12
Shrewsbury—Eight Cottages and New Street .....	Bangor and Beaumaris Guardians .....	The Joint Engineer, Shrewsbury Station .....	" 12
Tyne Dock—Thirty-Four Houses .....	Bangor and Beaumaris Guardians .....	William Bell, Architect, Central Station, Newcastle-upon-Tyne .....	" 12
Llandefn—Calvinistic Methodist Chapel .....	Bangor and Beaumaris Guardians .....	Joseph Owen, Architect, Menai Bridge .....	" 12
Portsmouth—Connaught Drill-Hall, Stanhope-road .....	Bangor and Beaumaris Guardians .....	Alfred H. Bone, Architect, Cambridge Junction, Portsmouth .....	" 12
Cannock—Class-room .....	Bangor and Beaumaris Guardians .....	Bailey and McConnell, Architects, Bridge-street, Walsall .....	" 12
Athlone—Shop and Premises, Church-street .....	Bangor and Beaumaris Guardians .....	J. G. Skipton, A.M.I.C.E., Northgate-street, Athlone .....	" 12
Grimshy—Electricity Works Buildings and Chimney Shaft .....	Bangor and Beaumaris Guardians .....	Marshall Petree, A.M.I.C.E., Town Hall Square, Grimsby .....	" 12
Tendring—Infirmary Wards (91 beds), &c., at Union House .....	Bangor and Beaumaris Guardians .....	F. Whitmore, Architect, Chelmsford .....	" 12
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler .....	Bangor and Beaumaris Guardians .....		" 12
House at South-Eastern Fever Hospital, Hatfield-street .....	Bangor and Beaumaris Guardians .....		" 12
Shirebrook—Lock-up .....	Bangor and Beaumaris Guardians .....		" 12
Holloway, N.—Pulling Down and Removing Buildings .....	Bangor and Beaumaris Guardians .....		" 12
Brydekirk—Library Hall .....	Bangor and Beaumaris Guardians .....		" 12
Cheltenham—Reconstruction of Montpellier Baths .....	Bangor and Beaumaris Guardians .....		" 12
Talkharth—Asylum .....	Bangor and Beaumaris Guardians .....		" 12
Belfast—Improvements to the Waterloo Bar, York-street .....	Bangor and Beaumaris Guardians .....		" 12
Belford—Rifle Range .....	Bangor and Beaumaris Guardians .....		" 12
Hereford—Premises .....	Bangor and Beaumaris Guardians .....		" 12
Leeds—Basement and Foundations of Premises, Lands-lane .....	Bangor and Beaumaris Guardians .....		" 12
Arnold—Alterations at National Board School .....	Bangor and Beaumaris Guardians .....		" 12
Bury, Lancs.—Rebuilding St. Peter's .....	Bangor and Beaumaris Guardians .....		" 12
Nottingham—Improvement of Forster-street Board School .....	Bangor and Beaumaris Guardians .....		" 12
Barwick-in-Elmet—Alterations of the Old Workhouse .....	Bangor and Beaumaris Guardians .....		" 12
Ashbourne—Additions to White Hart Hotel .....	Bangor and Beaumaris Guardians .....		" 12
Longton, Staffs.—Workshops, &c., Baltimore Works .....	Bangor and Beaumaris Guardians .....		" 12
Bingley—Additions to Gilstead Hall .....	Bangor and Beaumaris Guardians .....		" 12
Bradford—Alteration of Shop, Park-road .....	Bangor and Beaumaris Guardians .....		" 12
Norwich—Seven-Story Factory (140ft. by 66ft.) .....	Bangor and Beaumaris Guardians .....		" 12
Brentwood—Repairs, &c., to St. Charles's Schools .....	Bangor and Beaumaris Guardians .....		" 12
Armagh—Alterations, &c. .....	Bangor and Beaumaris Guardians .....		" 12
	Metropolitan Asylums Board .....	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-st., Strand, W.C. .....	" 24
	Derbyshire County Council .....	J. S. Story, County Surveyor, County Offices, St. Mary's Gate, Derby .....	" 24
	Islington Vestry .....	Wm. F. Derry, Clerk, Vestry Hall, Upper-street, N. .....	" 24
	Committee .....	William Thorburn, Secretary, Schoolhouse, Brydekirk .....	" 27
	John Eadie .....	J. Hall, A.M.I.C.E., Boro' Surveyor, Municipal Offices, Cheltenham .....	" 30
	King and Sons .....	Giles, Gough, & Trollope, Archts., 28, Craven-st., Charing Cross, W.C. .....	" 30
	School Board .....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....	" —
	Nottingham School Board .....	George Reavell, jun., A.R.I.B.A., Alnwick .....	" —
	S. Evershed .....	W. W. Robinson, Architect, 10, King-street, Hereford .....	" —
	Ayrton England .....	W. A. Hobson, Architect, 82, Albion-street, Leeds .....	" —
	A. J. Caley and Son, Limited .....	John R. Swift, F.I.A.S., Front-street, Arnold .....	" —
	Co-operative Wholesale Society .....	Medland Taylor, Architect, 2, St. Ann's Churchyard, Manchester .....	" —
		R. C. and E. R. Sutton, Architect, Bromley House, Angel-row .....	" —
		Percy Robinson, Architect and Surveyor, 72, Albion-street, Leeds .....	" —
		Messrs. Garlick and Flint, Architects, Buxton .....	" —
		William Wood, Architect, Crown Buildings, Longton .....	" —
		Isitt, Adkin, and Hill, Architects, Prudential Buildings, Bradford .....	" —
		James Young and Co., Architects, 62, Market-street, Bradford .....	" —
		E. Boardman and Son, Architect, Queen-street, Norwich .....	" —
		The Archbishop's House, Carlisle-place, London, S.W. .....	" —
		J. F. Gilchrist, C.E., Architect, Armagh .....	" —



## BUILDINGS—continued.

Colchester—Villa, Maldon-road	J. W. Start, F.S.I., Architect, Colchester	—
Belfast—Rebuilding Licensed Premises, Millfield	Peter M'Kenna	—
Great Horton—House at Bank Bottom	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast	—
Fermoy—Bank Premises	Jackson and Priestman, Surveyors, The Exchange, Bradford	—
Alnmouth—House and Stabling	Kaye, Parry, and Ross, Palatine Chambers, 63, Dawson-st., Dublin	—
New Malden—Offices and Stable Buildings, &c.	George Reavall, jun., A.R.I.B.A., Alnwick	—
Kendal—Eight Houses in Chapel Close	C. T. Lewis, Solicitor, Cambridge-road, New Malden, Surrey	—
Clitheroe—Six Semi-Detached Villas	John Stalker, M.S.A., Architect, 57, Highgate, Kendal	—
Milrose—Alterations at Roxburgh District Asylum	Briggs & Wolstenholme, Architects, Richmond-terrace, Blackburn	—
Tantobie—Five Houses, South View	Sydney, Mitchell, and Wilson, Architects, 13, Young-st, Edinburgh	—
Morecambe—Alteration of House, Regent-road	T. Ernest Crossling, Architect, Stanley, R.S.O.	—
Bawtensall—Conversion of Two Cottages into Shops	Marshall Bros., Architects, &c., Back Crescent, Morecambe	—
Salford—School in London-street	S. Whittaker and Son, Orchard Jam Works, Waterfoot	—
Morecambe—Alterations of House at Corner of Regent-road	Oliver Duthie, Clerk, School Board Offices, Chapel-street, Salford	—
	Marshall Bros., Architects, &c., Back Crescent, Morecambe	—

## ENGINEERING.

Radcliffe and Mellor—Bridge Repairs, &c.	Lancashire County Council	W. H. Radford, County Bridgmaster, County Offices, Preston	May 6
Maybole—Gasholder Tank and Gasholder	Gaslight Co.	P. Paterson, Solicitor, Maybole	6
Epsom—Electric Lighting Plant	Urban District Council	W. C. C. Hawtayne, Consulting Eng., 9, Queen-street-place, E.C.	8
Bromley-by-Bow, E.—Steel Roofing, Flooring, &c., at the Electric-Lighting Works, Violet-road	Poplar Board of Works	O. E. Winter, C.E., Surveyor, Violet-road, South Bromley	9
Newton Abbot—Reconstruction of Bridge	Urban and Rural District Councils	L. Stevens, Surveyor, Town Hall, Courtenay-street, Newton Abbot	9
Leichfield—Excavation (2,800 c. yds.) in Filter Beds, Sewage Farm	Sanitary Committee	C. J. Corrie, City Surveyor, Leichfield	9
Leichfield—Sewage Screens, &c.	Corporation	L. C. Evans, Town Clerk (pro tem.), Town Hall, Salford	10
Twickenham—Steam Road-Roller (12-ton)	Urban District Council	Fred. W. Pearce, Surveyor, Town Hall, Twickenham	10
Salford—Two Steam-Engines	West Ham Union Guardians	The Borough Engineer's Office, Town Hall, Salford	10
Leytonstone—Water Tower at Workhouse	Dumfriesshire County Council	J. Sturdy, 44, Finsbury-pavement, E.C.	10
Castlecomer—Repair of Clogh Bridge	Rural District Council	A. M. Burden, County Surveyor, Court House, Kilkenny	10
Netherwood—Water Mains (8 miles) and Service Tank	Urban District Council	J. and A. Leslie and Reid, C.E., 72A, George-street, Edinburgh	12
Wootton Bassett—Sub-Main	Bakewell Rural District Council	H. Bevir, Clerk, Union Offices, Wootton Bassett	13
Ruskington—Boring and Tubing Well	Railway and Docks Company	Jesse Clare, C.E., Sleaford	13
Winstanley—Precipitation Tanks and Filtration Works	Urban District Council	Sterling and Swann, Engineers, Town Hall, Chapel-en-le-Frith	13
Port Talbot—Five Locomotive Side Tank Engines	H.M. Commissioners of Works	Edward Knott, Secretary, Port Talbot, South Wales	15
Wimbleton—Steam Road-Roller (12-ton)	North-Eastern Railway Co.	C. H. Cooper, M.I.C.E., Wimbleton	15
Kew Gardens—Filter-Bed	Southampton Floating Bridge Co.	The Office of the Clerk of Works, Kew Gardens	16
Haverton Hill—Double Lines of Railway between Haverton Hill and Billingham Beck (1 mile 64 chains)	North-Eastern Railway Co.	W. J. Cudworth, Engineer, Darlington	17
Southampton—Steel Passenger and Carriage Floating Bridge	Wallasey Urban District Council	C. W. Murray, M.I.N.A., Oriental-place, Southampton	17
Port Clarence—Double Lines of Railway between Port Clarence Goods Yard Junction and Greatham Creek (2 miles 50 chains)	Gas Committee	W. J. Cudworth, Engineer, Darlington	17
Egremont—Gasholder and Tank	Vestry of St. John	J. H. Crowther, Engineer, Great Flat, near Birkenhead	18
West Bromwich—Purifiers at Albion Gasworks	Guardians	Thomas Hudson, Secretary, Town Hall, West Bromwich	18
Hampstead, N.W.—Electric Lighting Plant	Greenwich Union Guardians	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead, N.W.	18
Newcastle-upon-Tyne—Steel Tank (20,000 gal.) at Workhouse	Lancashire Asylums Board	John W. Gibson, Clerk, 127, Pilgrim-street, Newcastle-upon-Tyne	18
Grove Park, S.E.—Sinking Well	Ton Phillip Rhonda Colliery Co.	T. Dinwiddie, Architect, 12, Croom's Hill, Greenwich, S.E.	26
Winwick—Siding Extension	James' Syndicate, Ltd.	Robert Curran, C.E., Horsemarket Chambers, Warrington	29
Ton Phillip—Single Line of Railway from Cefn to Ton Phillip	St. Mary, Islington, Guardians	Cook and Edwards, Masonic Buildings, Bridgend	29
London, E.C.—Speciality Winches of Malleable Iron or Steel	Vestry of St. Mary, Battersea	The Syndicate's Office, 18, Billiter-street, London	30
Highgate Hill, N.—Electric Light Installation at Infirmary	Municipal Council	Wm. Smith, Architect, 63, Chancery-lane, W.C.	June 1
Battersea, S.W.—Electric Lighting Works	County Lunatic Asylum Visitors	Prof. Alex. B. W. Kennedy, 17, Victoria-street, Westminster	7
Shanghai—Electric Trolley Tramways (23 miles)		Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	30
Naples—Harbour and Docks (estimated cost £162,400)		The Public Works Department, Rome	July 10
Laswade—Waterworks		David B. Tod, S.S.C., 79, High-street, Bonnyrigg	—
Frestwich—Steam Pipes, &c., for Electric-Light Installation		Charles Hopkinson, M.I.C.E., 29, Princess-street, Manchester	—

## FENCING AND WALLS.

Bengworth—Wall for Enlarging Cemetery	Burial Board	G. Ellis Garrard, Clerk, High-street, Evesham	May 6
Billinge—Stone Walling (150 super. yards) at Green-lane	Urban District Council	The Surveyor, Council Offices, Billinge	6
London, S.E.—Boundary Railings, Gates, &c., Nelson Recreation Ground, Kipling-street	London County Council	The Architect's Department, 13, Spring Gardens, S.W.	8
Hetton-le-Hole—Boundary Wall at Parish Churchyard	Urban District Council	George Gray Forster, C.E., Hetton-le-Hole, R.S.O.	8
Bristol—Retaining Walls, Bath-road	Sanitary Committee	T. H. Yabicom, M.I.C.E., City Engineer, 63, Queen-square, Bristol	16

## FURNITURE AND FITTINGS.

Merthyr Tydfil—New Workhouse Infirmary (120 beds)	Guardians	Frank T. James, Clerk, 134, High-street, Merthyr Tydfil	May 19
Leigh, Lancs—Cooking Apparatus Fittings, Astley Sanatorium	Leigh Joint Hospital Board	Banks, Fairclough, and Stevens, Architects and Surveyors, Leigh	—

## PAINTING.

Ramsgate—Market, Town Hall, and Fire Station	Town Council	T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate	May 6
London, W.—Wards and South Dispensary, East-street	St. Marylebone Guardians	F. W. Lee, Clerk of the Works, Marylebone-road, London, W.	8
Stratford-on-Avon—Fire-Escape Shed	Town Council	R. Dixon, Boro' Sur., Municipal Offices, Sheep-st., Stratford-on-A.	9
Worsborough Bridge—Barrow Institute	Town Council	F. Dyson, 11, Robert-street, Worsborough Bridge	9
Stratford-on-Avon—Front of 5, Wood-street	Corporation	R. Dixon, Boro' Sur., Municipal Offices, Sheep-st., Stratford-on-A.	9
Stafford—Painting, &c., Waterworks Pumping Station, Milford	Corporation	W. Blackshaw, Borough Engineer, Borough Hall, Stafford	11
Stafford—Exterior Painting at the Market Buildings	Corporation	W. Blackshaw, Borough Engineer, Borough Hall, Stafford	11
Stafford—Painting and Decorating Royal Baths	Town Council	W. Blackshaw, Borough Engineer, Borough Hall, Stafford	11
Dartmouth—Market Buildings	War Department	T. O. Veale, Borough Surveyor, Dartmouth	14
North Aldershot—Painting, &c.		M. E. Goldie, Col., Commanding R.E., North Aldershot	20
Sherburn-in-Elmet—Wesleyan Chapel		W. Hoimes, Rose-terrace, Sherburn-in-Elmet	—
Ardsley—Outsides of Through Houses (about 100)		J. Mosley, Rent Collector, 6, Wormald-row, Leeds	—

## PLUMBING AND GLAZING.

Bristol—Plumbing Work at the Redfield School, St. George	School Board	Herbert J. Jones, M.S.A., 12, Bridge-street, Bristol	May 1
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## ROADS AND STREETS.

Ayr—Construction of Streets in Frestwick	District Committee	Allan Stevenson, C.E., 14, Cathcart-street, Ayr	May 6
Church, Lancs—Paving, &c., Back Ernest-street	Urban District Council	W. E. Wood, Surveyor, District Council Offices, Church	8
Dinas Powis—Making and Widening Roads	Town Council	A. M. Leon, Architect, Working-street, Cardiff	8
Crewe—Paving and Kerbing Furnival-street	Sanitary Authority	G. Eaton Shore, Borough Surveyor, Earl-street, Crewe	8
Berwick-upon-Tweed—Road Works, &c.	Hartlepool Gas and Water Co.	R. Dickinson, Borough Surveyor, Quay Walls, Berwick-upon-Tweed	8
Hartlepool—Road at Crookfoot Reservoir	District Council	Martin and Fenwick, 1, Park-place, Leeds	9
Willenden Green, N.W.—Widening of Walm-lane	Urban District Council	O. Claude Robson, M.I.C.E., Eng. Public Offices, Dyne-rd, Kilburn	9
Heath Town—Paving, &c.	Urban District Council	R. E. W. Berrington, Civil Engineer, Wolverhampton	9
Ashton-in-Makerfield—Paving, &c.	Urban District Council	J. W. Liversedge, Surveyor, Council Offices, Ashton-in-Makerfield	10
Old Trafford—Street Works	District Council	H. Royle, Surveyor, Council Offices, Old Trafford	10
London, E.C.—Paving and Sewerage Works	Vestry of St. Luke	G. W. Preston, Clerk, St. Luke's Vestry Hall, City-road, E.C.	10
Cardiff—Paving and Sewering Five Lanes	Corporation	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	10
Maxwelltown—Paving Troqueur-road, Church-street, and Hogue-street		James Barbour, Borough Surveyor, 33, Buccleuch-street, Dumfries	12
Preston—Paving, &c.	Town Council	The Borough Engineer, Town Hall, Preston	12
Gravesend—Road Making on Windmill Hill	Highways Committee	Chas. E. Hatten, Town Clerk, Court House, Gravesend	13
Burnley—Paving, &c., Sixty Streets	Rural District Council	G. H. Pickles, Borough Surveyor, Town Hall, Burnley	13
Egham—Making-up By-Roads	Parks Committee	W. Menzies, Surveyor, Englefield Green, Surrey	13
Harrogate—New Road, Tewit Park Estate	Urban District Council	Martin and Fenwick, 1, Park-place, Leeds	15
Halifax—Asphalting in People's Park (1,000 yards)	Urban District Council	Edward R. S. Escott, C.E., Borough Engineer, Town Hall, Halifax	16
Tottenham—Private Street Works	Roads and Drainage Committee	P. E. Murphy, Engineer, 712, High-road, Tottenham	16
Colchester—Making Good Mill-street	Urban District Council	Herbert Goodyear, Borough Engineer, Stanwell-street, Colchester	16
Chertsey—Street Works	Commissioners	J. Freebairn Stow, Engineer, Windsor-street, Chertsey	16
Annan—Paving Streetway (about 6,000 yards) with Granite Cubes	Urban District Council	Murray Little, Clerk, Annan	20
Pokesdown—Making-up Roads		The Clerk, Council Offices, Cromwell-road, Pokesdown	25

## SANITARY.

Perth—New Main Sewers	Police Commissioners	Robert M'Killop, Burgh Surveyor, 12, Tay-street, Perth	May 6
Shrewsbury—Additions to the Public Convenience	Sanitary Committee	W. Chapple Eddowes, Borough Surveyor, The Square, Shrewsbury	6
Guildford—Drainage Works	Town Council	C. G. Mason, C.E., Borough Surveyor, Tuns Gate, Guildford	8
Bedlington—Sewers, &c.	Urban District Council	C. D. Forster, Clerk, 24, Grainger-street, W. Newcastle-upon-Tyne	9
Todmorden—Sewerage Works	Town Council	C. R. Pease, Engineer, Town Hall, Todmorden	9
Denbigh—Iron and Stoneware Pipe Drains at Infirmary	Committee	W. Vaughan Jones, Secretary, Denbigh	10
Oldham—Sewerage Works	Sewerage Committee	The Town Clerk's Office, Town Hall, Oldham	10
Brandon—Sewerage and Sewage Disposal Works	Rural District Council	T. W. Willard, Surveyor, Rugby	10
Johannesburg—Sewerage Scheme	Southam Rural District Council	The Town Engineer's Office, Johannesburg	12
Stockton—Drains, &c.	Urban District Council	Francis P. Trepass, Architect, Warwick	13
Alnwick—Sewers, &c. (2,900 yards)		Geoffrey Wilson, Town Surveyor, U.D.C. Offices, Alnwick	—



## STEEL AND IRON.

Morley—Cast-Iron Water-Mains and Specials (One Year).....	Waterworks Committee	G. B. Rawden, Manager, Town Hall, Morley .....	May 6
Abercarn—Cast-Iron Pipes (400 tons) .....	Urban District Council	George Stevens, Engineer, Council Offices, Abercarn, Mon. ....	9
Salford—Steel Tramway Rails (5,000 tons) .....		The Borough Engineer's Office, Town Hall, Salford .....	9
India Office, S.W.—Spans, &c.....		The Director-General of Stores, India Office, Whitehall, S.W. ....	16

## STORES.

Morley—Sluice Valves and Surface Boxes (One Year) .....	Waterworks Committee	G. B. Rawden, Waterworks Manager, Town Hall, Morley .....	May 6
Worsborough Bridge—Granite (200 tons) .....	Urban District Council	J. Whitaker, Surv., Saville House, Worsboro' Bridge, near Barnsley ..	6
Swinton—Road Materials .....	Urban District Council	H. Entwistle, Surveyor, Council Offices, Swinton, near Manchester...	6
Wigan—Paving Materials (One Year) .....	Corporation	The Borough Engineer, Rodney-street, Wigan .....	6
London, W.—Wood Paving Blocks (1,109,000) .....	St. Marylebone Vestry	J. Paget Waddington, C.E., Court House, Marylebone-lane, W. ....	8
Chingford—Granite, &c.....	Urban District Council	H. Bird, Clerk, 14, The Parade, Chingford .....	8
London, E.C.—Workshop Tools .....	South Indian Railway Co.	Henry W. Notman, Managing Director, 55, Gracechurch-st., E.C. ....	9
London, E.C.—Portland Cement, Paints, and Varnishes .....	Assam-Bengal Railway Co., Ltd.	F. A. Lyall, Secretary, 55 and 56, Bishopsgate-street Within, E.C. ....	10
Droylsden—Road Materials .....	Urban District Council	J. Curry, Surveyor, Manchester-road, Droylsden .....	10
London, E.C.—Stores and Materials .....	Great Eastern Railway Co.	W. H. Peppercombe, Secretary, Liverpool-st. Terminus, London, E.C. ....	11
Brighton—Granite Kerb (5,000ft.) and Pitchers (200 tons) .....	Town Council	Francis J. C. May, M.I.C.E., Town Hall, Brighton .....	12
Bradford—Road Metal (10,000 tons) .....	Corporation	J. H. Cox, City Surveyor, Town Hall, Bradford .....	13
Saffron Walden—Granite Macadam (450 tons) joiners are .....	Corporation	A. H. Forbes, Borough Surveyor, Saffron Walden .....	15
London, W.—Road Stone .....	Great Western Railway Co.	G. K. Mills, Secretary, Paddington Station, London .....	16
Eastbourne—Road Materials .....	Rural District Council	L. Jeffery, Clerk, Trinity Chambers, Eastbourne .....	19
Wolverhampton—Road Materials .....	Tramways Committee	W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	31

## Trade News.

## WAGES MOVEMENTS.

**ASHTON-UNDER-LYNE.**—The joiners at Ashton-under-Lyne, Stalybridge, Hyde, and district, have been conceded  $\frac{1}{2}$ d. per hour advance in wages, bringing the total to 9d. per hour, to take effect this week. They asked for  $2\frac{1}{2}$  hours fewer per week, but this demand they withdrew. The number of apprentices is to be one to three journeymen; and the maximum of seven in a shop to be abolished.

**HUDDERSFIELD.**—The joiners have struck work for an advance of three-farthings an hour—from  $7\frac{1}{2}$ d. to 8 $\frac{1}{2}$ d. Till 1896 the joiners were only getting 7d., but in that year the money was advanced, after a struggle, by  $\frac{1}{2}$ d. The joiners at Sheffield, Rotherham, Doncaster, Bradford, Barnsley, and Harrogate receive 8 $\frac{1}{2}$ d. per hour; Leeds and Middlesbrough, 9d.; and York 8 $\frac{1}{2}$ d. The ship joiners at Hull get 9d. per hour, while the house joiners are at present agitating for an increase from 8 $\frac{1}{2}$ d. to 9d.

**MANCHESTER.**—The threatened dispute in the Manchester and Liverpool joinery trades has been settled by the employers in the Manchester district conceding an advance from 9d. to 9 $\frac{1}{2}$ d. per hour, which came into operation on Monday. When the demand was made the masters offered a farthing now and a farthing in October, and the Liverpool employers gave notice of a reduction of a farthing.

**NEWPORT, MON.**—The whole of the carpenters of Newport, numbering about 150, were on Saturday locked out by their employers. This is the upshot of a number of the carpenters taking sides in the plasterers' dispute.—The painters have accepted the offer of the masters of a half-penny per hour advance, insuring a minimum wage of  $7\frac{1}{2}$ d. per hour. Originally 8d. per hour was demanded.

**THE POTTERIES.**—Judge Jordan, to whom a dispute between the Master Builders' Association of the Potteries and Newcastle-under-Lyme and the local carpenters and builders was referred for arbitration, has made his award. The joiners and carpenters had given notice asking for a rise in wages from 8 $\frac{1}{2}$ d. to 9d. an hour, and for a reduction of the number of working hours. They also asked for the abolition of piecework under rule 7. Judge Jordan certifies that rule 1, which refers to hours, shall be amended so as to afford of a reduction of  $1\frac{1}{2}$  hours per week for eight months of the year. Rule 2 has been altered so as to make the wages paid to skilled operatives 8 $\frac{1}{2}$ d. per hour. Rule 7 stands unaltered. The award comes into force on July 1 next. The advance in price does not apply to overtime.

**WIGAN.**—The painters and decorators came out on strike on Monday. The men have been seeking an advance of wages and a definite understanding as to the employment of apprentices. The masters were willing to submit the questions in dispute to an arbitrator appointed by the Board of Trade, but the men desired that a local arbitrator should be appointed. The masters declined to accept the men's proposal, and over 200 painters in the town are now out of work.

**WOLVERHAMPTON.**—The labourers six months ago gave the master builders in this district notice of their intention to claim an advance of  $\frac{1}{2}$ d. per hour in their wages, and the employers retaliated by claiming a reduction of wages. The notices terminated on Saturday, and during the past week negotiations have been proceeding with a view of averting a strike, but without success.

The new town-hall for Conway was formally opened on Monday. It has been erected from the plans of Mr. T. B. Farrington, C.E., borough surveyor, but owing to the illness of Mr. Farrington, the supervision of the work was given to Mr. R. Davies, architect, Bangor, the contractors being Messrs. Thorp and Sons, Llandudno.

## CHIPS.

At Chester, on Friday, Mr. W. O. E. Meade King, an inspector from the Local Government Board, held an inquiry as to an application from the city council for sanction to borrow £11,000 for building public baths, from plans by Messrs. Douglas and Minshall, of Abbey-square, Chester.

The ceremonial laying of the foundation-stone of a Roman Catholic Church at Beccles, to be known as St. Benet's Minster, took place on Wednesday week. The building, designed by Mr. F. E. Banham, architect, will be Norman in style, and is to be built with Ancaster and Bath stone inside and out. The work now in hand embraces the north facade, nave, baptistery, confessionals, and porch, for which about £7,000 is in hand, but more is wanted to complete the church. Mr. F. J. Allen's executors are the contractors.

New athletic grounds at Wath, near Rotherham, will be opened by Lord Hawke to-day (Friday). The pavilion has been erected, and the grounds have been laid out from designs by Mr. W. T. Campbell, of Sheffield.

The Bishop of Manchester consecrated, on Friday, the new mission schools, dedicated to St. Edward, at Castleton, Rochdale. The schools have been erected from plans prepared by Mr. Henry Lord, of Manchester. They are of red brick, with stone dressings, have cost £3,000, and provide about 360 school-places.

To-morrow (Saturday) Plymouth is to be visited by the Devon and Exeter Architectural Society. Mr. James Crocker, F.R.I.B.A., of Exeter, president, will occupy the chair at the luncheon, which will be held at the Duke of Cornwall Hotel. Subsequently the annual meeting will take place, and visits will be paid to the Corporation Dwellings and the Pearn Convalescent Home at Compton.

The Select Committee of the House of Commons which has been considering the Bill of the London and Brighton Company for the enlargement of Victoria Station on the western side, at an estimated cost of almost a million sterling, and the widening of the company's line at various points outside London, have found the preamble proved, so far as it related to the station.

The Woodford School Board have had a scheme for the erection of new schools in the George-lane district under consideration for some time, and plans have been prepared for 750 children, together with accommodation for a cookery centre. At a recent meeting of the Board it was decided to proceed at once with a block to accommodate 488 children and the cookery class-room. The plans for this block have been approved by the Education Department, and tenders will shortly be invited. The architect is Mr. E. Tidman, C.E., F.S.I., Victoria-street, Westminster.

The Burton-on-Trent Co-operative Society, Ltd., are about to erect a range of shops, offices, concert-hall, and show-rooms in Byrkley-street. Mr. R. Stevenson, of Imperial Chambers, Burton-on-Trent, is the architect, and the contract, which amounts to £7,380, has been secured by Messrs. Thos. Lowe and Sons, of the same town. The buildings are to be ready for use by October, 1900.

Dirckmanton Church, Derbyshire, is to be enriched by the erection of a stained-glass memorial window, the subjects being those of the Crucifixion, St. John, and the Virgin. The design selected was that of Messrs. Swaine, Bourne, and Son, Birmingham, in competition with other leading firms. They have also executed eight figure windows for Johannesburg this year.

The Pontefract Corporation have decided to give notice to terminate the engagement of the contractor for the making of the new reservoir on Park Hill, and to authorise the committee to proceed with the work as they thought best. It was stated that the work was practically at a standstill, and that many of the workmen had not for a fortnight received any wages.

The autumn congress of the Sanitary Institute will be held this year in Southampton, by invitation of the mayor and corporation, commencing on August 29. Mr. James Lemon, F.R.I.B.A., M.Inst.C.E., has been appointed president of the section dealing with engineering and architecture.

Mr. J. Passmore Edwards has intimated his intention of giving £10,000 upon trust to equip a school and building for the teaching of Economics and Commercial Science in the new London University.

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## TENDERS.

\* \* Correspondents would in all cases oblige by the addresses of the parties tendering—at any rate, of accepted tender: it adds to the value of the information.

ASHBOURNE.—For making a sewer at Parwick, for the Ashbourne Rural Sanitary Authority:—  
Fielding, J. (accepted) ... £52 10 0

BERMONDSEY.—For rebuilding Haddon Hall mission buildings, Bermondsey New-road, on a fresh site consequent on the Tower Bridge Southern Approach Improvement, for the London County Council and the trustees:—  
Roberts, L. H. and R. (accepted) ... £9,461 0 0



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, MAY 12, 1899.

### DRAINAGE BY-LAWS.

WE casually referred the other day to the new Drainage By-Laws made by the London County Council under section 202 of the Metropolis Management Act 1855, for regulating the dimensions, form, and mode of construction of pipes and drains, and their keeping, cleansing, and repairing, and of other means of communicating with sewers, and the traps and apparatus connected therewith. These far-reaching by-laws, of which we can here only give a brief summary, will apply to any person who intends to erect a new building, or to construct or reconstruct any drain or other conduit communicating with sewers, also to any building "erected before the confirmation of these by-laws as if the same were being constructed in a building newly erected." Clause I. is important, and provides that a person who erects a new building, and drains the subsoil of the site by a drain communicating with any sewer is to provide a "suitable and efficient trap between such subsoil drain and sewer." This will prevent any direct connection between the drain and sewer, and thereby prevent any sewer-air being brought under the building. The trap is to have a ventilating opening at a point near the trap to the open air, and the opening is to have a suitable grating or cover to prevent any obstruction. The grating to have an aggregate of apertures of not less than the sectional area of pipe or drain. The subsoil drain is to be constructed in the manner prescribed for a drain conveying sewage, and the drain above the trap to be of earthenware field-pipes, laid to a suitable fall, and to discharge into such trap. The drainage of surface water into any sewer from an area, forecourt, or paved surface to be by drains furnished with a properly trapped gully at every inlet. Every rain-water pipe to be connected to any sewer to discharge into the open air over a properly trapped gully. Such pipe is not to receive into it any discharge from closets, urinals, sink, or lavatory.

Referring to the materials and jointing for drains, except subsoil drains, Clause 4 provides sound glazed stoneware or semi-vitrified ware or cast-iron pipes; that no such drain is to pass under any building except where any other course is impracticable; that it shall be of adequate size and fall for conveying sewage, and be not less than 4in. internal diameter; that it be laid on a bed of concrete not less than 6in. thick, projecting on each side of drain to an extent at least equal to external diameter of drain. If such drain is of cast iron, the socket joints to be not less than 2½in. in depth, made with molten lead properly caulked, with annular space for lead to be not less than ¼in. in width for 3in. and 4in. pipes, and ¾in. wide for 5in. and 6in. pipes. If such drain is of stoneware, it is to be jointed with socket joints put together with cement. Other sub-sections require such drains (except those for subsoil) to be water-tight, and to resist a pressure of 2ft. head of water at least; that each drain is to be filled in with concrete, and be imbedded not less than half its diameter.

The thicknesses and weight of cast-iron pipes are given. Stoneware pipes have also thicknesses, depths of socket, &c., prescribed. Thus a 4in. stoneware pipe must have not less thickness than ¾in., with a depth of socket of 1½in., and an annular space for cement of ¼in., and the same thickness is

specified for 5in. and 6in. pipes, with 2in. depth of socket. Drains under a building are to be laid, when practicable, in direct lines the whole distance, and to be imbedded and covered with concrete 6in. thick all round. Iron drains are to be laid on a bed of concrete as in the manner prescribed above for drains that do not pass under a building. Access at the ends of drains under a building is to be afforded. Then follow directions for the composition of concrete, which is to be of clean gravel, hard brick (broken small), and ballast, well mixed with clean sand and Portland cement in the proportion of 1 of cement and 5 of other materials; or clean sand and good blue lias lime in proportion of 1 part sand, 1 part lime, and 4 parts other materials. Drains laid under a wall are to be protected by an arch, flagstone, or iron support, which shall not bear on the drain. Every main drain communicating with a sewer is to have an efficient intercepting trap at a point as distant as practicable from such building, and a separate manhole or other access to such trap. Passing other details we come to the ventilation of drains. Two untrapped openings are to be provided to the drains, and the following alternative arrangements are given:—

(a) One opening above and near the surface of ground is to communicate with the drains by a pipe-shaft or chamber as near as possible to the trap to be provided between main drain and sewer. Such opening is to be situated on that side of trap which is near the building. The second opening to be from a point in the drains as far as possible from the first, by means of a pipe or shaft vertically carried to a height to give a safe outlet for foul air.

(b) When the foregoing arrangement is impracticable the following is prescribed:—One opening by carrying up a pipe or shaft from a point near to the trap, with an open end to give a safe outlet to the foul air; the point at which such opening communicates with the drain being on the side of trap near the building, and the second opening as far distant as possible from the first, to be carried up above and near the surface of ground adjoining such opening, communicating by a suitable pipe with the drains; or (c) if neither of these arrangements is desirable, then both the first and second openings may be obtained by carrying up from the points referred to vertical pipes or shafts to such heights, and in such positions, that, when either acts as an inlet, the other may be a safe outlet for foul air.

Gratings or suitable covers to be provided to the openings; there are to be no bends or angles in the pipes. The sectional area of these pipes to be not less than that of the drain; or, if the drain exceed 4in., the internal diameter of the pipe shall not be greater than 4in.

Other clauses provide that there are to be no inlets to drains within buildings, except such as those of any closet apparatus, slop-sink, &c. That all waste pipes from buildings from lavatories or sinks are to be of metal or stoneware, and to be trapped immediately beneath such lavatories or sink by an efficient siphon trap of lead, iron, or stoneware, with means for inspection and cleansing, and which must be ventilated into the external air where necessary; that bell and D-traps are not allowed; that all waste pipes are to discharge into the open air, over properly-trapped gullies or channel leading to a gully.

The regulations respecting soil-pipes in new buildings, or existing buildings, require that, whenever practicable, such soil-pipe is to be placed outside the building, and it is to be of drawn lead or heavy cast iron. When it is necessary to construct it within the building, it is to be of drawn lead with properly wiped joints, and the thickness and weight of lead or iron are given. A 4in. pipe is to be not less than 7½lb. weight per

10ft. in length; if of iron, not less than 5½lb. per 6ft. length. The joints are to be, if socketed, 2½in. in depth, caulked with molten lead, with ¼in. annular space for the lead for 4in. pipes. If with flanged joints, they are to be securely bolted together with a suitable insertion. No connection with rainwater or waste pipes to be made, and no trap to be allowed in such soil-pipe, or between it and any drain. Not less a diameter than 3½in. interval is allowed, nor is there to be any bend, the soil-pipe being carried up to a sufficient height without diminution as a safe outlet for foul air.

The remaining clauses refer to connection of lead soil-pipe and waste-pipe with iron pipe or drain, connection of stoneware trap of closet with lead soil-pipe, lead soil-pipe with stoneware drain, ventilation of closet traps, &c.—details which we may leave to another article. The effect of the by-laws will be to insure more uniform results in sanitary matters in buildings newly erected, as well as in existing buildings, where any person reconstructs any pipe or drain communicating with the sewers.

A penalty of £2 is to be imposed on every person who shall offend against any of these by-laws, and a further penalty of 20s. for each day after written notice of the offence in case of a continuing offence. The present sanitary regulations are anything but satisfactory: they are fragmentary, and do not apply to the whole Metropolitan area. The vestries administer the drainage regulations, each has its own rules, and no uniformity of observance is possible. It is true there are London County Council regulations as to soil-pipes and other details, but these are seldom enforced. The proposed by-laws are to apply to the whole of London except the City, and as such will be heartily welcomed by the whole building profession and the public, who are most interested in sanitary progress.

### PICTURES AT THE ROYAL ACADEMY.—III.

A MORE leisurely acquaintance with the galleries reveals many pictures of a kind that do not redound to the discrimination of the hanging committee. On the top row of long wall in Gallery III. we see a large group of portraits of a family, very commonplace, and of no artistic merit. On the same line is a garden scene (241) of a rather uninteresting character as it appears to the visitor, and another large canvas, "Overhauling the Nets" (255), though "skied," occupies a larger space than its merits deserve. We expected at least to find in this gallery, especially on the north wall, an array of strong pictures; but the visitor who goes to see what there is in the place of Leighton finds a large portrait group by James Sant, "The Daughters of J. H. Buxton, Esq." (190), which, whatever its merits as a group of portraits, is decidedly poor and uninteresting as a work of artistic portraiture. There is a want of repose—the young ladies appear to have no one interest; they look in different directions. The grouping is faulty, and the colour weak. Another big picture occupying valuable space is F. Goodall's "On the Road to Mandalay"—a subject suggested to the painter by Mr. Rudyard Kipling's "Barrack-Room Ballads." It depicts a British soldier in uniform coquetting with a Burmese girl, in white jacket over a pink silk dress with sash, who offers a white blossom to her soldier lover. As a painter of Egyptian subjects and costumes Mr. Goodall has been accurate in his costumes of the young soldier and Burmese maid; the landscape is Tropical, the sky intense in its blueness, the foliage luxuriant; but with all these features there is little that draws the attention, or which exhibits a sufficient motive for the work or the size of canvas. These large pictures necessarily displace



others of more artistic interest or of better qualities in composition and colour.

"The Marsh Farm," by Arnesby Brown (191), is a pleasing sunrise effect with mists which throw a thin white veil over the landscape and the cows. The portrait of Miss Lilian Croft (215), by Ralph Peacock, is a graceful figure of a bright-haired young lady in an evening Empire dress of spotted silk. This young painter has not merely given us a portrait, but has tried to give us the manner the emotional and individual character of the young lady; and this picture may be placed with Mr. Sargent's work, or that of Mr. Orchardson. Alfred East, in his "Monk's Pool, Beardsale Priory," is charming in its spring-like colour and its brilliant effective handling and freshness. W. Logsdail, whose Venetian canal scenes are so well known, has gone a little out of his way in giving us a palatial interior, "A Venetian Interior in the 18th Century." It is to the architecture we take an exception. The perspective and drawing appear faultless; but the ceiling decoration looks heavy and clumsy in detail, and the colour in murky tints rather increases this effect. The lady singing to the accompaniment of a mandolin and the negro page are the chief occupants. A large chandelier hangs from the ceiling of rather clumsy design, and we must chiefly look upon the interior as an architectural setting in rather rococo taste.

A lesser work of *genre* is "A Cause and Just Impediment," by H. Gillard Glindoni (248), a brilliant and carefully-painted incident where a bride and bridegroom and party are about to enter a country church, but are challenged by a lady standing near the porch. "Skating Days in Old Brabant," by George H. Boughton, is a large picture in which the painter's *penchant* for snowy scenes is seen at its best. The frozen meadows and the quaint picturesque surrounding of a Flemish city are painted with much brilliance and sparkling effect in pale tints of grey and green. In the foreground, a young gallant is putting on his lady's skates, and there is a sense of gaiety in the scene. "The Widow of Nain," by Louis Feldmann, is a picture by a Flemish artist of much talent. The Saviour's figure is hardly pronounced, and the Flemish garb of the mourning crowd looks rather strange for the subject, while the distinct Flemish nationality of the mourners seems to detract from the merits of the painter's theme. Edward W. Waite's "Hawthorn Blossoms" (267), is a charming work. Among lesser works worth noticing in Gallery IV., we must refer to Margaret I. Dicksee's "Sheridan at the Linleys," an interior where young ladies are singing to the accompaniment played on a grand piano. Young Sheridan is attentively listening to the singers, and is said to have conceived a strong attachment to the elder girl, which resulted in a romantic marriage. The young man, scrupulously dressed in a green-silk coat, is leaning on the piano; the accessories and costumes are correct, and well painted.

Charles M. Paddy's "Marooned" (260) is one of the cleverest pictures. It represents three unfortunate men cast adrift on a desert island in the Tropics, to shift for themselves. The crew on the boat are pulling away as fast as they can, and one of the deserted men is retaliating by firing at the departing crew. Both the men in the boat and those marooned are drawn with much vigour, and the tale is well told.

"In Wintry Spring," in the next gallery, Mr. G. H. Boughton again paints a snowy landscape, but more of a fantasy than a reality. The grey, cold blast of winter is seen on one side of a stream, and the pink blossoms of spring on the other. A young maiden, as fragile and delicate as the blossom itself, stands shivering on the bank against the wintry blast that sweeps on her. Delicate handling and subtle tints of grey and pink,



PASSMORE EDWARDS HOSPITAL, WILLESDEN.

make a successful work of much poetical force.

We pass Mr. Leader's fine work "Where Brook and River Meet," already noticed, to a few others. "Elégie" (356), by Wm. A. Bouguereau, is quite French in sentiment. A well-modelled nude maiden leans over a monumental pedestal at the foot of which is a cupid. David Murray's picture "The Church Pool" (361) is strong and pleasing in its sense of colour. The very graceful and delicate picture by Ross E. Clark prompted by the poem "Among a Bed of Lilies I" (363), with the figure of a maiden in white, and Walter Langley's "Wandering Musicians" (367), with village green and bright evening sky, touching in its reality as well as poetic meaning, are worth attention; so also is Robert W. Allan's fine sea coast "Fresh From the Sea," full of freshness and strong colour. One of Dandy Sadler's country incidents of every-day life is No. 379, "The Christening." A young husband and bashful wife, accompanied by nurse and child, are being felicitated by friends outside the church; the vicar, in his surplice, is saying a kindly word to the wife, while another gentleman is bending over an old headstone trying to decipher the inscription. There is a sense of humour in the situation, which is painted with all Mr. Sadler's usual care and detail; albeit the church architecture is of a poor Carpenter's Gothic type, and is only redeemed by the white roses which climb in wild luxuriance over the high gabled porch. "An Acquittal," by Frank W. W. Topham, shows a crowd surrounding the entrance of a Venetian Tribunale; where a young soldier, released, is being kissed by his sweetheart, while the crowd are making an ovation in his favour. The sunlight effect on the crowd and the archway is cleverly painted. Henry S. Tuke also has a luminous sea-piece, "The Diver" (385), boys in a boat denuded of their dress, one about to make a plunge, is well drawn in the modelling of the figures, and the strong sunlight on water and haze are well

handled. A similar luminous and brilliant piece of sea-painting is W. H. Margetson's "The Wonders of the Shore" (396), a graceful maiden clad in clinging diaphanous drapery, fresh from the bath, is walking along the sandy beach. She holds her dressing-gown, which is blown by the breeze, while she looks at a crab on the sand. The rippling sea washing the beach and the reflected light on the water left by the receding tide on the sand are delicately handled. There is a clear open-air effect, and the work has a decorative charm apart from its drawing. H. H. La Thangue's "Love in the Harvest Field" (390) is another of this painter's studies of open-air peasant life. Of similar composition, Mr. La Thangue shows a man and his sweetheart walking home at sunset through a field. There is the same sense of light and shadow and vigorous realism, just as we may imagine from a painter who lives amongst the rural life he studies. F. Spenlove-Spenlove's "Gold, Green, and Grey" is a delicate handling of colour—a study of Picardy poplars in autumn.

#### THE PASSMORE EDWARDS HOSPITAL, WILLESDEN GREEN.

IN this scheme, as the plan will explain, the hospital has been doubled in size, the former kitchen block being pulled down, and a new and larger kitchen block erected further back upon the site. The two front wards for males and females have been doubled in size, giving an increase of eight beds, and new duty-rooms and bathrooms have been added for each sex. The operating and committee rooms have been enlarged, and a dispensary, store, children's ward for five beds, private ward for one bed, duty-room, bathroom, and w.c. for children's ward, bathroom and w.c. for private ward, and a nurses' duty-room have all been provided on the ground floor. A heating-chamber is also provided under new kitchen block. On the first floor, three new bedrooms, bathroom, linen-room, and w.c., and new staircase leading to same have been provided, and a swing verandah is contemplated outside the





PASSMORE EDWARDS HOSPITAL, WILLESDEN.—NEWMAN AND NEWMAN, ARCHITECTS.



children's ward. As will be seen from the ground plan, arrangements are made by which a still further extension can be carried out at any future time. The hospital has been fitted up throughout in the most modern style, great care being taken with all sanitary matters. The buildings have been carried out in a most satisfactory manner by Messrs. Cowley and Drake, of Willesden-green, the work being of a most intricate and complicated nature, the total cost of the work being nearly £4,000, a large portion of which has been provided by Mr. Passmore Edwards. The architects are Messrs. Newman and Newman, F.R.I.B.A., F.S.I., of Tooley-street, London Bridge, S.E.

#### CONFERENCE ON ROAD-MAKING MATERIALS AND APPLIANCES.

THE conference of county, municipal, and urban surveyors and engineers on road-making materials and appliances in connection with the *Surveyor* exhibits at the Building Trades Exhibition in the Agricultural Hall, reported in our last issue, pp. 600-2, was concluded on the afternoon of Friday and Saturday in last week, the attendances being good, and the interest well sustained throughout.

On the Friday the chair was taken by Mr. A. T. Davis, county surveyor of Salop, in the absence through illness of Mr. O. Claude Robson, President of the Association of Municipal and County Engineers.

#### ACCESS COVERS AND PAVING MATERIALS.

Mr. J. PATTEN BARBER, surveyor to the Ielington Vestry, read an exhaustive paper on the exhibits in Divisions I and J of the *Surveyor* exhibitors. Dealing first with the covers for access to sewers, pipes, and conduits, several kinds of manhole covers, both closed and with openings for ventilation, were described. In one the wood blocks round the ventilating portion of the cover were inserted from below, and were supported at the base by a detachable plate—an arrangement which admitted of the removal of worn blocks and the insertion of new ones with very little difficulty. In the octagonal cover used at Wimbledon, the wood blocks were made tapering, and were inserted from the top; they rested on projecting flanges at the base, and as these flanges only partially closed the bottom part of the recesses for the blocks, the latter could easily be drawn out from below when it became necessary to insert new blocks. In the construction of ventilating covers the necessity for making the closed portion overlap the sides of the mud receptacle sufficiently to prevent mud falling through the open part of the cover and lodging on the sides of the receptacle, or falling into the shaft, was sometimes overlooked. In the exhibits of materials for town carriage-ways a large number of quarries were represented. The only qualification sought 30 years ago in a paving stone for heavy traffic was hardness, and the sole consideration was durability. Only on such grounds could they conceive of the adoption of the old Penmaenmawr setts for carriage-ways; the dark glassy surfaces of these setts being the most slippery material on which horses had ever been driven. The life of the stone would probably be everlasting, and thus it might be regarded as the cheapest material but for this slipperiness. There were many stones now available which, whilst durable, gave a good foothold to horses, and were reasonably economical in maintenance. For heavy traffic Guernsey granite, a bluish hard close-grained stone, was largely used in the Metropolis. It was good where the heaviest traffic occurred; but it wore slippery, but not so much as to become dangerous except on steep inclines. The stone could be redressed with very little waste, its texture being close and uniform. Ronez granite from Jersey had been recently brought into London. It resembled Guernsey granite, was an excellent stone for wheelers, and could be obtained in good lengths. There was another Penmaenmawr stone now used, which was similar in quality to Guernsey. The Cleve Hill and Rowley Regis setts, being black, might not be regarded with favour where appearance had to be considered; but the stone was close, fine-grained and tough, wore well, and was not slippery. Pwlheli granite was a compact stone, tough and gritty, and might be classed half-way between Guernsey and Aberdeen granite. Arklow granite, from County Wicklow, was dark and compact, and apparently would wear gritty. Of the Leicestershire stones, there were Mansfield,

Bardon Hill, and Mountsorrel, all moderately coarse in texture, and might be placed for wearing qualities a little below Guernsey granite. Enderby was a finer-grained, more compact stone than the three just referred to, tough and sufficiently gritty. He had found this very wasteful to re-dress, many setts being shattered in the operation. The Royale granite setts had been recently introduced into this country, although they had been used in Paris for twenty years, and were said to withstand heavy traffic. The Aberdeen granite setts, though more worn by heavy traffic than Guernsey and many other stones, were, nevertheless, eminently suitable for heavy traffic. Norwegian, Newry, and Castlewellan granites were all useful for lighter traffic, and were superior to all except Aberdeen granite for non-slipperiness. He referred in detail to the materials for macadam, including those from Haslingden, Rochdale, Moher and Hopton Wood. Passing on to consider hard-wood paving, Mr. Barber alluded to the well-known Jarrah from Western Australia, and also to the greenwood and white oak from South Carolina, and Mora wood from Demerara. The three last materials were new to this country; they were lighter than Jarrah, tough and fibrous, and probably less noisy. He had put down Mora wood, but had not yet had sufficient experience with it, and was also about to experiment with the others in the hope that they would be less noisy and less liable to expansion and contraction than some of the harder woods. Sanitary block-paving was principally composed of granite chippings and bitumen, and wore without becoming slippery. The author was making some experiments with various bricks for carriage-way paving both under heavy and light traffic.

#### IRISH MATERIALS.

Some notes on "Roadmaking Materials from the North of Ireland," prepared by Mr. S. G. FRASER, of Belfast, were read, in the absence of the author, by Mr. THOMPSON, of the *Surveyor*. Attention was drawn to the white, red, and grey sandstone, obtained from Scrabo, red sandstone from Dundonald and Dungannon, the latter being much used all over Ireland. The blue whinstone abounded in County Down, but varied much in quality, the deeper beds being the best and most uniform. Ballygowan setts were extensively used in Belfast and the North of England. Basalt or "blockstone," although found in abundance in Co. Antrim, was not, as a rule, a good stone for setts, as it split under the hammer, but was excellent for rubble masonry. Both whinstone and blockstone made good macadam, and whinstone setts never grew slippery, and wore well under moderate traffic. Newry granite was quarried to a radius of twenty to thirty miles. Artificial flags had been extensively used for many years, and had assisted to keep down the prices of natural stones; the price varied from 3s. 4d. to 3s. 9d. per yard; the chief objection to artificial flags were the expense of repair after a trench had been made in a footway for mains.

#### KERBING AND CONCRETE FOR FOOTPATHS.

Mr. H. T. WAKELAM, County Surveyor of Middlesex, read a paper in which he said he should simply describe the materials, and would not criticise their qualities, merits, and demerits. He emphasised the value of kerbs and footpath edgings as a protection to the pedestrian. The best form of cast-iron kerb that had come under his authority's notice was made by Messrs. Bayliss, Jones, and Bayliss, of Wolverhampton. Each piece was about 3ft. long, and had two back lugs, the whole of the kerbing laid being secured throughout its entire length with oak wedges driven into the lugs. For renewals the wedges were sawn through and withdrawn. Channels proved a protection for kerbs; they prevented percolation and saturation of the underbed, and the depressions and upheavals on the kerb line often seen on unchannelled roads were obviated by their use. Channels should be constructed on good foundations, and be sufficiently wide to generally carry off storm water, and should be bedded so that heavy weights would not disturb the true gradients. The author had found concrete *in situ*, a most suitable channel for suburban districts and country towns; it was easily constructed, cheap, and easily cleansed. Speaking upon footways, the author laid emphasis on the importance of laying a good foundation. If a natural one could not be obtained, an artificial one should be laid down, such as furnace clinker, hard core, old

broken bricks. In the choice of a natural material, the engineer and surveyor should select stone without laminations, and should watch that it was properly dressed at the joints throughout its entire thickness. In choosing Yorkshire stone, it would be found that the hand-dressed was the cheapest in the end, and only one kind of stone should be obtained, or unevenness of wear would be evident. Natural asphalt—by which he excluded tar-paving from use—had excellent lasting qualities, and, from a sanitary point of view, was hard to beat. Having referred to the slab paving made from destructor clinker by the engineers of Hornsey, Liverpool, and Birmingham, the author gave some of the compositions of concrete *in situ* used for footways, and remarked that it was a good plan to place a strip of roofing felt between each bed or bay to allow for expansion, and narrow bays always answered better than wide ones.

A short discussion followed, in which Mr. E. G. MAWBREY, borough surveyor of Leicester, defended the Leicestershire granites as paving-sett materials from some of the aspersions cast upon them, and explained that in Leicester he was using for footpaths concrete or artificial stone slabs 2½ in. in thickness, which could be obtained from the Victoria Stone Co. and other firms at about 4s. per square yard delivered. *In situ* concrete flags could be made for about 2s. 6d. per square yard; but he considered the ready-made slabs worth the additional cost. He coupled in the vote of thanks to the readers of papers and chairman that of Mr. Gibson Thompson, the editor of the *Surveyor*, who had organised the special exhibition and the very practical conferences. Mr. J. T. Eayrs, M.Inst.C.E., of Birmingham; Mr. C. H. Cooper, M.Inst.C.E., surveyor to the Wimbledon Urban District Council; Mr. S. S. Platt, borough engineer of Rochdale; and Mr. A. D. Greatorex, borough engineer, West Bromwich, also joined in the discussion; and Mr. Patten Barber replied, pointing out that the Penmaenmawr stone now quarried for setts was from a different bed from the slippery wearing setts formerly supplied, and which he had adversely criticised. Mr. Wakelam, Mr. Thompson, and the chairman also replied.

On Saturday, the closing day of the conference, the chair was taken by Mr. John Price, city engineer and surveyor of Birmingham, when four papers were read, three on such diverse subjects as urban tree-planting, tramway rails, and name-plates being submitted by Mr. Francis Smythe, surveyor to the Finchley Urban District Council, and the fourth by Mr. J. W. Bradley, borough engineer of Wolverhampton.

#### TREE-PLANTING IN STREETS.

In his first paper Mr. Smythe observed that the young trees to be planted in towns should have a good tuft of roots, produced by having been transplanted two or more times during the growth; the stem should be fairly straight and free from excrescences (for street planting the stem should not be less than 7ft. in length), with a fairly good head; but as the young stuff is usually grown close to one another, it is difficult to obtain a very large amount of leaf-growth; if there are plenty of roots a good head will soon be produced. A considerable amount of injury is often done to young plants, especially in dry, windy weather, by the length of time that elapses between the time they are dug up and planted, causing the roots to be dried up and the sap-ducts to be permanently contracted or destroyed. If the trees cannot be planted as soon as received, the roots should be covered up by damp straw, manure, or earth. One of the reasons trees are not often successful in their growth when planted in streets, is that no care is taken to prepare the site for their reception. How can a tree be expected to thrive in a hole about 2ft. square, either in a stratum of compressed builders' rubbish, or, again, in an impermeable clay, forming a sump for all the rainfall that may follow, and the holes filled up perhaps with a couple of barrow-fuls of road-drift? If they survive it will always be difficult—like Irish cattle—to tell their age. There are few streets in which any portion of the original soil is left, in which case an excavation at least 24ft. superficial should be made, say, 4ft. wide by 6ft. long, and from 2ft. to 3ft. deep; if in an impervious soil, it would be preferable to have the shallower depth, unless a layer of rough material can be laid at the bottom, with a drain to take away the superfluous moisture, which would be far better than having a continual sump. Indeed, if it were possible, it would be best to have the tree planted on a mound under



such conditions. The excavation should then be filled up to the level of the surface with good soil. The author collects all the road trimmings he can, and after it has been left in a heap for six or twelve months to rot, uses it for this purpose. To this should be added a small proportion of rotten dung; after this has been well trodden down a hole is made large enough to receive the roots, after they have been well and carefully spread out. More soil is put into the hole after the tree is planted, and if possible a layer of dung may be spread over the last layer of soil, and finally, a sufficient quantity of soil or gravel can be spread to bring the surface of the hole to the required level. Planting should not be done if possible in wet weather, and on no account unless the fresh soil is in a friable condition. Finally, the tree site, unless it is frosty weather, may receive a good watering to settle the soil round the roots of the tree. A great mistake is often made in planting too deep; a covering of 6in. of soil is ample above the topmost roots. As soon as the tree is planted it should be fastened to a stake or other support driven firmly in the ground, and it should be protected from injury by an iron guard, or wire netting. Trouble is experienced by wood stakes rotting off close to the ground, and the author exhibited an iron stake he had devised, made of 1½in. galvanised iron tubing, with a solid point and a turned wood final. As soon as the tree is planted the four-tined stay is driven into the ground, and the tubing is then driven through the socket of the stay, which it loosely fits. It is very durable, inexpensive, and will last for years. The reasons for pruning are: First, the removal of any branches that may not be required; and, secondly, to increase the ultimate leaf area. The tree should have been planted at least twelve months, to enable root-growth to be fully commenced before any pruning is done, and then, if the lower branches are small, say less than ½in. or even ¾in., they may be cut off close to the trunk that season, and perhaps, if the head of the tree is a good one, one or two of the branches next above them shortened half-way. Another season these latter may be cut back to the trunk, and a few higher up shortened half their length. Pruning should only be done to a limited extent. The best time is in the early spring, before the sap commences to rise. The author suggests the following selections of trees as being the most useful for street planting in the order named:—Trees for towns: Maple-leaved plane (*Platanus acerifolia*), Norway maple (*Acer platanoides*), sycamore (*Acer pseudo-platanus*), Canadian elm (*Ulmus Canadensis*), Canadian poplar (*Populus Canadensis*), balsam poplar (*Populus balsamifera*), Italian poplar (*Populus nigra*), albe poplar (*Populus alba*), common birch (*Betula alba*). Of the above trees the plane and balsam poplar prefer a heavy soil. The plane does not do so well in a very bleak position, and the balsam poplar, one of the best of its kind, has rather a tendency to canker on light soils. All the other trees will do well on any soils and in any aspects. Trees for seaside places: Norway maple, sycamore, grey poplar (*Populus canescens*), Huntingdon willow (*Salix alba*), seaside willow (*Salix rubra*), common birch, wych elm (*Ulmus montana*); the latter requires a heavy soil. On chalk soils all the maples, poplars, willows, and limes (*lillias*) may be planted; and for suburban districts the lime does well, but it is liable in hot weather to sugar-blight, to which all dirt and soot adheres, and it does not therefore suit towns. For smoky or manufacturing towns no tree does better than the sycamore, Canadian or balsam poplar; the balsam may have the preference to the Canadian poplar on heavy soils. Oaks were not named on account of their slow growth; nor flowering trees, on account of the damage done to them by children getting after their flowers, fruit, or nuts. The smaller kinds of trees should not be planted closer than 30ft. apart, and with the exception of limes on heavy soils, where they do not grow luxuriantly, and the birch, all the trees mentioned should have 40ft. between them.

#### TRAMWAY RAILS.

In a paper on this subject, Mr. SMYTHIE said he only proposed to consider that afternoon two kinds of mechanical traction—viz., cable traction and electricity. There are only six examples of cable traction in this country, and one only in course of construction—viz., extensions at Edinburgh. In America it is gradually being superseded by trolley traction. The system is costly in execution, but economical in working, especially on hilly roads where the cars follow one

another in quick succession. As far as interference with road surfaces are concerned, the central slot rail is an objection. Electrical traction may be divided into four systems—viz., surface-contact, accumulator, conduit or underground, and trolley or overhead. In the surface-contact system devices are fixed against or attached to the rails, by which the current is conveyed to the motors, but the difficulties attending the system and its liability to get out of order has prevented its adoption. The accumulator system would perhaps be an ideal one if it were not for the great waste of power, the great weight of the batteries to be carried under the car, and cost of maintenance and repair; these items cause the cost of working per car mile to be so much that it is prohibitive to its adoption. By the conduit system the current is conveyed by a feeder laid in an underground channel, similar to the cable system, and it is conveyed to the motors of the car by means of a collector hanging from the car and passing through the slot. There is the same objection to the central rail conduit as regards interference with road surfaces as in the case of cable traction. The construction of conduit, and strength and number of yokes or cast-iron supports, must be sufficient to prevent the slot being closed. The only objection to the conduit system is its initial cost; and in comparison with the trolley system, the extra cost of maintenance and repair. The author has lately estimated the cost of constructing a tramway in his district, and in round figures it amounts to £11,500 per mile single track for conduit, as against £7,700 for the trolley system—a difference of £3,800, while the extra cost of up-keep is estimated at £600 per mile. Calculated for a double track, the difference is still greater. The great thing in favour of the trolley system is its cheap initial cost, and in the maintenance and repairs required; but the objection is the standards and overhead wires, probably more on account of the wires than the standards, as where similar poles are used for arc lighting alone there does not appear to be any objection to them. It is, however, astonishing how soon persons become used to their existence. The conducting wire is either supported by steel standards fixed along the edge of the footways or in the middle of the roadway about 40 yards apart, and less on curves, or on span wires across the street, fixed either to standards or roses attached to buildings. Undoubtedly the less wire there is the better, and for this reason the span wire system does not meet with favour in this country. A separate feeder is laid underground and connected to the conductors at intervals of about half a mile, in order that the current may have a more even distribution. The current is conveyed to the motors of the car while the latter is in motion by the trolley arm fixed on the roof of the car, which has a universal joint. To complete the circuit the current is returned to the power house by the rails being used as conductors, and great care has to be exercised to have a continuity between one rail and another. Modern practice is to use a rail in one piece to form a girder. The weak part of all tramway tracks is the constant movement that takes place at the ends of each length of rail where they meet one another, and in order to avoid this as much as possible the fish or connecting plates are made longer, and a sole plate added. One of the greatest difficulties in tramway maintenance is the greater wearing away of the material of which the track is constructed close to the rails, and devices have been introduced to avoid this. One of these was the insertion of narrow strips of steel alternately, of varying lengths, let into the pitching or paving at right angles to the road, but, from some cause, none of these have yet found favour.

#### STREET AND OTHER NAME-PLATES.

In his third paper Mr. SMYTHIE mentioned that it was not until the third or fourth decade of the present century that cast iron was used for naming streets, and at the present time probably more name-plates made of this metal are used than any other kind, although many devices have been introduced, some of them running cast iron very close for public favour. Among these may be mentioned enamelled-iron name-plates made of an alloy containing a large proportion of zinc, embossed or raised letters on sheet iron and zinc plate, or letters cut out of the same metals, china or glass letters fastened on to wood or metal, plates made entirely of glass, glazed terracotta or china, metal plates let into the surface of foot-

paths, glass slips fastened into the lanterns of public lamps, and metal plates either fastened to the ladder arms of the same, or fastened to the lamp columns. Cast-iron name-plates have hitherto been most in use on account of their cheapness and durability, the only objection to them being their brittleness, but this defect can be much modified by the mixing of the metal and annealing. If some means were adopted by the manufacturers to stove the colours upon them it would add to their usefulness, and it would also be well if the surface were covered with a permanent enamel. Enamelled iron name-plates run cast-iron ones very closely in public use, on account of their smooth surface. The only objection to them is that the enamel often scales from the iron backing on account of oxide forming on the surface of the iron, either naturally or from a blow, and when once this commences the plate soon becomes disfigured and the lettering partially obliterated; some manufacturers say their plates are proof against the defect; but the author's experience is that, although there are some plates much better than others, they are all liable to the same fault. As, however, the scaling always commences at the edge, a great protection to the plate is to let it into a metal or wood frame. A metal plate is shown in this exhibition which avoids one of the defects of iron—viz., in being rustless, and it is stated by the manufacturers that the colouring is stoved thereon. The author has had a serviceable and cheap name-plate made in the following manner:—A 1in. piece of well-seasoned red deal was cut to the required size and the corners rounded to prevent the zinc from peeling off the hoop-iron, which it would do if the latter were bent to a sharp angle: into the board a number of tinned tacks were driven to within ¾in. of their heads, a piece of galvanised hoop-iron 1½in. wide was fastened with zinc nails round the edge of the board, projecting ¾in. in front of it, and flush with the back, a thin grout of Paris plaster was run over the tacks to the depth of ¾in., the heads of the tacks forming a "bite" for the plaster, and while the latter was in a moist state a glass slip name-plate was bedded upon the plaster. Although not necessary, a finish was given to the name-plate by a filletting being formed round the edge, made of white and red-lead putty, the back was painted to preserve the wood, and two wrought iron lugs screwed on to the back to hang the plate. The glass slip must not be warped, and if over 2ft. in length, it must be made of 24oz. glass. Latterly the author has a wood cleat, ¾in. or ¾in. thick, placed between the name-plate and the wall or the object to which it is attached; the collection of dirt or soot above the plate is by this means washed behind the plate instead of over it during rainy weather. As a rule, street name-plates are made too small and not sufficiently prominent; an extra-sized letter does not add a very large proportion to the cost, as the time of fixing, which is a considerable item of the expense, would not take any longer. A bold moulding round the plate increases its prominence.

#### ROAD-MAKING APPLIANCES AND LITERATURE.

Mr. J. W. BRADLEY, borough engineer of Wolverhampton, read an interesting paper on the "Road-Making Exhibits." He confessed at the outset that he had been disappointed in the number and variety of the exhibits in these sections, for he thought the occasion would have been eagerly seized by manufacturers, as it would have afforded municipal engineers a unique opportunity for gaining new ideas and interchange of practices followed. In the first section—direction-posts and milestones—there were certain things to be kept in view to enable the structures to fulfil their purpose. Direction indicators should be of an imperishable material, bold and neat in design, with strong self-fixing bases. The lettering should be bold and legible, and the direction arms easily fixed at an angle without the necessity for special castings or complicated fastenings. As to milestones, he preferred those with flat faces to the old V-fronted ones, the latter being in his opinion inartistic. Referring to the neat and artistic designs and exceptionally fine castings for lamp columns exhibited by the Coalbrookdale Iron Co., the author expressed his surprise that so many lamp-pillars were erected by corporations and gas companies of a design which he had described as "horrific" when the cost of one artistically designed was so very little more. Mr. Bradley next referred to incandescent gas-lights, remarking as to these



that where a town had not a large electric-light installation, or did not propose to extend its electric street lamps beyond the district shopping area, the suggestion of incandescent gas-lighting was well worthy of the trial; but most depended upon the relative prices of gas and electricity, the ratios of which varied enormously. One of the great difficulties to be feared, when first incandescent burners began to be used for street-lighting, was the short life of the mantles, owing to vibration caused by passing traffic. Many so-called improvements had been devised and patented, and one of these, which had been tried with success for the past three years in Bradford (where some 2,000 were in use), was that invented by the Anti-Vibrating Incandescent Lighting Co., of Bradford, for giving longer life to the mantles. The burner was suspended by a spring, and had a flexible gas tube connected to the bottom, thus preserving the mantle from all shocks. The author dealt at some length and with much ability with the literature of road and street construction, first calling attention to the admirable series of a-little-too-detailed reports, issued by the engineers of roads and bridges in France, and the professional journals of that country, which contained matters of much interest to the municipal engineer. The civic authorities of the United States set our corporations and urban and rural authorities an example in the detailed statistics they compiled and issued, and many of them were of the highest value. The only body in this country which had a statistical department was the London County Council. The author next referred to the works on road engineering issued by Messrs. Chapman and Hall and by Messrs. E. and F. N. Spon, and made some interesting excerpts from the bibliography of road construction in this country, from the days of the Romans onwards. In conclusion, he remarked that Bacon's aphorism held as good now as in the days of Elizabeth. "There be three things which make a nation great and prosperous—a fertile soil, busy workshops, and easy conveyance from one place to another."

A discussion on the four papers took place, in which Messrs. J. Patten Barber (Islington), S. S. Platt (Rochdale), W. Stubbs (Blackburn), Yates (Waterloo, Liverpool), Howard Smith, H. T. Wakelam (Middlesex), and the Chairman took part. In summing up, the Chairman said that in Birmingham tree-planting was carried out under exceptional difficulties, but they made great efforts to maintain them. The trees which did best in that city were London planes, Ontario poplar, Huntingdon elm, common sycamore, and Canadian poplar. He exhibited sectional models in cardboard of tram-rails in section, including the one used in Brussels and carried out by a Berlin traction firm, and that adopted in Birmingham and devised by himself, which was, he believed, the shallowest conduit that could be made, and a modification of that scheme was being adopted in certain towns in the United States. The cost of a conduit system was very much greater than an overhead system; the shallow Birmingham one was £2,200 per mile more than any overhead system. In Birmingham they had decided to extend the incandescent-gas lighting by 2,000 street lights; they would not use any patented system, but a plan of their own to obviate vibration. In the formation of a macadamised road, he feared there had been no particular advance since the days of Telford, and where so-called "light railways," or, rather, country tramways, were laid down, no surveyor would venture to put down macadam between or outside the tram rails. He considered that the Light Railways Act had been prostituted by its provisions being utilised in connection with the construction of tramways, instead of being restricted to light railways, mainly for the conveyance of agricultural produce into towns, as the promoters of the measure contemplated.

#### CRICHTON CHURCH.

THE collegiate church of Crichton is one of many founded in the 15th century. Now, about 300 years after the eviction of its clergy and forfeiture of its estate, the work of restoration has been accomplished. A complete scheme was not contemplated in the plans and estimates; accordingly no provision could be made for restoration of the pinnacles, or for removal of the unsightly north staircase building or opening up the old window at its back; nor was it thought

possible to restore the east window (20ft. by 12ft.) otherwise than with the simple splays of the transept windows. But as a clearance was made and the work of reconstruction had begun, additional interest was awakened; a great amount of work not contemplated at first has been done, and the church has been completely restored in all the characteristic details of construction, with exception of its pinnacles, the east window, and its sacristy. The sacristy, with its lofty vaulted roof, could not be replaced; but a vestry has been erected on its site, the unsightly gallery staircase taken away, and the north window restored to match the rest. The restoration of the interior involved much heavy work, not merely in clearing out the modern church and galleries, but also in repairing the many rough holes made for beams and other timber-work, replacing portions cut out of pillars and arches, and also the cleaning of the stone from floor to apex of the lofty vaulted roof. The surface is unbroken by any decorative feature, in stringcourses or ribs. There is a small trefoil opening at the tower, a piscina in the south transept, sedilia in the south wall, and a small aumbry with moulded sill on the north wall. As to the improvement of the interior in its accommodation for the parish church, the whole area of the building is required for seating the congregation, the galleries being done away. The floor is laid at the old choir-floor level, and on the higher space formerly the sanctuary; the seating has been raised with a passage in front, nearly in line with the north and south doors. The steps at tower and chancel arch could not be retained. The pulpit is placed to command an unobstructed view of the congregation—i.e., at the west end, on a small platform. This is in front of an inner porch at the principal or west doorway, and over the porch the organ-case and organ are erected. The passages run round the side walls with hot-water pipes in trenches. All the woodwork above the floor is in fumigated oak. The framed panelled work in porch, pulpit, &c., is designed with the usual Decorated Gothic details; bench-ends are moulded and have *fleur-de-lis* finials, but there is no wood lining on the walls. Friends have come liberally forward to supplement the work of the committee. One donor has ordered a fine wall screen for the east wall and a Communion table from Messrs. Jones and Willis; another has filled the east window with an elaborated design in stained glass, as a memorial of one long connected with the district; and a side window contains a similar memorial of a minister of Crichton. In addition to the work above described, the heritors have renewed the tower roof, repairing its parapet, opening up its windows, and provided a complete system of spouting and drainage. The whole of the work has been carried out by tradesmen of the parish, from plans by Messrs. Hardy and Wight, architects, Edinburgh.

#### FIRE-RESISTING CONSTRUCTION OF THE NEW ADMIRALTY OFFICES.

THE new Admiralty buildings, now approaching completion from the designs of Messrs. Leeming and Leeming, will complete the block and make an imposing addition to the architectural surroundings of St. James's Park. From the Mall a good view is obtained of the new structure, with its corner turrets and cupolas. One of the chief features of the building, which as an example of workmanship and solid construction is unsurpassed, is the large introduction of the fire-resisting floors, ceilings, and roofs of Messrs. Mark Fawcett and Co. The whole of the floors, the partitions, the flat and sloping roofs, and the steel dome frames are constructed on this excellent system. Our inspection of the building the other day enables us to give our readers some idea of the construction employed by this well-known firm, who have applied the Fawcett system to the whole building, by which all the constructional steelwork is shielded or inclosed by tubular lintels and concrete.

The Fawcett system is well known to most of our readers; those who wish for more particulars, and the number of buildings in which the system has been used, will do well to consult the author's newly-published book on "Fire-Resisting Floors, Ceilings, and Roofs Constructed in Her Majesty's Buildings." We shall now describe the system as we see it in the New Admiralty block. At the time of our visit all the floors showed the naked construction, the girders being filled in with the tubular lintels ready for plastering below, and the breeze con-

crete filled in above the lintels with the wooden joists or fillets upon which the flooring is fixed. These lintels, which constitute the main feature of the system, are of a semi-fireclay, or red chimney-pot earth, made in the form of semi-circular tubes, with ribs and corrugations below, and each is supported on the lower flanges of the joists. Above, these lintels form a succession of ridges and furrows, while their lower flat flange-like plates have dovetail grooves to give a key to the plaster, and at the ends are made to project and cover the bottom iron flanges of girder about 2in. below, so as to protect the same from fire. They are placed diagonally between the joists or girders, giving increased strength, and their soffits form a continuous ceiling. The tubular section of lintel enables the air to circulate freely throughout the whole area, and also beneath the lower flanges of joists where air passages are formed. These floors are remarkably strong and compact. The 6in. cross partitions are in many cases constructed of sifted-breeze concrete—2 cental sacks of cement to  $\frac{1}{2}$  yard cube of sifted breeze—and are so compact and strong as to resist the heaviest blow that may be given them. In some of these stanchions are placed, carrying the upper girders.

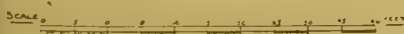
Very important parts of the construction are the roofs. These are wholly constructed on the Fawcett system. Steel trusses, formed of I section about 12ft. apart, are placed over the walls externally forming the sloping sides, and these carry steel purlins which support the fireclay lintels and concrete for slating or leadwork. Various slopes have been formed, some nearly vertical, others of slight fall to the gutters. The purlins are placed 2ft. apart, and the concrete of breeze and cement forms a capital surface for the slates, as no battens are necessary, the nails being driven through the concrete, which gives a secure and firm hold. These roof-slopes and flats deserve the attention of the profession, as proving that this system can be applied to any slope. It would have been practically impossible to have constructed flat roofs of very little fall in the ordinary manner. The numerous dormer windows which light the outside corridors are entirely of breeze and cement concrete, the cheeks and walls being about 6in. thick. The manner in which the upper corridors have been widened by running 12in. by 15in. joists over the wall below, and supporting the upper corridor wall 2ft. 6in. within the lower wall, is ingenious. The plan of Messrs. Leeming shows skilful arrangement in the corridors. The open-light courts below and the inside corridors are well planned. On the top floor the corridors are placed outside, and are lighted from the dormers. The designs and plans of these buildings we have already given.

#### IMPERIAL THEATRE, BORDESLEY, BIRMINGHAM.

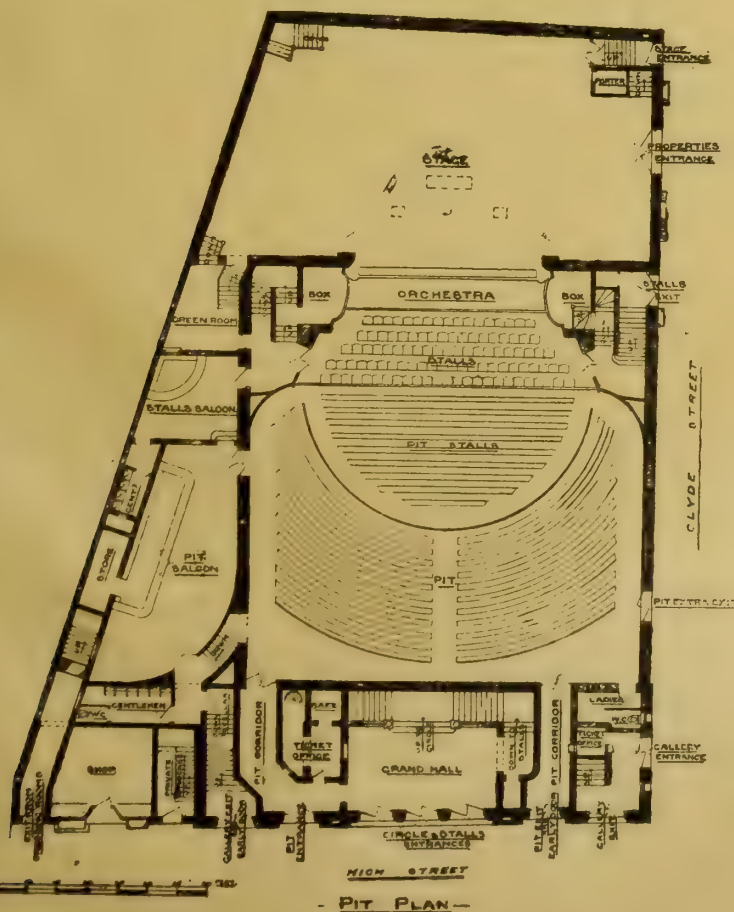
[WITH LITHOGRAPHIC ILLUSTRATIONS.]

THIS theatre, which is now rapidly approaching completion, promises to be one of the most completely contrived of our provincial theatres. Messrs. Owen and Ward, architects, of Birmingham, have prepared the plans. The building has two frontages, one to High-street of 104ft., and the other to Clyde-street of 134ft. There are arranged twelve exits from the various parts of the house, communicating directly with the streets, and each section of the building has at least two spacious fireproof staircases connected therewith. The grand hall, which is approached from High-street, and is 25ft. by 20ft., will be decorated with particularly coloured marbles, the ceiling being domed and harmoniously decorated in colour. The staircases to circle and stalls lead from this hall. The interior accommodation is classified into orchestra and pit stalls, pit, dress circle, balcony, and gallery, together with six private boxes, and will seat 2,500 persons. The auditorium is 69ft. by 65ft., and the stage 69ft. by 40ft. The latter will be of the latest construction, capable of mounting the most elaborate productions. The grid will be 50ft. above stage level. A convenient green-room is provided, and ample dressing-rooms for both sexes. Spacious saloons are arranged of easy access to all parts of the house, and also conveniences for both ladies and gentlemen, together with requisite cloak-rooms. Both gas and electricity will be employed for lighting purposes throughout. The heating and ventilation will be carried out on thorough principles. The interior decoration will be principally





### CIRCLE PLAN



PIT PLAN—

of fibrous plaster in the Renaissance style, the prevailing colours being cream, blue, and gold, whilst the draperies and upholstering will be in old gold silk. The elevation to High-street is treated boldly in red Ruabon brick, with buff terracotta dressings. The terracotta work is by Messrs. Doulton and Co., and the general contractor is Mr. E. J. Charles, of Moseley, Birmingham.

SPECIFICATIONS.\*

(Continued from p. 602.)

**I**F any detail drawings are supplied with the contract plans, which is not often the case, a specification may be much shortened without detracting from its efficiency by merely referring to the detail drawings in question, and at the same time mentioning any particular feature not readily gathered from those drawings. Thus in about three lines may be stated all that is necessary, which otherwise would perhaps occupy a dozen or twenty. But I fear, until it is the custom to supply detail drawings with the contract plans, very much cannot be made of this point. Here is

### ANOTHER WAY TO SHORTEN A SPECIFICATION.

Take, for example, the windows to a building, one or two of which are dissimilar from the rest. I would first describe those, and then refer to all the others on all floors, in all positions, in the one item, and not describe them to each floor separately. Take, again, the external facings to brickwork. Describe any special facing first, and then the whole of the other facings to all parts in the one item without reference to special position. There are many other items which may be treated in this manner. One more suggestion. The wording itself of a specification may be much curtailed by care and practice. You will never be able to write concisely and to the point until you have written many specifications. Do not labour the wording needlessly, nor repeat yourself unnecessarily. In time the requisite language will come simply and quickly. I want it to be understood that my remarks chiefly apply to the correct form and wording of a specification of which quantities do not form a part of the contract, or which, perhaps, have not even been supplied. Another important point in a specification is that

IT SHOULD BE READILY UNDERSTOOD

and clear. To avoid confusion, tabulate as much as possible the various parts of a complete item of work by placing each separate particular under the preceding one. It will take more paper, but then that is always a good fault, for it will make the description clear at a glance. The form of tabulation I would suggest is as follows, which illustrates the description of a roof formed with trusses :

The roof to be formed of, say, six whole trusses and two half-trusses, each to be placed 10ft. apart, and composed of the following scantlings, and the whole notched, framed, spiked, and strapped together:—

Tie beams 12in. by 6in., resting on 2ft. 6in. by 12in. by 3in. tooled York templates.

King posts out of ..... 6in. by 5in.

Principal rafters ..... 6in. by 4in.

Struts ..... 4½ in. by 4 in.

and so on. Here it will be noticed that each separate component part of the roof is placed immediately under the preceding one until all the items have been described. Thus, at a moment, the sizes and particulars of any one special part of the roof may be seen. This form of tabulation will be found much clearer than the method which is so often adopted of running on the particulars of the various items line after line without a break. In the same way may be tabulated the description of floors, windows, doors, and many other distinct items severally composed of many parts. As another aid to the clearness of a specification, divide the descriptions into many clauses, and do not make the clauses too long, nor omit an occasional full stop. Also keep the clauses well apart, and do not crowd them together; any item will then be quickly seen, and you will not have to question to which part of the building a description belongs. Conceding this point that a specification should be

\* By F. W. MACEY. A paper read before the London Architectural Association on April 28, 1899.



perfectly clear at a glance, a further question arises, Should the work be divided into

#### SEPARATE TRADE HEADINGS?

As a general principle, this is unavoidable, and I think desirable, but I would also say, without hesitation, that very many distinct items of work would be clearer and more comprehensible if the various trades relating to them were not separated, but the complete item of work described under the one heading, placed in whichever part of the specification seemed most desirable. Thus, to illustrate. Take an iron casement window, with wood frame, linings, and the usual glass and fittings. Ordinarily this would come under several trades; but I would describe everything connected with that window under the one heading of, say, joiner—that is, the iron casement, the wood frame, linings, shutters, and finishings, the ironmongery, and glass, and with, perhaps, a cross reference in smith, stating that the iron casements are described in joiner. The builder will see at a glance all the requirements of that window, and the client, if he peruse the specification, will also have an idea how it will look when finished. Another example: Take an iron girder. I would describe under smith and founder the girder itself, the templates, cover-stone, any cement packing, felt or lead seating, and the painting. Perhaps it might be better to generalise the painting under painter in the one description applicable to all girders and covered-up ironwork, and in that case a reference should be put under smith and founder. There will then be no excuse for the painter to this work escaping the builder's attention. When describing the work to small alterations, repairs, or decorations, it is almost essential to adopt this order of running on the description, regardless of trade headings and formalities. Of course, when work is let to separate tradesmen you cannot adopt this method.

#### A BUILDING CONTRACT,

which is often referred to in a general way as the specification, is understood to include the conditions of contract, the form of contract—that is, the actual agreement, and the specification of the subject matter embraced in the contract. The conditions of contract and the form of contract should only embody, so to speak, the actual legal requirements which, taken by themselves, do not affect the description and the value of the work and materials. These strictly legal clauses I do not propose to touch upon. But it will often be found in many specifications that under the leading conditions of contract are placed many clauses which do actually affect the amount of the estimate. This is a mistake, for at the time of, tendering, a builder so often only hurriedly scans the conditions of contract, and when reading them over again, preparatory to signing the contract, may, unfortunately, find there are several items included which he has omitted to price in his estimate. The client does not always see his point, and the builder either has to bear the loss or throw up the work. This remark chiefly applies to a work for which no bills of quantities have been prepared. But that part of the contract, or, in other words, the specification itself, of the actual work and material, should embody every item which may in any way affect the estimate; therefore, under

THE GENERAL CLAUSES, OR PRELIMINARY ITEMS, as they are often called, I would include the following matters which are so often to be found only under the Conditions of Contract:—The date of completion—this requirement may necessitate an extra allowance for overtime or other special employment of labour. The mode of payment—under certain conditions the builder may require to borrow money to enable him to carry on the work between the times allotted for payment. Keeping the work in repair for a stated period after completion—this may necessitate an allowance to cover any matter which may crop up under this item. The insurance fees and fees to any authority should also be included under this heading of Preliminary Items, as also any other matter not coming under a trade heading which may possibly require a price. Just a hint as to the outside cover of a specification. Put as a reminder in red ink a note of the insurance and date of completion. One is apt to forget these matters. Then as to

#### THE MARGINAL REFERENCES.

It will be found a great convenience to all parties if a marginal note is given to each distinct item of work. It will then be seen at a glance where

a "bath casing" is placed, or the "spandrel framing to a staircase," instead of having to wade through pages of other subject matter. In addition to the marginal notes, I would put all the principal items under sub-headings, so to speak, in their respective trades. Such as all wood staircases under a sub-heading of "Staircases" in Carpenter and Joiner; similarly all casement windows under a sub-heading of "Casement Windows," and all such divisions of work. And when you come to the minor items which only require a separate clause to each, these might be put under the one sub-heading "Other Items" or "Other Fittings." These sub-headings should be written across the page. As to

#### NUMBERING THE CLAUSES,

this I think very important. It will be found of great assistance to be able to refer to the number of a clause in a letter when calling the builder's attention to any special part of the work, as also in the case of cross-references when referring from one part of the specification to another. Each separate clause need not necessarily be numbered, but only each distinct item of work which may embrace several clauses. As to marginal sketches to illustrate rather involved parts of the specification, I think in many cases these will be found very useful. I would then suggest that the lithographer take them direct from the architect's sketches. If the specification is typewritten or fair copied in the office, then either do all the sketches yourself or else see for yourself that they are copied correctly. Where should

#### PROVISIONAL AMOUNTS

and prime cost items come in a specification? Should each amount come under the trade in question to which it refers, or should they all in a body be put together? I think no hard and fast rule can be applied to this, but small provisional amounts should run on with the subject-matter to which they refer; and distinct and perhaps more costly provisional amounts, and of which there may be no other description in connection, should be all placed together under the one heading, "Provisional Amounts," either immediately following the preliminary items or else at the end of the specification. The general run of

#### PRIME COST ITEMS

usually apply more to small matters, and these, I think, should follow the items to which they refer. But if of any considerable amount, I would then put them also under the heading "Provisional Amounts." Should a specification have an index similar to that provided with a technical or scientific work? I think this would be very useful, and it certainly would make a specification a more complete and handy document. The index need only refer to the principal items. Sometimes it is difficult in a specification to locate the description of a particular part when there is no distinct mark or name on the drawing. Some employ the points of the compass; this is very well if they will apply, but when you get a position perhaps centrally situated, it rather fails in its object. I prefer in such cases to put a number or a letter, and that perhaps in a circle, against the part in question, and so refer to it in the specification. Many of these references will not be required, as the drawings will generally be sufficiently clear to locate the descriptions by referring to the ordinary parts of the building by name or position. Should an old specification be referred to when describing the work relating to another building? I think only so far as the general clauses are concerned, such as those under the preliminary items, the preambles to the various trades, and the other general covering clauses under those trades. But the details of the work I would write entirely in the first place without any reference whatever to a former specification. All detail descriptions cannot be exactly alike, and you will be far more likely to put in any necessary variation of the detail in question if you think it out as you go along, than if you copy an old description and alter it afterwards to suit, because when you copy an item you cannot properly be thinking out the details yourself. To obviate omitting, so to speak, any of the general items common to all work, have by your side a form or tabulated index of the items coming under the various trades. This can be looked down at a glance, and all the items extracted which may be required.

(To be continued.)

#### MAHOGANY AND VENEERS.

THE large exports of electrical and other machinery to South America have, says the *New York Times*, been the means of fostering an import trade in mahogany wood that affects the furniture and cabinet business in all parts of the United States. Most of the steamers that return from the South stop at Nicaragua and the United States of Colombia to load up with mahogany and cedar. Last year over 6,000,000ft. of mahogany logs were brought to New York, and the coming year the imports will probably run much higher. Increased trade with the South American countries must naturally stimulate these imports for the rare hard woods of the Tropical forest do not enter into competition with any native product. Their use is extending into many new fields and uses never before dreamed of. The perfection of the veneering machinery, by which very thin slices of wood can be cut off at half the former prices, enables cabinet and furniture manufacturers to turn out loads of mahogany articles. These furniture articles are what the trade calls "built-up" furniture. That is, they have a core of white pine or other cheap wood, and the surface is then veneered with thin layers of mahogany.

Before the veneering machinery was invented all veneers were hand-sawn, and they cost considerable; but to-day 75 per cent. of the veneer is cut or sliced by huge knives. The sawed veneers are much better than the cut, and they last longer, but for the cheaper trade the cut answers all purposes. The slicer, as the veneer-cutting machine is called, is a costly machine, but it performs its work with wonderful effects. A large mahogany log is put into the powerful grip of the slicer, and as it moves against a rigid knife, which is 17ft. long, the veneer is cut off as evenly as a shaving is sliced from a block of wood by a plane. The whole log is thus sliced up into veneers one-thirtieth of an inch thick. Thus one log may yield several hundred veneers. Sawed veneers are more expensive, because not more than ten to fifteen can be cut from an inch of wood. The rest of the wood is lost in sawdust, while in the cut veneers there is no waste at all.

The relative cheapness of mahogany logs is also making revolutions in furniture manufacturing. The sailing vessels and steamers engaged in the trade are more numerous than ever before, and each steamer may bring 700,000ft. of mahogany logs to New York, and the sailing vessels from 200,000 to 300,000ft. The mahogany forests of South America are not being ruthlessly destroyed, as are many of our American woods. In Central America, where the forests are controlled by Americans, two trees are planted for everyone cut. This wise policy insures a permanency of supply that practically makes the wood inexhaustible. The trees cut for this mahogany trade average 25in. in diameter, with some running as large as 40in. They vary in age from twenty-five to seventy-five years. In twenty-five years, it is estimated by those controlling the forests, a mahogany tree will attain a good commercial age, when it can be cut with profit to those planting it. As most of the logs are used for veneering purposes, their size does not count as much as it does with many native woods.

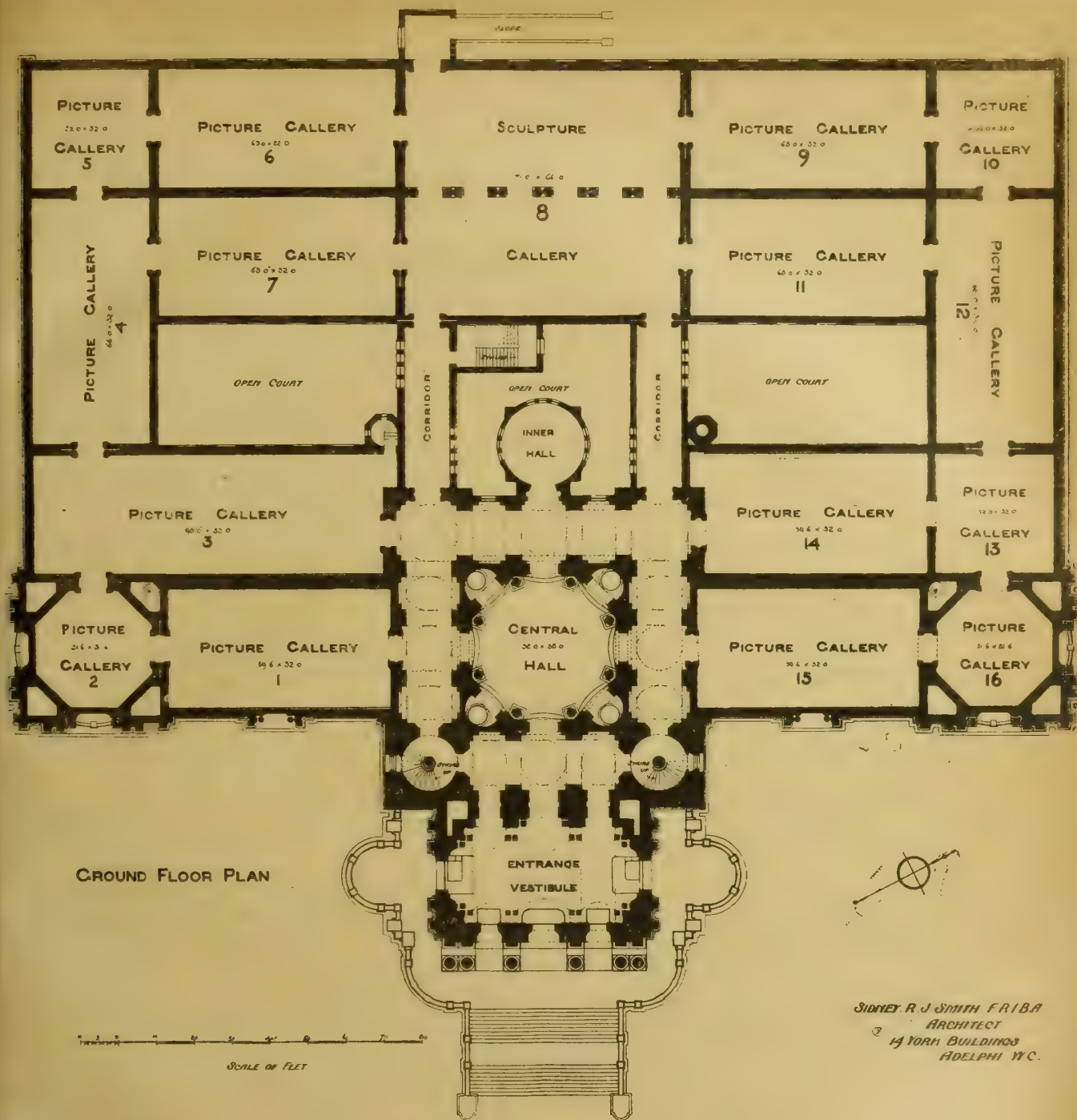
Lady Lees recently laid the foundation-stone in connection with the new church of St. Peter's, Oldham. It is to cost over £12,000, and of this sum £8,723 has been subscribed.

At Lutterworth, a cottage hospital is in course of erection, at the sole cost of Mrs. Feilding Palmer, as a memorial to her late husband. The architects are Messrs. Townshend and Fordham, of Peterborough, and the contractors Messrs. Linnell and Son, of Rugby.

A large and lofty steel chimney has just been built at the Natrons, Pa., plant of the Pennsylvania Salt Company. The chimney is 200ft. high, 41ft. 6in. in diameter at the base, and 28ft. 6in. in diameter at the top. It is lined with firebrick, and is used to carry off smoke and chemical vapours.

A memorial, consisting of a stained-glass window and brass tablet, has been erected in the north transept of St. Paul's Church, Castle Hill, Filleigh, the seat of the Fortescue family, to the memory of the late Captain Francis Fortescue, of the Scots Fusilier Guards, and of his wife, father, and mother. The window, a single-light Norman in style, has for its subject a figure of Our Lord, with hands raised in the attitude of benediction. At the foot of the window is a kneeling figure of a white-robed angel holding a scroll.





## NATIONAL BRITISH GALLERY, GROSVENOR ROAD.

NATIONAL BRITISH GALLERY,  
GROSVENOR ROAD.

THE plan shows this building as completed, with the addition of the new galleries, which are now all roofed-in, and will be finished some time in July. Under these galleries are provided rooms for the curator and his staff, female students' mess-room, lavatories, &c., police room, attendants' rooms, refreshment-rooms, directors' studio, &c., black and white rooms, and many rooms for exhibition or other purposes. The new galleries are generally finished decoratively in much the same treatment as the existing galleries; but the central ones, which are to be used for sculpture are different, and divided by Portland stone Doric columns and an entablature, which continues all round the walls, and the pavement is in mosaic. The connecting corridors to existing central hall have circular coffered barrel roofs, and the walls treated in same way as the small inner circular hall. The buildings are faced in Portland stone. There is a slope provided at back for the benefit of invalids who have to use Bath chairs, &c. The glazing to roofs has been done by W. E.

Rendle and Co., and the ironwork by Handysides, the floors by Dennett and Ingle, and the iron doors and sashes by Mr. J. Stone; the pavings are being done by De Grelle, Houdret, and Co., the drains by Mr. G. Jennings, and the general contractors are Messrs. Higge and Hill. The whole cost of these new buildings (as well as the existing building) has been borne by Sir Henry Tate, Bart., and the architect is Mr. Sidney R. J. Smith.

A Presbyterian church is approaching completion at Ashington, near Newcastle. It will be seated for 300 persons, and at the rear are schools for 150 children. Mr. C. S. Errington, of Newcastle-on-Tyne, is the architect, and Mr. R. Walker, of Bedlington, the contractor.

A private oratory has been added to Ellingham Hall, near Chatham, the seat of Sir John Haggerston, Bart., and was dedicated on the 27th ult. It has been designed by Messrs. Dunn and Hansom, architects, Newcastle-on-Tyne, in the Perpendicular style, and projects from the east end of the old hall. The contractors were Messrs. Elliott, of Preston.

At St. David's Church, Ely, near Cardiff, a stained-glass window has just been unveiled. It is of three lights, the subject of the design being the Ascension. Messrs. James and Sweet-Escott, of St. Mary-street, Cardiff, were the architects.

A chapel of ease to be dedicated to St. Andrew is about to be built in Charles-street, Truro, from plans by Mr. Silvanus Trevail, of that city. It will be seated for 120 people, and there will be a parish-room below.

Mr. Arthur B. Potter has offered to the Rochdale Corporation a bust, with marble pedestal, of his father, Mr. T. B. Potter, who represented the borough in Parliament for thirty years. The General Purposes Committee have accepted the gift.

The Perpendicular window at the east end of the south aisle of Camborne parish church has been filled with stained glass, illustrating acts of Charity and Mercy. The architects were Messrs. Ward and Hughes, of London.

A third memorial window has been placed in the north aisle of St. Paul's Church, Peterborough. It is the gift of the family of the late Mr. Arthur Carney, and contains the figure of St. John, the Apostle and Evangelist, with appropriate symbols and inscription.



## OBITUARY.

WE have to announce the death of Mr. G. RHODES, M.S.A., of Bedford Park, W., which occurred recently after a long illness. Mr. Rhodes was one of the oldest members of the Society of Architects, having been elected in 1884, the year of its formation. The sudden death is also reported of Mr. T. C. LEWIS, M.S.A., of Bristol, who had been a member of the Society since 1893.

The death occurred at his residence, 2, Claremont Park, Gateshead, on Friday night, of Mr. WM. CAMPBELL TYRIE, builder and contractor, of Gateshead, at the early age of 45 years. Mr. Tyrie was the son of a soldier of an Irish regiment, and, after serving his apprenticeship as a joiner, he went to the North of England, and became foreman to Messrs. G. and R. Lamb, builders, Gateshead. There he remained for some years, and then began business in partnership with a Mr. Graham, who is now in Johannesburg. After the dissolution of this, Mr. Tyrie carried on business on his own account. He laid the water mains between Newburn and Whittle Dene, and also brought the water from Catcleugh, and carried out the entire transformation of the interior of the Theatre Royal, Grey-street, Newcastle. A feature of his business, which revolutionised the exterior of large business premises in Newcastle, was the putting in of large shop windows.

## CHIPS.

New out-fitting premises have just been erected at a cost of £2,000 in the High-street, Maidstone. Mr. Hewett, B.A., was the architect, and Messrs. Stevens and Barber were the builders.

The new schools, Mold, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

A block of twenty-two cottages will shortly be built by the improvement and buildings committee of the Manchester Corporation at Mules Platting at a cost of £4,872.

The parish church of North Creake, Norfolk, has been restored at a cost of £2,000. The most recent work has been a new floor of marble to the chancel, a carved oak chancel screen, panels on the chancel walls, clergy stalls, lamps, and a carved canopy to the font. The architects were Messrs. Hicks and Charlewood, of Newcastle.

The fine 15th-century church of Ranworth, facing the Norfolk Broad of that name, is being restored at a cost of £4,000 from plans by Mr. J. T. Micklethwaite, F.S.A. The work includes repairs to the unequalled rood-screen, which has been illustrated on our pages.

A large clock-tower, presented to the town of Wainfleet by Mrs. Walter Martin, was completed and the clock formally started on May 2. The clock has three large dials, and strikes the hours, and is fitted with all the latest improvements, and was the manufacture of Messrs. John Smith and Sons, Midland Clock Works, Derby.

In connection with the opening ceremonies of the New Free Church, Pudsey, near Leeds, a new illuminated turret-clock, showing the time upon two external dials, 5ft. each in diameter, and striking the hours upon a large bell, was formally set going. The work has been carried out by Messrs. W. Potts and Sons, clock manufacturers, of Guildford-street, Leeds, and Cloth Market, Newcastle-on-Tyne.

The partnership hitherto subsisting between F. Wheelodon and L. M. Tacon, architects and surveyors, of Birmingham, under the style of Wheelodon and Tacon, has been dissolved.

The new dry dock at Swansea, which cost £80,000, and is one of the largest docks in the Bristol Channel, being 450ft. long and 120ft. wide, was opened on Wednesday week.

The urban district council of Exmouth have raised the salary of their surveyor, Mr. Harding, from £160 to £200 per annum.

Colonel C. H. Luard, R.E., held a Local Government Board inquiry at Thetford, on Wednesday week, respecting the application of the town council for a loan of £2,500 for the improvement of the town hall. Mr. Green, architect, of Norwich, produced the plans, and explained that the work had been primarily undertaken in consequence of repeated settlements, bulges, and cracks in the walls, and he was therefore instructed to provide for reconstruction and enlargement.

Before a Select Committee of the House of Lords on Friday, the Metropolitan Water Companies Bill of the Government, enabling the companies to use their supplies to meet a case of emergency in another district, was considered and approved, subject to the insertion of sinking fund clauses.

## PROFESSIONAL AND TRADE SOCIETIES.

**BRISTOL SOCIETY OF ARCHITECTS.**—The annual general meeting was held at the Fine Arts Academy, Clifton, on Monday, the 8th inst., Mr. W. L. Bernard, president, in the chair. The annual report and balance sheet, which was presented and adopted, showed that the society was increasing both in numbers and influence, and that the financial condition of the society was satisfactory. The students' prizes were then distributed, after which a paper on "Speculative Builders and their Little Ways" was delivered by Mr. Frank Wills.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—The annual meeting of this Association was held on the 3rd inst., in the Royal Institution—Mr. Thomas Ross, president, in the chair. The statement of accounts showed that the Association commenced the year with a balance in hand of £124 9s. 10d., and ended with a balance of £109 0s. 6d. The membership was 267. Mr. James Bruce, W.S., was elected president for the year; Mr. John Watson and Mr. H. F. Kerr, vice-presidents; Mr. T. Fairbairn, secretary; and Mr. John Johnson, treasurer. Mr. Ross, the retiring president, made a few remarks regarding the desirability of union between the Architectural Association and the Junior Architectural Society. He said that so far as they existed for the public good their influence would be much greater after such a union than now, as only on one point was there any difference between the two—viz., that the Association consists of architects and laymen, while the Society is composed of architectural assistants and others connected with the profession. It was surely possible to come to an agreement, and as the junior society had recently approached them with this object in view, he felt very hopeful that the practical outcome would be beneficial in many ways. So far as the public had any interest in architectural societies, it was desirable that the profession should speak with one voice.

**THE GLASGOW ARCHITECTURAL ASSOCIATION.**—On May 2 the president, Mr. George S. Hill, A.R.I.B.A., in the chair, Mr. Thomas Ramsay read a paper on "Some Points in the Erection of a Modern Office Block." The author said a building of this class was erected in the first place with the specific purpose of making money for its owners, with occasionally the further purpose of serving as an advertisement. The requirements necessary to allow of its doing so the author considered to be good situation or site, ease of access, good light, maximum of rental area, ease of rearrangement to suit tenants, and the minimum of cost consistent with true economy. The author enlarged on these several requirements, pointing out, among other things, the necessity for the introduction of a certain amount of fire-resisting, if not fireproof, material in the construction, and the absolute necessity of good light, this latter requirement, in his opinion, considerably affecting the money-earning capacity of the block.

**GLASGOW MASTER WRIGHTS' ASSOCIATION.**—The annual meeting of this association was held on Friday, Mr. James Ferguson, president, in the chair. The secretary, Mr. James L. Selkirk, read the annual report, from which it appeared that the membership had risen from 111 to 131, besides 15 honorary members. The financial statement showed the income to have been £85 13s. 6d., and the balance in bank and on hand £41 17s. 6d. The reports were adopted. The following gentlemen were elected office-bearers for the ensuing year, namely:—President, Alexander McWilliam, of Messrs. James Kyles and Co., Partick; vice-presidents, Mr. Thomas Stewart, Shields-road, and Mr. John Smeaton; and Mr. James L. Selkirk, C.A., secretary and treasurer, 64, West Regent-street.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—The annual meeting of this society was held on Monday, Mr. W. E. Willink, C.C., occupying the chair. The report read by Prof. F. M. Simpson showed that the number of members was 136, as compared with 131 last year, the number of fellows being 59, associates 37, students 19, and honorary members 21. The balance-sheet presented by Mr. James Dod (treasurer) showed that there was a balance to the good of £138 7s. 8½d., as against a balance last year of £67 10s. 4½d. The election of officers for the ensuing year resulted as follows:—President, Mr. E. A. Ould; vice-presidents, Messrs. Wm. Owen and J. Woolfall; hon. secretaries, Professor F. M.

Simpson and Mr. Arnold Thornely; hon. treasurer, Mr. James Dod; hon. librarian, Mr. J. W. Blakey; and council—fellows, Messrs. J. W. Blakey, T. E. Eccles, A. P. Fry, Henry Hartley, F. C. Thicknesse, W. E. Willink, C.C., and J. Woolfall; associates, Messrs. F. E. P. Edwards and E. P. Hinde. The committee having been appointed, Mr. Willink, as the retiring president, delivered his closing address, in which he congratulated the members on the marked success which had attended the past year's work of the society.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—The annual meeting of this society was held at the School of Art the other night, Mr. R. W. Fowler occupying the chair. The treasurer's statement of accounts, which showed a balance in hand of £124, was adopted. The twelfth annual report of the council was read by the hon. secretary, Mr. W. S. Fenton, and adopted. It stated that numerically there has not been much change in the membership, as having reached the high water-mark of last year (114) it could not reasonably be expected that the number of members would materially increase. During the year there had been one death, two withdrawals, and three lapses of membership, or a total loss of six members; but this had been compensated by the election of three lay members; one fellow, one associate, and three students, or a net gain of two members, making the total membership 116, which is the highest in the history of the society. The lectures of the session had been up to the high standard usually seen in the society's programmes. The council had their attention called to the case of an architect's client who had declined to comply with the usual custom of paying half (2½ per cent.) the usual commission on the signing of the contract, and the remainder on instalments, in accordance with the R.I.B.A. scale of charges. The council called the client's attention to the matter, and the R.I.B.A. scale of charges were sent to him, with the result that the commission was paid in due course. The council also sent out copies of the R.I.B.A. scale of charges to the practising members of the society, and to the school board, solicitors, and accountants, and hope this course will have the effect of improving the status and position of the architects and surveyors of the city. The council have devoted a considerable amount of time to the discussion of proposed conditions of contract proposed for adoption by the Master Builders' Association. On May 18, 1898, Messrs. J. Biggin, G. Webster, H. Brumby, and J. Spink, on behalf of the association, met the council and discussed the various points at issue, but no satisfactory issue had been arrived at. The amended conditions were still more objectionable and one-sided, and contained a clause requiring arbitration on every point that might arise during the course of the contract, and which would, in the council's opinion, prove most detrimental to both the architect's and client's interests, and would not, either, benefit the contractor in most cases. With regard to the Workmen's Compensation Act, the President now informed the society that in the course of his practice he had occasion to consult his solicitors with regard to a client's liability under the Act if the contractor became bankrupt or was otherwise unable to pay compensation under the Act. His solicitors advised him that corporate bodies, being employers of labour, would still be liable; but private employers or clients would be exempt. The following gentlemen were then elected officers and council for the year 1899-1900:—President, J. Smith, F.R.I.B.A.; vice-president, A. Smith Denton; hon. treasurer, Fred Fowles, F.S.I.; hon. secretary, W. C. Fenton; council, the above and Messrs. E. M. Gibbs, F.R.I.B.A., C. Hadfield, F.R.I.B.A., C. J. Innocent, F.R.I.B.A., F.S.I., T. Winder, A.M.I.C.E., J. B. Mitchell Withers, A.R.I.B.A., and J. R. Wigfull, A.R.I.B.A.

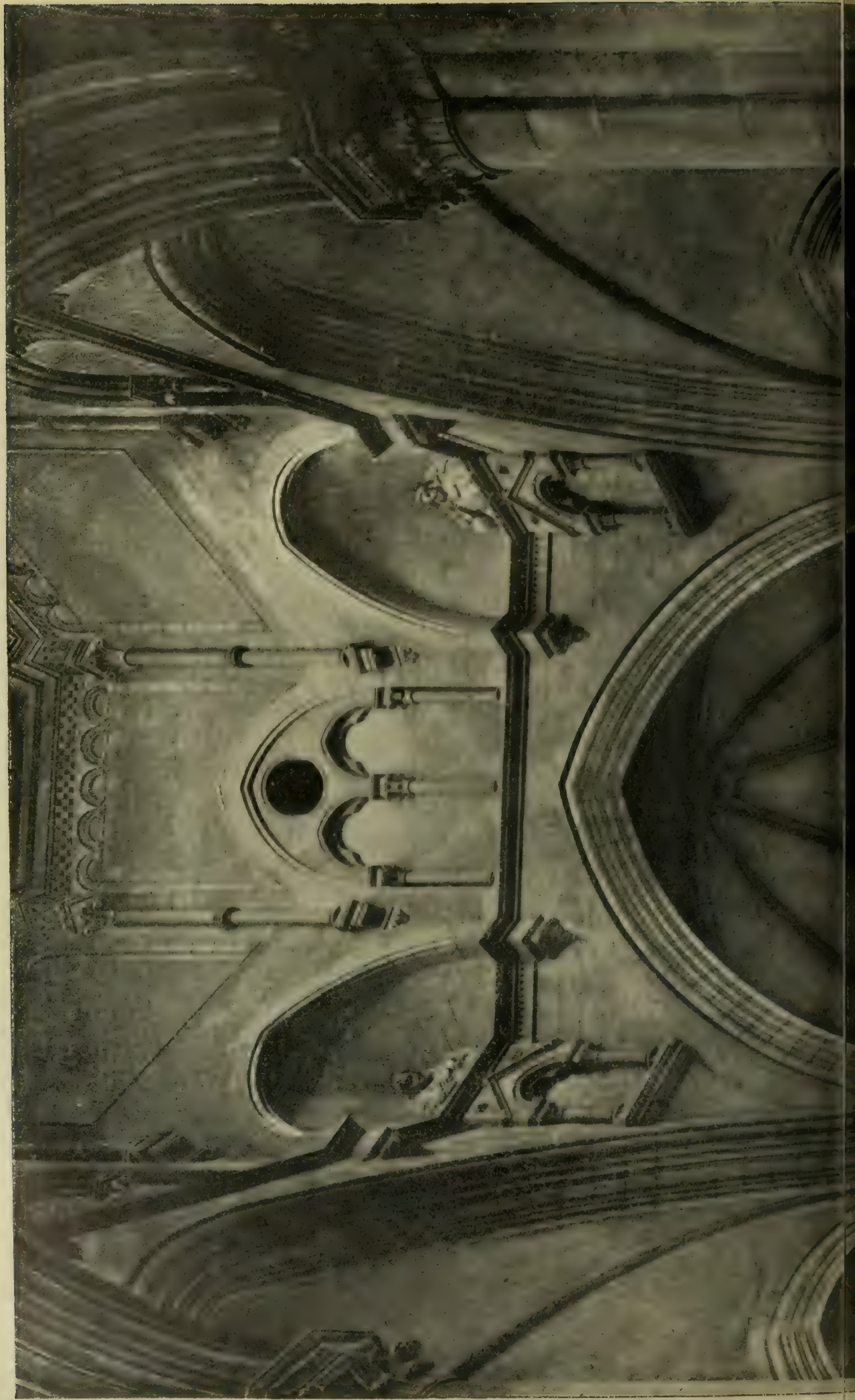
The erection of a new theatre at the corner of Saltley-road and Nechells-place, Birmingham, is about to be commenced. The designs have been prepared by Mr. T. Guest, of Corporation-street, Birmingham. The building will cost upwards of £10,000, and is to seat 2,000 persons.

The returns of £217,815 represent the excellent general business which characterised last week's proceedings at the Estate Mart. Nothing more important than a good supply of freehold ground-rents was on offer, but those and small residential holdings sold remarkably well throughout the week.







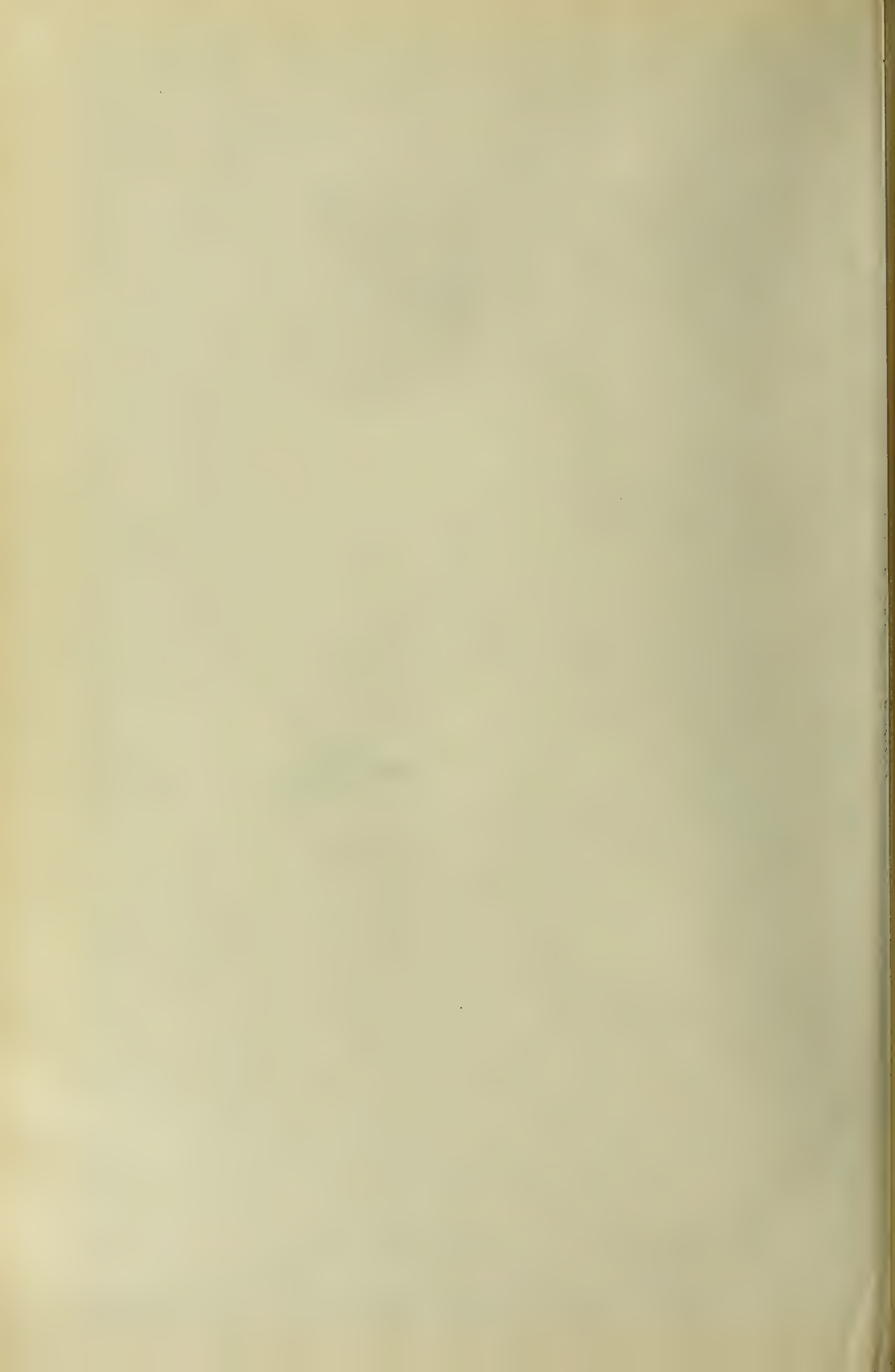




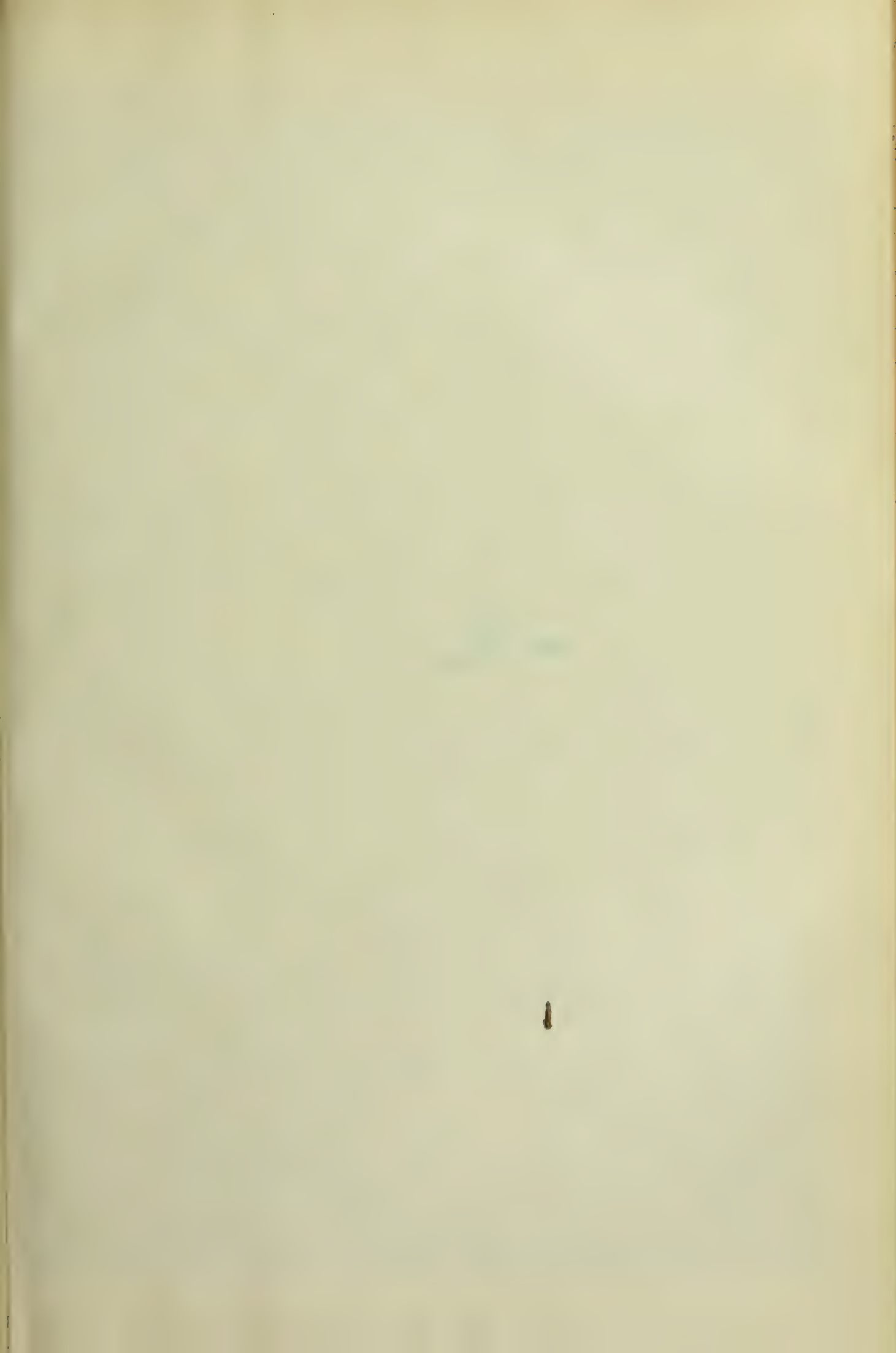


INTERIOR OF THE CHURCH OF ST. LUKE, MUNICH  
PROFESSOR ALBERT SCHMIDT, ARCHITECT.











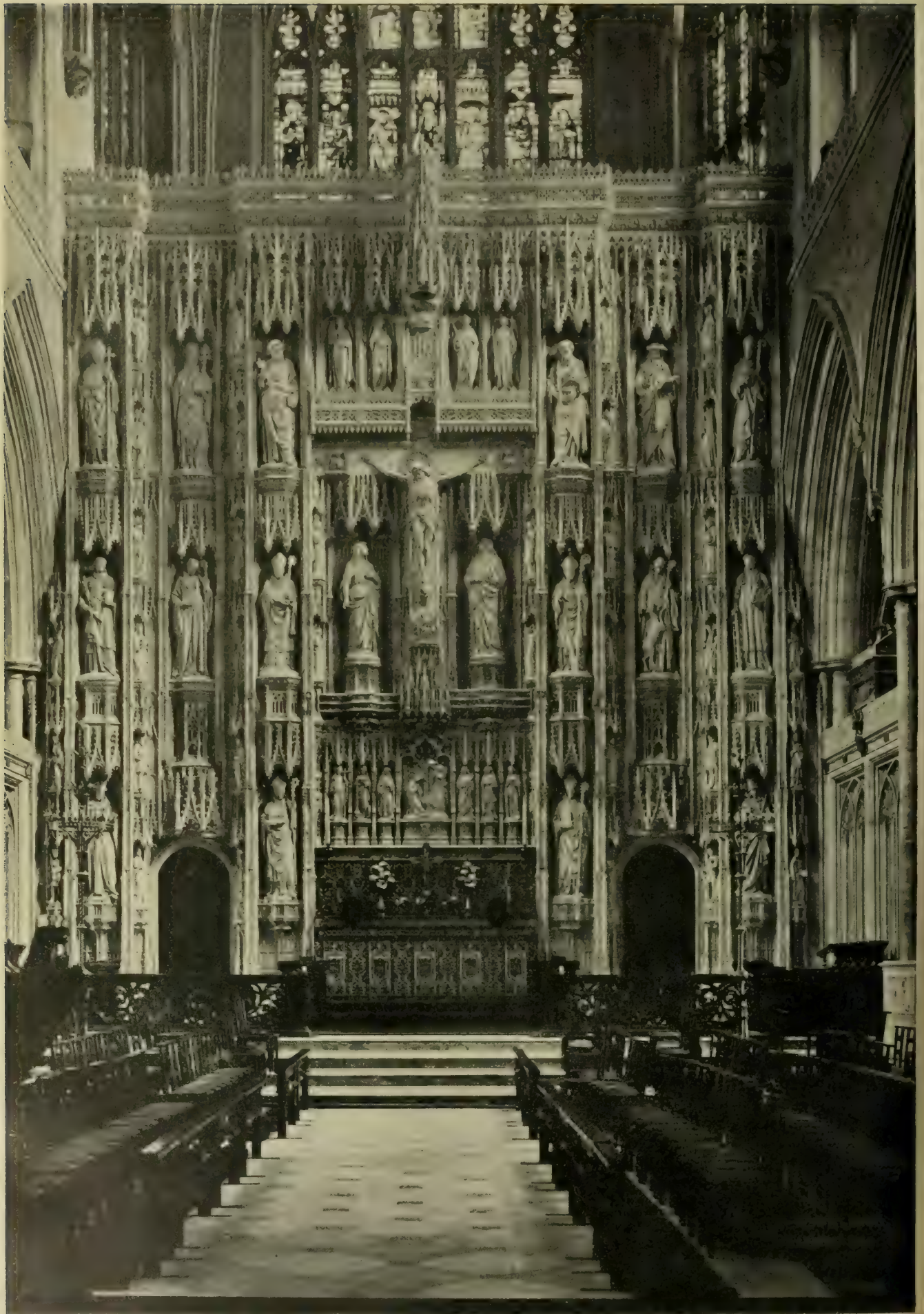


PHOTO PROCESS BLOCK BY A MARSHALL & CO. SYDENHAM

HIGH ALTAR AND SCREEN, WINCHESTER CATHEDRAL.  
G. F. BODLEY, A.R.A., ARCHITECT.





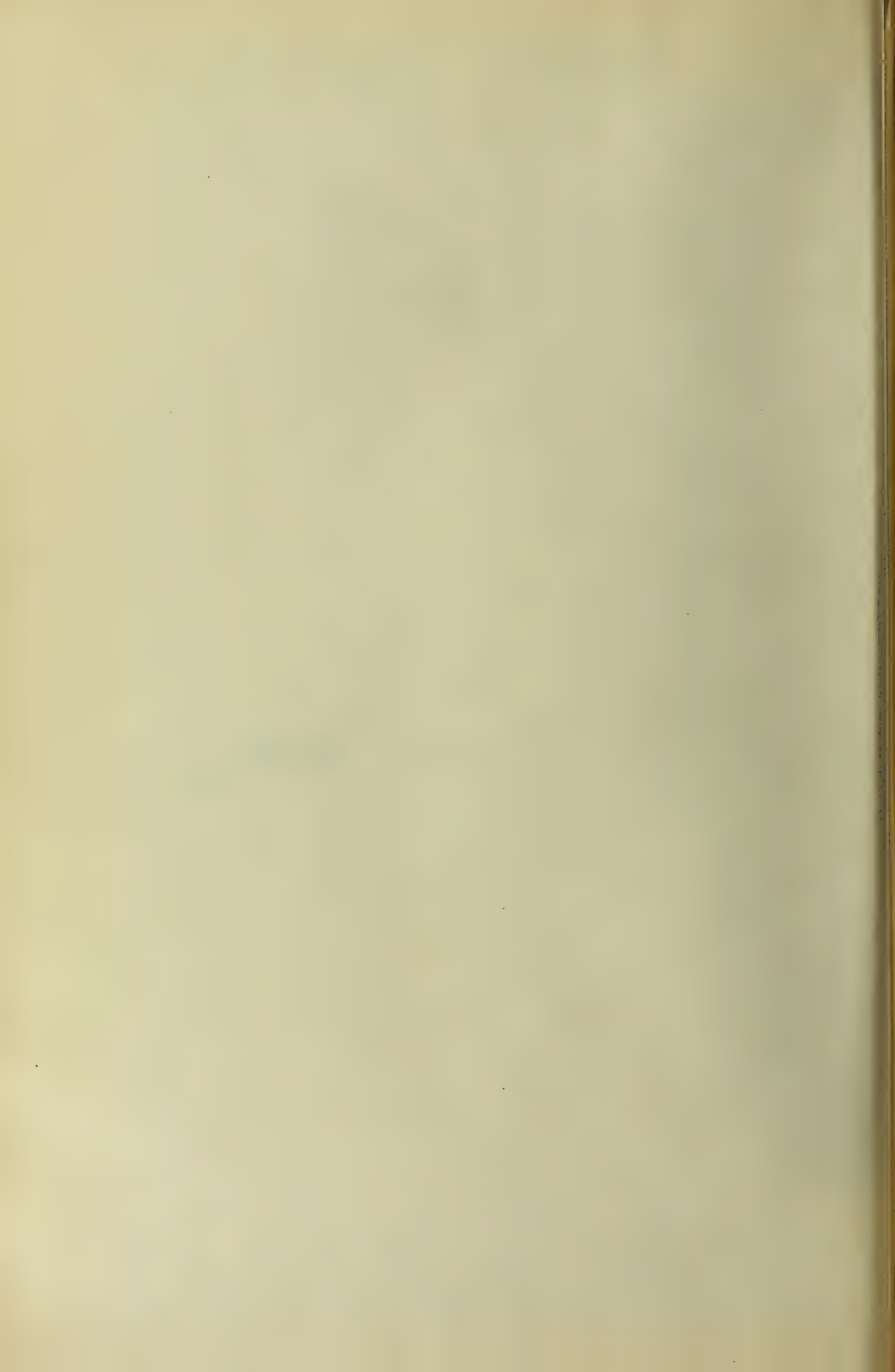














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THE IMPERIAL THEATRE  
OWEN AND WART



, MAY 12, 1899.



STREET, BORDESLEY.  
BIRMINGHAM.







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INTERIOR OF THE CHURCH OF ST. LUKE, MUNICH.—THE  
IMPERIAL THEATRE, BORDSELEY.—HIGH ALTAR AND  
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## Our Illustrations.

## ST. LUKE'S CHURCH, MUNICH.

THIS is the third Protestant Church at Munich, and Regius Professor Albert Schmidt was the architect. It was three years in course of erection. We take the following from the architect's description. The Mariannenplatz site on which it was built was given by the City Fathers to the Protestant community. The building is inclosed on three sides by thoroughfares, which originally were covered with buildings. On the fourth side, eastward, it lies between the lines of the Ludwig and Maximilian bridges, spanning the river Isar, over against the pleasure grounds on the Gasteig heights. Thus it will be seen that this is not only one of the most central positions, but a highly picturesque site as well. In clear weather, the mountain range in the distance forms a grand setting for the dome of the church. Munich has lately seen other important places of worship added to its buildings, such as the new Synagogue and new Catholic churches. The site runs in a direction east to west, between the Steinsdorf and Thiersch strassen, or streets, and in consequence of these defined restrictions it became necessary to obtain the requisite area towards the south and north. Thus the "central" church is adapted to the exigencies of the site. Entering through the main portal, in the Steinsdorf-strasse, an open porch is divided off by an arcade with openings leading on either side to the towers, with their circular staircases, and proceeding through a vaulted vestibule, embellished with figures, we pass into the body of the church passing under the arched organ-loft. The crowning feature of the interior is formed by the square lantern 14 mètres wide, and which, at a clear height of 42 mètres, is surmounted by a ribbed octagonal vault. This octagonal cupola is supported by arched pendentives, the ribs being carried by wall-shafts resting on corbels. On each side of the body of the church is a vaulted transept with square ends, lighted by rose windows of radiating design. The nave of the building extends from east to west, towards the principal entrance. The nave proper follows the width of the central area, and is of the same span as the chancel, and both terminate in octagonal apses. The aisles flank two sides of the octagon, and join the transepts. The building is essentially Gothic in its form of construction, the central nave and aisles being solidly roofed with ribs and vaults, and these groinings are borne by a girdle of pointed arches. The pendentives, which emphasise the transition of the dome from the lantern below, are decorated with busts of the four Evangelists, larger than life size. Over the aisles there is additionally an intermediate ceiling the beams of which are exposed. These timbers carry the galleries, rising in tiers, after the fashion of an amphitheatre. These in the transepts follow the octagon of the

ground plan. The nave and the aisles are borne by circular columns of Abbach sandstone. Between these in front of the galleries occur segmental arches. The architect points out that the diameters of these arches correspond in length with the circumference of one of the clusters of the quadrangle pillars. The chancel, or apse, is raised, and is reached by a flight of eight steps, situate between the responds of the central area. On this same level stand, adjoining left and right, are aisles which are shut off from the transepts by low stone screens. The apse takes the form of a raised presbytery, which is agreeably in the shade, receiving its light from above, an arrangement that very notably heightens the charm of the structure, and brings out the prominence of the altar. The sacristy, the rooms for meetings, and other conveniences are to the rear externally. To the right of the altar is located the baptismal font, while on the right-hand are the steps leading up to the pulpit, which joins on to the left-hand pillar of the crossing. The altar, pulpit, and baptismal font are built of coloured polished marble, brass being used for the figure decoration. These are all noteworthy of the sculptor's art. The windows of the presbytery, and of the adjoining aisles, are fitted with stained-glass pictures on a level with a gallery story, giving a rich scheme of colour. The centre-piece of the altar is adorned with a painting by Goldberg, representing the Descent from the Cross. The small rose window over the organ at the entrance end is likewise fitted with stained glass, while the large circular ones in the transepts are also intended to be similarly treated. The organ has a gallery of its own, with the balcony for the choir, and it stands over the entrance arcade filling the adjacent triangular spaces. Besides the main portal, there are two entrances, with vaulted porches projecting towards the interior, screened between the smaller columns in the transepts. The sacristy and the meeting-room, which have separate entrances, with external independent flights of steps, are covered with cruciform vaults, and are built round the apse of the presbytery on the same level with it as a one-story portion of the building, which allows of lighting the sacristy with windows over. Between transepts and the aisles are two turrets, with winding staircases, leading to the galleries. The large belfry and staircase towers are placed obliquely and at a radius from the body of the building, so as to leave both below and at the level of the galleries a lobby in each case between gallery and nave. The altar-piece, the pews and choir seats, as well as the organ are of oak. The photographs sent us by Professor Schmidt show how carefully the various parts have been worked out and considered. The lantern, which is crowned by a light-giving dome, is 42ft. square, and 126ft. high in the clear, and gives an individuality to the building. Acoustically, we are assured that the effect is exceedingly good, as every word spoken in the pulpit is heard with ease. Considering the lofty dome, this result is gratifying, and affords evidence that a domed auditorium may be satisfactorily employed. The new Synagogue, also designed by Prof. Schmidt, may perhaps be cited by him as a case in point, supporting his contention in this respect. The exterior of the church has high-pitched and simple span roofs, and the dome above passes with broadness from a quadrangle into an octagon. East and west, the nave proper articulates the body of the church, which is carried to a greater height, clear of the main roofs. The lower drum of the dome is composed of two vertically-divided encircling walls; one having large quatrefoil windows, which are set behind an external series of arcades having trefoil heads resting on columns. Between these two walls a sort of triforium passage-way is contrived. The treatment of the transept façades can be seen in the exterior view. Pointed arches over the windows recall the architecture of North Italy, and these openings for the most part have wall-shafts. The interior is partly enhanced by a triforium, through which runs a corridor. On the south-westerly side of the octagonal dome a pierced and visible winding staircase leads up to the lantern of the dome. The belfry towers stand out free diagonally at the level of the upper stories, and are composed of four stories; they, too, are pierced and left open without windows, whereby they are distinguished by deep shadows in effective contrast from the glazed parts of the structure marking their uses, and at the same time contributing very greatly to the picturesque effectiveness of the pile as a whole. The

cupolas and lanterns of the towers springing from the west turrets are, like the dome and lantern, all overlaid with copper. All other roof surfaces are slated. The main entrance façade is adorned with life-size figures of the apostles Peter and Paul. In the external architecture a yellow grey Bodenhöhr sandstone has been used for the masonry dressings, while the flat walling is of a greyish-red brick, adopted in other buildings by the same architect. The quiet tones of the building present a contrast with light and bright colouring of the surrounding buildings. The style of the church is described as belonging to the Transition, to which period we are indebted for a number of most valuable works of art, such as the churches of the Holy Apostles and Great St. Martin at Cologne, the Naumburg Cathedral, the church of the Holy Virgin at Arnstadt, &c., and this style is eminently adapted to fulfil the conditions, so far as area was concerned, of the church of St. Luke, without involving the necessity of violating the monumental character of Mediaeval art. Taking this view, the architect regarded it as the cardinal point of his task to supply a modern church well-reconciled with the rules and methods of the masters of the Middle Ages. By the width of 42ft. for the span, and, above all, by the fact that the dome rests upon four free pillars, an experiment has been realised of a highly technical character. At the corner of the Mariannenplatz, and the Thiersch-strasse, a parsonage for the clergy has been built in a style similar to that of the church. We shall give a plan of this church, with some sections, showing the construction referred to, at an early date. The cost of the building is not stated, but we are indebted to the architect for the loan of these photographs and drawings, as well as the particulars for this description.

IMPERIAL THEATRE, BORDSELEY, BIRMINGHAM.

(For description and sketch plans, see p. 634.)

HIGH ALTAR AND SCREEN, WINCHESTER CATHEDRAL.

WE publish to-day, from a photograph just taken by Messrs. S. B. Bolas and Co., of Oxford-street, an illustration of the high altar and screen of Winchester Cathedral, as restored under the supervision of Mr. G. F. Bodley, A.R.A. The screen or stone reredos is the latest and finest of four 15th-century structures of this class, the others being at St. Alban's Cathedral, the Collegiate and now Cathedral Church of St. Saviour, Southwark, and New College Chapel, Oxford. In our issue of April 24, 1891, we gave a view, also from a photograph, of this superb Winchester example, when the first portion of the restoration had been completed by the erection of the large figures by Mr. R. Boulton, and a comparison of the two illustrations taken from nearly the same standpoint at eight years' interval, will be found interesting. Other illustrations of Winchester Cathedral published in the BUILDING NEWS are a plan of the precincts by the late Rev. Mackenzie E. C. Walcott, which appeared in our number for Dec. 26, 1879, interior of north transept—a drawing by G. H. Thompson, on Oct. 24, 1884, and some views of the interior of nave roof before and since reparation, given on Feb. 17 of the present year.

KINGSTON UPON HULL CENTRAL LIBRARY.

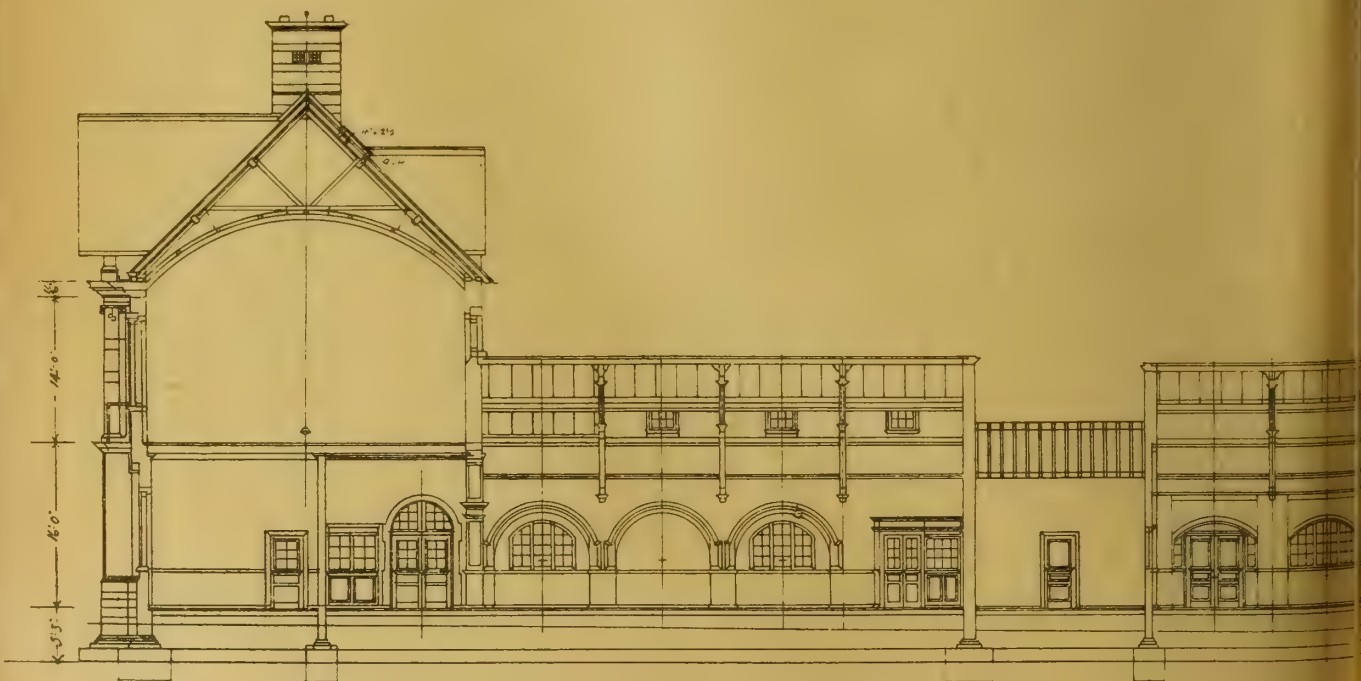
THIS building is about to be erected on a site having frontages to Albion and Baker streets. The principal entrance is placed in the centre of the Albion-street front, and from the hall direct access is obtained to the lending library, magazine, librarian's, and ladies' rooms, while stairs 6ft. wide lead up to the first floor, on which are placed the reference library and book store. On the ground floor, the news-room is accessible from the Baker-street entrance; while the various other rooms required for the working of the library have been placed in the most suitable positions. The building will be faced externally with Leicestershire red bricks and Ancaster stone dressings, the only part having any decorative sculpture being the Albion-street entrance shown in the large scale view, and it is hoped that the sculpture will be of good quality. Internally the building will be plainly finished; but as far as possible with materials requiring little renewal, tile dadoes and painted walls being largely adopted. The main staircase hall is to be treated with a barrel-vaulted roof, which may be decorated by paintings at some future time. The architect is Mr. J. G. Gibson, of Gray's Inn-square, W.C. We give copies of the plans and elevations as well as a view of the central gable.





Elevation to Albion Street

Elevation to Church Institute



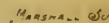
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## Building Intelligence.

**ANCOATS, MANCHESTER.**—The Home and Shelter for Women which has been erected in Great Ancoats-street, Manchester, was opened on Friday. It is four stories high, and is divided into departments for casuals, a servants' home, and temporary home. There is also a coffee tavern. There are dayrooms, kitchen laundry, and sixty-three cubicles. Each department will have its own bathroom and lavatory, &c. The buildings are lighted by electricity. In connection with the same mission the foundation-stone of a men's home was laid in November last in Hood-street, Ancoats. The cost of the two institutions is £15,000. The style of the women's home is Elizabethan. The work has been carried out, from the designs of Mr. W. Sharp, architect, of Manchester, by Messrs. Young, Tinker, and Young, of Cheetham.

**BRISTOL.**—The Bishop of the Diocese opened the other afternoon the pupil teachers' centre, erected by the Bristol School Board on the Broad Weir. The building, which, apart from the site, has been erected at a cost of £4,400 from the designs of the architects, Messrs. La Trobe and Weston, is in the Renaissance style, and is carried out in terracotta and red bricks. On the lower ground floor is a science demonstrator's room, 44ft. long. There is a large assembly and examination hall on the Castle Green level, 56ft. by 30ft. Its seating capacity is for 300 persons, and its lighting is by semi-circular windows. There are six large classrooms, each 25ft. square in addition to masters' and mistresses' rooms, cloak-rooms and lavatories for students, besides separate rooms for science and for art students, and a residence for caretaker, also a students' dining-room. The general contractors have been Messrs. Hughes and Weeks, of St. Philip's.

**BULUWAYO.**—The new premises in Main-street for the Mashonaland Agency are near completion. The northern portion of the building is occupied by the telegraph offices, high court, &c. Mr. W. Doulin is the architect, and Mr. W. Rance the contractor; Messrs. Hayward Bros. and Eckstein's pavement lights are used. The frontage to Main-street is 206ft. 3in., and the return frontage to Sixth-avenue is 100ft. The top of the parapet is 40ft. high; the central tower is 60ft. high. The block contains fifty-two offices, also telegraph office, instrument-room, High Court, library, advocates' robing-room, sitting-room, two bedrooms, and bathroom. The chief façade is built of red sandstone with white freestone dressings. The style is Italian Renaissance.

**DRURY LANE THEATRE.**—Extensive additions to Drury Lane Theatre have been commenced. The new buildings, the plans of which have been prepared by Messrs. Pilditch, Chadwick, and Co., 2, Pall Mall East, will be erected upon vacant ground between Catherine-street, Russell-street, and Drury-lane, immediately adjoining the existing premises. Upon this space, which has a length of 132ft. and a depth of 100ft., will be erected in red brick and stone a carpenter's shop, a wardrobe store, a ballet room, and a paint room. Two new exits will also be provided from the theatre. The new buildings will be connected with the old premises by a long covered way. The front elevation to Drury-lane will consist of three shops, with two floors of flats above them. The work will cost about £15,000.

**EDINBURGH.**—At the Dean of Guild Court on Friday a warrant was given to Mr. John White for the erection of new buildings on the east side of North Bridge-street. They will extend from the south abutment of the North Bridge to the Commercial Bank buildings at the corner of the High-street. From Jeffrey-street there will be nine stories, and there will be six stories above North Bridge-street. The street floor on the North Bridge level will be devoted to shops. A bon marché, entering from North Bridge-street, will occupy the whole of the centre block on the five floors above the bridge level, and also the second floor below the bridge, and the floor on the level of Jeffrey-street except a small portion at the north-east corner. The remainder of the upper floors will be devoted to a hotel and two restaurants. Messrs. George Beattie and Son, of Edinburgh, are the architects. The buildings will cost about £170,000.

**FARNWORTH.**—A new theatre is in course of erection in Peel-street. The front is treated in Classical style. The pit floor has a quick slope.

In the front, and with seats upholstered in red plush, are stalls seating 100, and immediately behind is the pit, with seatings for 840. The dress-circle chairs give accommodation for fifty-seven in three rows; while the circle has room for 240. Behind this is the first promenade. At a slightly higher level is the gallery, with seats for 300, and an upper promenade. Altogether there are seats for 1,621 persons; but with standing room 2,000 people can be accommodated. Refreshment-rooms are provided for the various parts of the house, and a lounge and smoking-room for gentlemen, as well as ten dressing-rooms. The lighting of the theatre throughout is to be by electricity, but a full gas-lighting arrangement is also put in. Heating is on the low-pressure hot-water system, the heating chamber being in the basement. Messrs. Bradshaw and Gass, F.R.I.B.A., of Bolton, are the architects, and Messrs. J. B. and J. Entwisle, of Kersley, the contractors.

**IPSWICH.**—The new workhouse on the Wood-bridge-road was opened on Wednesday by Mr. T. W. Russell, M.P. It has been erected from plans selected in competition and prepared by Messrs. Salter and Adams, 28, Woburn-place, London, in conjunction with Mr. W. Lister Newcombe. Messrs. Geo. Grimwood and Sons, Sudbury and Ipswich, took the contract at £25,773; Mr. Harry Cockrell was the clerk of works. The plans and specification for the electric lighting were prepared by Mr. E. R. Dolby, 8, Princes-street, Westminster, and the work has been carried out by Messrs. Crompton and Co., Chelmsford. The buildings are constructed with local red bricks, with Welsh slate roofs. The main buildings are recessed 200ft. from the road; they consist of a central administrative block and two pavilions, the longer one for male, the shorter for female inmates. The central block contains, in front, a committee-room, a master's office, a messenger's room, and the master's apartments; behind, a dining-hall, with an open-timbered roof of pitch-pine, and a gallery at one end; behind this is a kitchen and two sculleries. On each side of the dining-hall, kitchen, &c., is a corridor; on the other side of these corridors are, in one case, the master's storerooms, and on the other the matron's storerooms and the cook's room.

**LEEDS.**—On Saturday the public baths for Meanwood district were formally opened. The baths stand on a part of the old athletic ground, and have cost, inclusive of the land, about £13,000. The area covered is 3,748sq. yds. The baths have been built on the lines of those at Hunslet, but the boiler-house is on the street level. There are the same number of first and second class and swimming-baths as at the other establishments, and also soap and shower baths. There are in all twenty slipper-baths, five first-class for ladies, five first-class for gentlemen, and ten second-class for gentlemen. The architects are Messrs. Hanstock and Son, of Batley; the contractors are Mr. J. T. Wright, mason and bricklayer; Messrs. Braithwaite and Co., engineers; Messrs. Mason and Son, carpenters and joiners.

**MANCHESTER.**—The Hotel Midland Grand, which the Midland Railway Company is now erecting in Manchester, will cover an area of about two acres. About three years will be required to complete the undertaking, and the probable cost is a million sterling. The style will be largely Gothic, and the stone to be used on the ground floor elevations is red and grey Aberdeen granite, with a dressing of Shap granite. The upper portion of the building will be of brick and faience. The sky-line will be broken by a series of conical towers, including one at each angle of the building. One of the features of the hotel will be a concert-hall, while the plans also show large public rooms, a winter garden, a rotunda, a roof garden, a French restaurant, business and stock rooms, Royal and private suites, and 400 bedrooms. The building is to be carried out in four sections, and the first contract has been let, at about £80,000, to Messrs. William Brown and Son, of Salford, the portion of the building now in hand being situated at the corner of Lower Mosley-street and Windmill-street. The hotel will reach a height of seven stories, including the basement. It is being erected from the designs of Mr. Charles Trubshaw, of Darby, the architect to the Midland Railway Company.

**ROATH PARK, CARDIFF.**—A new Presbyterian church is being built at the junction of Penylan-road and Marlborough-road, and facing the entrance to Roath Park. The church will con-

sist of nave, with transepts and chancel, with porches and a commodious vestibule. The internal length is 125ft., the width of nave 47ft., and across transepts 62ft. There will be an open-timber roof, in pitch-pine, the height being 42ft. The seating and all other woodworks will be in pitch-pine. The chief external feature will be the tower and spire, 150ft. high. The church is designed in the Decorated style, and is being built of Newbridge polished stone, with Bath stone dressings. The church will accommodate between 800 and 900, 700 in nave and transepts, and about 140 in a small western gallery. The architects are Messrs. Habershon, Fawcner, and Groves, Newport and Cardiff, and the contractor is Mr. James Allen, Cardiff. The cost, including organ and furnishing, will be between £9,000 and £10,000.

**YORK.**—New central premises for the Equitable Industrial Society in Railway-street and Tanner-row were formally opened on Wednesday week. The building occupies an area of 150ft. by 84ft., and is divided into eight departments. The style adopted has been a modified type of Renaissance, the architects being Messrs. Athron and Beck, of Doncaster, and the contractors Messrs. Arnold and Son, of the same town. The main entrances are of polished granite, with wrought-iron grills and collapsible gates, the floors and walls being laid with encaustic tiles. The principal fronts, which are provided with plate-glass, are faced with red pressed bricks, with red sandstone dressings, and the roofs are covered with seronds Welsh slating, with red Ruabon ridges. The cost will be about £20,000.

### COMPETITIONS.

**COTHERSTONE.**—The Startforth Rural District Council has accepted the competitive scheme of Mr. J. C. Parker, C.E., of Newcastle-on-Tyne, for the sewerage and sewage disposal of Cotherstone-in-Teesdale. The engineer recommends that the sewage be treated on bacteriological principles.

**CARNARVON COTTAGE HOSPITAL.**—Out of a large number of competitors the plans of Mr. Rowland L. Jones, architect, Carnarvon, have been selected for the new cottage hospital, and the erection of the building, on a site presented by the Lord-Lieutenant (Mr. J. E. Greaves), is to be proceeded with at once.

**GOSPORT.**—The limited competition for the Public Library and Technical Institute at Gosport has been settled. Messrs. Spalding and Cross are awarded the first premium of £100. The second place is given to Messrs. Colson, Farrow, and Nisbet, of Winchester, and the third position to Messrs. Best and Callon, of Westminster. £5,000 is the limit insisted on by the conditions. Mr. Statham was the referee appointed by the council of the R.I.B.A.

### CHIPS.

The work undertaken on the Chapter-house of Canterbury Cathedral is now complete, and the decoration of its walls is in progress by Mr. Arthur O. Hemming, under Sir Arthur Blomfield's direction. It is now proposed to replace its present zinc roof with one of lead, which was the covering originally used. The surface of part of the northern exterior of the choir has been repaired and repointed.

The plans of Mr. Munro, of Bristol, have been approved for the Chessells Mission Buildings at Bedminster, providing temporary church accommodation for 700, and utilising the space for Sunday-school work with six separate classrooms.

A 14th-century statuette of the Virgin and Child has been discovered at Llantwit Major Church. Mr. G. E. Halliday, of Cardiff, the architect who has in hand the work of reparation of the western portion of the church, brought it to light. It was found in a stairway formerly leading to a parvise over the porch, which had been built up for some hundreds of years.

The annual meeting of the National Master Plumbers' Association was held at the Victoria Hotel, Wolverhampton, on the 3rd inst. Mr. J. Baile, of Hull, presided. The Mayor having given the delegates a cordial welcome to the town, Dr. Malet and Inspector Peers delivered addresses, and advocated that apprentices to the trade should be educated in up-to-date sanitary science. The Chairman, in an address, spoke of the gross injustice to traders of the growing system of municipal trading. Mr. J. Skirrow, of Leeds, was elected president for the ensuing year, and the next meeting was fixed to be held in that city.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 532, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLVI., XLIX., LI., LIV., LV., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, AND SIXPENCE FOR EVERY EIGHT WORDS AFTER. All Situation Advertisements must be prepaid.

RECEIVED.—H. G.—J. M. and Son.—W. B. R.—F. S.—A. W. K. Co.—C. B.—G. L.—R. T. S.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"McGilligan," "First Attempt," "Tokio," "Bedouin," "Astragal," "B. Gyn. R.," "Vigornia," "Tox," "Thistle," "Dacha," "Niche," "Tie Beam," "Desdichado," "Red Rose."

## Correspondence.

## RESTORATION WESTMINSTER ABBEY WEST FRONT.

To the Editor of the BUILDING NEWS.

SIR,—May I be allowed to refer to the letter signed "Antiquarian Architect," in your issue of the 21st ult., and to say that the whole point of the letter vanishes when it is known that the work referred to is not done under the direction of Mr. Micklethwaite?—I am, &c.,

THACKERAY TURNER, Secretary.  
Society for the Protection of Ancient Buildings,  
10, Buckingham-street,  
Adelphi, W.C., May 5.

SIR,—If I feel strongly about this matter upon which I ventured to address you a few weeks ago, can assure your readers, and Mr. Micklethwaite so, that I have no desire to do him any injustice. Our correspondent "F. C." in last Friday's BUILDING NEWS, says Mr. Micklethwaite has nothing to do in any shape or form with the work of restoring the West Front now seemingly in progress. If this be so—and I accept the assurance—surely it may be asked what Mr. Micklethwaite, as architect to the Dean and Chapter, may be about, to allow work so contrary to the methods he has often professed to go on? The scaffolding is still there. If he, the surveyor to the fabric, is content to occupy that position of trust, while so-called falsifications

of its historic character are deliberately made under his very nose, and in the eyes of all men, then the beholders, and architects too, naturally conclude the work has his sanction. The late Mr. Pearson had enough to bear during his lifetime from his unsparring critics; and, as I had a letter from him a short time before his death on this same subject, I speak with knowledge when I say he had enough to endure without being held responsible for things done after he has gone. I cannot believe that Mr. Micklethwaite would in silence allow anyone to attempt a parting kick at Mr. Pearson's reputation, as I fancy "F. C." has endeavoured to do. Westminster Abbey is even more important, historically, than Peterborough Cathedral. Look at both, and see where vulgar "forgeries," so called, cry out the most with all their noisy newness.—I am, &c.,  
AN ANTIQUARIAN ARCHITECT.

## CHURCH OF THE SACRED HEART, MONTMARTRE.

SIR,—The name *Amédée* as architect of the above was given in my recent article as a quotation, within inverted commas, from notes—also my own—appearing in the BUILDING NEWS for the 18th of October, 1878.

No architect's name occurs upon the lithographs, representing the building as it will be when completed, sold by outside touts and in the crowd of quaint little ecclesiastical shops that crown the height upon the north side of the structure.—I am, &c.,  
Exeter, May 5, 1899.

HARRY HEMS.

## Intercommunication.

## QUESTIONS.

[12238].—Quantities.—An architect is instructed to prepare plans, specifications, &c., for 20 houses in blocks of five each. He does so, and takes off quantities for one block of five. The lowest tender is, say, £500 for the five, or £2,000 for the 20. What commission is the architect entitled to on his quantities? The proprietors gave instructions for quantities to be taken off.—PEVERILL.

## REPLIES.

[12232].—Damp Basement.—Have earthenware or terracotta perforated bricks inserted, or Doulton and Co.'s earthenware perforated blocks inserted in walls; have clear open space under floors of 12in. or 15in. Saturate joists with boiling carbolicum, of Peters, Baitech, and Co., of Derby.—REGENT'S PARK.

[12233].—Obstruction in Lead Pipe.—Most likely the result of animal, fatty, or vegetable acids. Try periodical doses of strong boiling hot solution of alkali. If possible, stop up end of pipe for a short time, allowing solution to stand in pipe and act energetically, all the better.—REGENT'S PARK.

The new isolation hospital, Aldershot, is being warmed and ventilated by means of Shorland's patent Manchester stoves, with ornamental tiled sides and with descending smoke-flues, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The Ashley-road New Congregational Church, Hale, Altrincham, was opened on the 4th inst. The building forms part of a larger scheme. The school church will have accommodation for about 350 sittings. A large lecture-room is provided, with vestry and service-room, &c. The work has been carried out by Messrs. William Lambert and Son, of Bowdon, from the designs of Messrs. William Waddington and Son, of Manchester.

A start was made last week with the preliminary work in connection with the new deep-water dock at Seaham Harbour, promoted in the first instance by the Marquis of Londonderry, and since undertaken by a company. Mr. V. D. Lake is the engineer in chief. The contractors for the building of the dock and piers are Messrs. Pearson, of Westminster, represented at Seaham by Mr. T. M. L. Walsh. The dock and piers will be formed of concrete blocks faced with granite, weighing 30 tons each. It is anticipated that the operations will take about four years to complete.

On the south side of ancient Sinner-street, Southampton, a number of alum habitations have been demolished, and on the site there is to be erected by the corporation dwellings for artisans at a cost of about £9,000. The foundation-stone of the new buildings, which are to the north of the municipal lodging-house, now in course of construction, was laid by the Mayor last week. Mr. C. J. Hair, A.R.I.B.A., is the architect, and Messrs. Dyer and Sons, of Southampton, are the contractors. There will be in the new building only 26 sets of tenements, 12 of them being of only two rooms, and the cost of building them will be close upon £350 per tenement.

## LEGAL INTELLIGENCE.

ANCIENT LIGHTS.—ASTIN V. JOHNSON.—The plaintiff in this case, heard at the Lancashire Chancery held recently at Manchester before Vice-Chancellor Hall, was Mary Astin, a widow, and she claimed an injunction against the defendant, Thomas Johnson, to restrain him from erecting or continuing the erection of certain buildings which, it was alleged, seriously infringed the plaintiff's rights of light and air. The plaintiff carries on the business of a tin-plate worker in Under-lane, Hollinwood, and certain windows on the easterly side of the premises occupied by her are ancient lights. The defendant commenced the erection of a building on ground immediately adjoining the plaintiff's premises, and only separated from them by a passage of 7ft. The plaintiff stated that if the defendant's building was allowed to continue erection it would render her property practically useless for the purpose for which she purchased it, and she would be seriously damaged thereby. The defendant denied that his building infringed the plaintiff's right or that the plaintiff had sustained any damage. Mr. James William Beaumont, architect, of Manchester, who had been appointed by the court to report on the matter, gave it as his opinion that the defendant's building interfered considerably with the plaintiff's light. His Honour granted the injunction asked for.

ARCHITECTS' CLAIM AGAINST A SCHOOL BOARD.—WOODHOUSE AND WILLUGHBY V. MANCHESTER SCHOOL BOARD.—The hearing of this action, which was brought by a firm of Manchester architects for the recovery of £120, representing charges for measuring certain extra quantities in connection with the building of the Holland-street Board Schools, took place on Thursday and Friday in last week before Mr. Justice Bigham and a special jury. The plaintiffs were the successful competitors with plans for the schools. After the compensation more land was bought by the board, necessitating alterations in the situation of the caretaker's house and other changes. This involved revision of the plans and quantities, and while the work of erection was proceeding there were other minor alterations. The net result of these changes was that the cost of the schools was augmented by £60. The sum claimed represented 2½ per cent. commission on the extra items dealt with, but which were not included in the work done by the builders. The defence was that the original quantities were insufficient, and that alterations made from plan during the building of the schools were not sanctioned by the board. Summing up, the Judge said the dispute was of a paltry character, and ought to have been easily settled by the parties coming together. After retiring, the jury found for plaintiffs for the amount claimed. The Judge refused to certify for a special jury. It was a scandal to cause twelve business gentlemen to waste their time on such a trumpery case, and no reason why a special jury should have been asked for. Plaintiffs' counsel said his clients had offered to submit the dispute to a competent gentleman for decision, but the school board refused to consider the matter with a view to a settlement. His lordship declined to certify for a special jury, and entered judgment for plaintiffs with ordinary costs.

EXITS FROM FIRES IN FACTORIES.—At Southwark Police-court last week, John Carr, Ellis Carr, Arthur Carr, and Huntingdon Stone, trading as Peek, Frean, and Co., Bermondsey, were summoned at the instance of the London County Council for failing on January 30 and each succeeding day to March 28 to comply with a notice requiring them to provide reasonable means of escape in case of fire at the premises occupied by Messrs. Lloyd and Son, Mill-street, Dock-head, of which they were the owners. Mr. Chilvers, solicitor, appeared for the London County Council, and Mr. Morsely represented defendants. Mr. Chilvers said that between 200 and 300 persons were employed on the premises in question in making packing-cases and tins. As far back as February 17, 1896, the Council gave Messrs. Peek, Frean, and Co., notice, as owners, that they must alter the premises so as to provide adequate means of escape for the workpeople in case of fire. Defendants sent plans which the Council could not accept. In July last, however, defendants made a proposal, which the Council agreed to, but up to the present the work had not been commenced. The summons was in respect of 58 days, and defendants were liable to a penalty of £1 for each day. Mr. Morsely said the tenants of the property had instructed their architect, Mr. Elkington, to proceed with the alterations required with all possible speed. Mr. Paul Taylor imposed a penalty of £1 for the first 20 days, amounting to £20, and £5 5s. costs.

WORKSHOPS-STREET POLICE COURT.—Mr. Haden Corser heard a summons taken out by Mr. Henry Lovegrove, district surveyor of South Islington and Shoreditch, against the North London Railway Company. The secretary of the company gave orders for the erection of a w.c. on a piece of waste ground for the use of a tenant of some adjoining railway arches, but no notice was given to the



district surveyor, the defendants claiming exemption. Existing walls were used for three sides of the building, and the district surveyor required the front to be of brickwork. At the hearing of the case, the counsel urged that the erection so far was only a screen of wood and corrugated iron, and there being no roof, the magistrates dismissed the summons, but awarded no costs.

**RE BARRON AND SON.**—A first meeting was held on Tuesday, Mr. E. L. Hough, Official Receiver. The debtors were timber merchants, carrying on business at 57, Gracechurch-street, and their liabilities were returned at £13,118, but the Chairman reported that the amount would probably be increased to the extent of £4,000 or £5,000 by claims on pending contracts. The assets were estimated at £11,939. It was resolved that the estate should be wound up in bankruptcy, and Mr. H. W. Bayne, of Leadenhall-street, was appointed trustee, together with a committee of inspection.

## WATER SUPPLY AND SANITARY MATTERS.

**CLAYTON-LE-MOORS.**—The urban district council have approved of a scheme prepared by Mr. Dodgeon, surveyor to the council, for surface-water drainage for a portion of the district, and have decided to apply to the Local Government Board for sanction to borrow the sum of £475 to carry out the work.

**NORTHAM WATERWORKS.**—A reservoir is being constructed on Melbury Moor, eight miles from Bideford, to supply Northam with water. The works are being carried out by Messrs. Dart and Pollard, contractors, of Paignton, under the directions of Mr. Baldwin Latham, C.E., engineer to the Northam Urban District Council. The operations have been in progress about five months, during which time huts for the men have been erected, and stabling, sheds, workshops, &c. The wall of the dam will be supported by earthwork on either side, 200ft. thick at the base, tapering off to 10ft. at the top. The reservoir when full will contain over 33,000,000 gallons of water. This, after passing through filter-beds, will be taken by means of a 6in. pipe to a second reservoir to be built at Northam, eight miles distant. There it will be distributed to Appledore, Westward-Ho, and all outlying parts of Northam town, 18½ miles of pipe being required for the purpose. The resident engineer is Mr. W. E. Thornton, Nilgala, Bideford. Mr. W. H. C. Pollard is the resident representative of the contractors, and Mr. W. Squires is foreman of works. Mr. J. E. Parnell has charge of the engineering department. The contractors expect to complete the works in two years, the contract price being £26,000.

**PORTISHEAD.**—A system of sewerage has just been completed, and house connections are being made. The sewage, without treatment of any kind, is discharged into the Severn at a point about a mile from the shore, valves being provided to keep the sea water out of the sewers. The outfall sewer is straight, and 1,896ft. in length, being constructed of 15in. cast iron-pipes with spigot, socket, and flange joints. The total length of sewers on the high and low levels is, approximately, eight miles. Those on the high level consists of 6in. to 8in. pipes, the depth below ground level varying from 4ft. 3in. to 38ft. 4in., the deeper sewers being constructed in tunnel. For the low level the sewers are chiefly 6in. and 8in. stoneware pipes, the main sewer through the town being constructed of Parker and Hassall's double-lined pipes. Ventilation is on the column and pipe system. Messrs. Doulton and Co. supplied most of the ordinary pipes. The works have been carried out at a cost of £15,000, under the direction of Mr. T. J. Moss Flower, C.E., F.G.S., 25, Victoria-street, S.W., and Scottish Buildings, Bristol. Messrs. J. and T. Binns, of Horwich, were the contractors, and Mr. F. W. Trimm was the clerk of works.

## CHIPS.

The town council of Tunbridge Wells have decided to increase the salary of the surveyor from £250 to a maximum of £350, by £20 annual increments.

The corporation of Liverpool had another long discussion on the maintenance or demolition of St. George's tower and spire at their last meeting, and eventually resolved to leave the final decision in the hands of Dr. Ryle, the Bishop.

The Select Committee of the House of Commons has sanctioned the scheme of the Great Western and Great Central Railway Companies for providing a new line from the Great Central into London without running over the Metropolitan Railway, under an existing agreement.

The scheme for enlarging the interesting parish church of Preston, near Brighton, in accordance with plans prepared by Sir Arthur W. Blomfield, A.R.A., has been abandoned, and it has been decided to build a district church on a fresh site.

## Our Office Table.

STUNG, apparently, by the criticisms passed upon his scheme for decorating St. Paul's, so far as it is yet revealed in the eastern portions of that cathedral, Sir W. B. Richmond has penned a three-column letter to the *Times*, of which the keynote is that "I am the responsible person in this matter." He desires to be judged not by his contemporaries, but by posterity, which is awkward for the present generation, especially as Sir William considers "that no present-day expression of opinions will indirectly influence the final decision upon my work which must be arrived at a long time hence." Sir William tells us he invites criticism; but the remarks of architects are a breach of that modesty which is becoming to "builders, as they should properly be called." He argues that nearly all the great buildings of the world have been decorated and often covered with coloured ornament. "St. Paul's, which, as Wren left it, was cold and austere, ought to be treated in the same way, and by myself"—a delightful illustration of that "modesty" which, however becoming in builders, lends an additional grace to eminent artists and amateur architects. Another gem from the same epistle has indeed quite a flavour of its own of modesty: "Much as I may value the opinion held by my friends and colleagues, my president Sir Edward Poynter, and my other president Mr. Aitchison, at the risk of seeming to be presumptuous, I confess to hold my own opinion in yet higher esteem." Job didn't know everything when he exclaimed, "O that mine enemy would write a book!" Nowadays, if one's adversary can be indulged with three columns of rope in the *Times*, he is pretty nearly certain to hang himself!

The first of the series of lectures to be given in connection with the periodical examinations of the Carpenters' Company was delivered by Mr. F. R. Farrow, F.R.I.B.A., at Carpenters' Hall, London Wall, on Thursday evening in last week, the subject being "Strength and Strains in Wood." The lecturer explained the nature of compression, tension, torsion, and other stresses or strains to which timber is subject, and then went on to illustrate from the structure of a roof the way in which those stresses came upon its different parts. Figures relating to the factors of safety in strains were then given, and some of the statical problems of construction were dealt with. Mr. Farrow illustrated his address by take-to-pieces models, diagrams, photographs, and specimens of materials.

At the last meeting of the Brighton Corporation, the sanitary committee presented tenders for the erection of 28 five-roomed artisans' houses in St. Helen's-road, Elm-grove, and recommended the acceptance of the tender of Messrs. Sattin and Evershed to do the work for £7,424. They pointed out that at this price 8s. 6d. must be charged for rent, and recommended that, in order to let for 7s. 3d. per week, application should be made for an extension of the period of repayment of the loan sanctioned by the Local Government Board. The chairman of the committee explained that a year ago since they invited the local architects and surveyors to prepare competitive plans of dwellings to be let at 5s. 6d. a week. "Sanitas" won the premium of £75 for preparing the best plans, and he estimated the cost of the houses at £165 6s. 9d. apiece, the borough surveyor putting them at £204 10s. Tenders were invited, and they were disappointed in only getting three, the lowest of which was £7,424. If they built the houses at that cost, the lowest they could let them at was 8s. 6d. a week, and this was due to the fact that materials had advanced in price by 20 per cent. If they could borrow the money for 40 years they could let the houses at something like 7s. a week, and at that rental the sanitary committee were very doubtful whether the houses would so readily let as they had anticipated. A long discussion ensued, the members being obviously disappointed to find that the recent advances in wages and reduction in working hours had so increased the cost of building operations, and in the end the report was referred back to the committee.

The annual report of the curators of the Sheldonian Theatre, which was presented to the Senate of Oxford University on Tuesday, gives, on the authority of Professor A. H. Church, a serious account of the condition of the ceiling paintings in the theatre. These are on canvas, and were executed by Robert Streater about 1669,

in which year Pepys saw them approaching completion. The report of the curators gives an interesting history both of the paintings and of the roof itself. The paintings appear to have been already restored in 1762, in 1802, and in 1826. In 1802 Wren's roof, reported as "in a state of decay," was entirely removed and a new roof, externally, at any rate, "extremely dissimilar," was substituted for it. Among other alterations, the series of oval dormer windows which surround the original roof, and which appear in Loggan's print, as well as in the frontispieces of books formerly issued by the University Press (the work of which till 1714 was carried on in the space above the painted ceiling), were entirely removed. The curators observe that the paintings of the roof formed part of Wren's original design, and were certainly *in situ* when the theatre was opened on July 9, 1669. They hope to be able to prevent the progress of any further injury, but it will be a difficult and expensive process.

COMPRESSED air for cleaning purposes is being used in some of the taller office building in New York City. Many of the buildings have their elevator walls partially hidden behind more or less decorative grill work. It is frequently of bronze, and of such design that the dust of a week detracts much from its appearance. To remove the dust, which always lodges in the smallest cracks, a jet of compressed air is directed upon it. In the Dun Building in New York, such a plant was installed by Mr. John W. Ferguson, of New York, and consists essentially of a system of pipe-lines throughout the buildings with outlets wherever desirable. Short flexible-hose connections are attached to these, and a nozzle at the other end of the hose may be carried about at will.

WE understand that the Eiffel Tower is undergoing a complete renovation in preparation for the forthcoming exhibition. It has been decided to paint the entire structure with an enamel, and for which five shades have been chosen. The dome and summit are to be of a fine lemon chrome, and the shades will graduate to the pedestal, which will be a rich dark orange. The product, chosen from among thirty different manufactures, has been "Le peinture Laque Chine Email" of the Société Anonyme des Etablissements Georges Hartog, of Paris, a company which has lately been formed by the amalgamation of Messrs. Georges Hartog and Co. and the Paris Branch of Messrs. Robt. Ingham, Clark, and Co., Ltd., of London, Hamburg, New York, and Chicago. It may be interesting to note that for the two coats which are to be applied upon the Tower, nearly fifty tons of enamel will be employed.

The report of the Boston (Mass.) Fire Commissioner reveals the influence of new methods of construction on fire-losses. The "defective flue," which was once almost the main source of fires, shows a decided loss of harmful power, the number attributed to this cause in 1898 having been only 11 out of a total of 1,500 fires. The local regulations, which have for fifteen years past required flues from boilers, furnaces, and ranges to have either 8in. walls or fireclay linings, have contributed greatly to this change. Sixty-five fires were caused by electric wires, and 67 by lamp explosions. Matches caused 215 fires, and spontaneous combustion and explosion or ignition of chemicals caused 132. Out of the whole number of fires only 39 extended to other buildings.

## MEETINGS FOR THE ENSUING WEEK.

- SATURDAY** (TO-MORROW).—St. Paul's Ecclesiastical Society. Visit to Lincoln's Inn Chapel. 3 p.m.  
Northern Architectural Association. Visit to South Shields.  
**MONDAY**.—Surveyors' Institution. "Land Purchase in Ireland," by R. M. D. Saunders, F.S.I. 8 p.m.  
Royal Institute of British Architects. "The Architectural Element in Engineering Work," by H. H. Statham. 8 p.m.  
**TUESDAY**.—Society of Arts. "The Artistic Treatment of Picture Frames," by I. Hunter Donaldson. 8 p.m.  
**WEDNESDAY**.—Society of Arts. "The Law of Trade Marks," by J. E. Evans Jackson. 8 p.m.  
**THURSDAY**.—Carpenters' Hall Free Lectures. "Timber Roofs," by Professor Banister Fletcher, F.R.I.B.A. 8 p.m.

At the last meeting of the Salford Town Council it was decided to lay a new water-main from Gorton Reservoir to the borough, at a cost of £25,000.



## LIST OF COMPETITIONS OPEN.

Arbroath—Public Shambles .....	£7, £5, and £3 .....	W. F. Macintosh, Clerk to Commissioners, Arbroath .....	May 16
Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50 .....	The City Engineer, Municipal Buildings, Leeds .....	June 1
Okehampton—Workhouse and Infirmary (9 inmates) .....	£50, £25 .....	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton .....	1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks .....	£31 (merged), £20, £10 .....	The Borough Engineer, Salford .....	6
Wakefield—Central Premises .....	£50, £30, and £20 .....	J. W. Haign, Sec., Industrial Society, Bank-street, Wakefield .....	30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75 .....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	July 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor) .....	£100, £75, £50 .....	Edward Hughes, Clerk, Vestry Hall, Maney-road, Plumstead .....	27
Edinburgh—Midlothian County Buildings, Parliament-square .....	£75, £50, £25 .....	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh .....	—
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.) .....	£75, £50, £25 .....	G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea .....	—
Totnes—Cottage Hospital .....	£30 (merged), £10 .....	The Chairman, Cottage Hospital Committee, Totnes .....	—
Aldershot—Masonic Hall (£2,500 limit) .....	£30 (merged), £10 .....	John Youd, Secretary, The Triangle, Aldershot .....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Milford, Cork—Church .....	Rev. William Coughlan, P.P. ....	M. A. Hennessy, Architect, 74, South Mall, Cork .....	May 13
Arbuthnot—House on Pitearles Farm .....	Bangor and Beaumaris Guardians .....	Alexander Donald, Forester, Parknook, Arbuthnot .....	13
Bangor—Alterations at Workhouse .....	Baltinglass Town Hall Company .....	Richard Davies, Architect, Bangor .....	13
Trowbridge, Wilts—Technical School .....	Loyal Good Intent L. of Oddfellows .....	G. Fleetwood, 3, New Court, Lincoln's Inn, W.C. ....	13
Baltinglass—Converting Old Bridewell into a Town-hall .....	Rector and Churchwardens .....	J. J. O. Ramsey, M.E., Baltinglass .....	13
Soothill—Six Houses, Broom-street .....	E. Taylor .....	Allan Blackburn, Architect, Talbot-street, Balley .....	13
Moreton-in-Marsh—Four Cottages .....	Committee of Creamery .....	A. W. Drury, Secretary, Moreton-in-Marsh .....	13
Weston-super-Mare—School of Science and Art .....	Urban District Council .....	Hans F. Price, Architect, Weston-super-Mare .....	13
Birkbeck—First Portion of Church of St. Michael .....	James Robinson .....	A. H. Hoole, Architect, 21, King William-st., Charing Cross, W.C. ....	13
Sheffield—Steam Laundry, Pitsmoor .....	Young and Rochester .....	E. Winder, jun., Architect, Corn Exchange Chambers, Sheffield .....	13
Mansfield—Additions to Villa, Nottingham-road .....	E. Taylor .....	Vallance & Westwick, Architects, White Hart Chambers, Mansfield .....	13
Saltburn—House, Pearl-street .....	School Board .....	William Peachey, Architect, 3, Amber-street, Saltburn .....	13
Toames, Ireland—Store-House .....	Meltham Spinning Co. ....	P. J. Murphy, Castleview, Macroom .....	13
Manoridy—Alteration of Chapel Dwelling-House .....	Streets Committee .....	W. Hughes, Blaenffos, Pembroke-shire .....	13
Withington—Office in Town's Yard .....	Blean Union Guardians .....	A. H. Mountain, Surveyor, Town Hall, Withington .....	13
Ryton-on-Tyne—Rebuilding the Jolly Fellows Inn .....	Select Vestry .....	T. C. Nicholson, Architect, Blaydon .....	13
Middlesbrough—Additions to Premises, Denmark-street .....	Guardians .....	R. Loftus and Sons, Architects, Middlesbrough .....	13
Londonberry—New Wing to Ebrington Factory .....	Northumberland County Council .....	Daniel Conroy, Architect, 2, Bishop-street, Londonderry .....	13
Scarborough—Pair of Villas, Seamer-road .....	South Durham Steel and Iron Co. ....	J. Caleb Petch, Architect, Scarborough .....	13
Mansfield—Six Houses in Berry Hill-lane .....	Magistrates and Council .....	Vallance & Westwick, Architects, White Hart Chambers, Mansfield .....	13
Bexhill—Electric Lighting Station and Chimney Shaft .....	Vestry .....	A. H. Preece, 13, Queen Anne's Gate, S.W. ....	15
Lancaster—Workshop at Electricity Works .....	School Board .....	The Borough Surveyor, Town Hall, Lancaster .....	15
Finchley—New Hall, &c. ....	Hendon Union Guardians .....	W. Hollis, Estate Agent's Office, Church End, Finchley Station .....	15
Harthill—New Buildings .....	School Board .....	Thos. Lawrie, Harthill .....	15
Bristol—School at Redfield, St. George .....	L. & N.W. & G.W. Joint Committee .....	Herbert J. Jones, M.S.A., 12, Bridge-street, Bristol .....	15
Meltham—Boiler House, &c. ....	North-Eastern Railway Co. ....	William Carter, Architect, Meltham .....	15
Rippingale—Brick Invert to Beck .....	Gas Committee .....	J. Caunce, Clerk, Rippingale .....	15
Lancaster—Ramparts Improvement .....	W. Richmond .....	The Borough Surveyor, Town Hall, Lancaster .....	15
Herne Common—Additions to Union Workhouse .....	3rd Vol. Batt. Hampshire Regiment .....	The Master of the Workhouse, Herne Common .....	15
Liverpool—Enlargement, &c. ....	Rev. A. L. Keith .....	H. J. Hagger, Vestry Clerk, Parish Offices, Liverpool .....	15
Solihull—Infirmary and Tramp Wards .....	School Board .....	W. H. Ward, Architect, Paradise-street, Birmingham .....	15
Morpeth—Three Detached Villa Blocks at Lunatic Asylum .....	L. & N.W. & G.W. Joint Committee .....	John Cresswell, Architect, Moot Hall, Newcastle-on-Tyne .....	15
Ripley—Additions to Burnt Yates School .....	North-Eastern Railway Co. ....	C. Hodgson Fowler, F.S.A., Architect, The College, Durham .....	15
Stockton-on-Tees—Offices .....	Gas Committee .....	J. J. Wilson, Architect, West Hartlepool .....	15
Halifax—Reconstructing Warehouse, West Vale .....	W. Richmond .....	C. F. L. Horsfall and Son, Architects, Lord-st. Chambers, Halifax .....	16
Edinburgh—Carmen's Shelters at Tramway Termini .....	3rd Vol. Batt. Hampshire Regiment .....	The Borough Engineer, 1, Parliament-square, Edinburgh .....	16
Edinburgh—Additions to Shire Green School .....	Rev. A. L. Keith .....	G. A. Wilson, Architect, Harthead Chambers, Sheffield .....	16
Lewisham and Forest Hill—Two Libraries .....	School Board .....	John Andrews, 13, Basinghall-street, E.C. ....	16
Falmouth—Alterations at Drill Hall .....	L. & N.W. & G.W. Joint Committee .....	W. H. Tressider, Falmouth .....	16
Upper Edmonton, N.—Schools, Silver-street .....	North-Eastern Railway Co. ....	H. W. Dobb, 110, London Wall, E.C. ....	16
Lissarda—Auxiliary Creamery .....	Gas Committee .....	Eugene Corcoran, Secretary, Bengour, Newcastle .....	16
Edgware—Addition to Infirmary and Mortuary .....	W. Richmond .....	F. J. Seabrook, Clerk, Redhill, Edgware .....	17
Threlkeld—Two Cottages .....	3rd Vol. Batt. Hampshire Regiment .....	Thomas Stuart, Threlkeld .....	17
Longtown—Master's House .....	Rev. A. L. Keith .....	E. A. Johnson, Architect, Abergavenny .....	17
Shrewsbury—Eight Cottages and New Street .....	School Board .....	The Joint Engineer, Shrewsbury Station .....	17
Forth—House on Parade .....	L. & N.W. & G.W. Joint Committee .....	A. O. Evans, Architect, Pontypridd .....	17
Tyne Dock—Thirty-Four Houses .....	North-Eastern Railway Co. ....	William Bell, Architect, Central Station, Newcastle-upon-Tyne .....	17
Llandefan—Calvinistic Methodist Chapel .....	Gas Committee .....	Joseph Owen, Architect, Menai Bridge .....	17
Stoke-upon-Trent—Retort House, &c. ....	W. Richmond .....	W. Prince, Engineer, Gasworks Office, Wharf-st., Stoke-upon-Trent .....	18
Skerton—Fourteen Houses, Slynne-road .....	3rd Vol. Batt. Hampshire Regiment .....	W. Richmond, Slynedales, Skerton, Lancaster .....	18
Portsmouth—Connaught Drill-Hall, Stanhope-road .....	Rev. A. L. Keith .....	Alfred H. Bone, Architect, Cambridge Junction, Portsmouth .....	19
Rotham—Additions to Cottage .....	School Board .....	Charles C. Doig, Architect, Elgin .....	19
Haslemere—Schools .....	L. & N.W. & G.W. Joint Committee .....	Chancellor and Hill, Architects, 12, Jewry-street, Winchester .....	20
Canook—Class-room .....	North-Eastern Railway Co. ....	Bailey and McConnell, Architects, Bridge-street, Walsall .....	20
Kylenon—House on Macdonald Estate .....	Gas Committee .....	Jas. A. H. MacKenzie, Architect, Portree, Skye .....	20
Middlesbrough—Alterations to Premises, Linthorpe-road .....	W. Richmond .....	Wm. Duncan, Architect, 43, Albert-road, Middlesbrough .....	20
Garforth—Villa .....	3rd Vol. Batt. Hampshire Regiment .....	Arthur Hartley, Architect, Carlton Chambers, Castleford .....	20
New Brompton—Villa, Gillingham-road .....	Rev. A. L. Keith .....	E. J. Hammond, Architect, 111, High-street, New Brompton .....	20
Workington—Semi-Detached Villas, Ashfield-road .....	School Board .....	Charles W. Eaglesfield, Architect, Falcon-street, Workington .....	20
Uley—Two Residences .....	L. & N.W. & G.W. Joint Committee .....	W. M. and A. Sugden, Architects, Keighley .....	20
Athlone—Shop and Premises, Church-street .....	North-Eastern Railway Co. ....	J. G. Skipton, A.M.I.C.E., Northgate-street, Athlone .....	20
Wrexham—Four Houses, Empress-road .....	Gas Committee .....	J. Higginson, Stores, Victoria-road, Wrexham .....	20
Grimsby—Electricity Works and Chimney Shaft, Doughty-road .....	W. Richmond .....	M. Petree, A.M.I.C.E., Borough Engineer, Town Hall-sq., Grimsby .....	22
Broadheath—St. Alban's Church .....	3rd Vol. Batt. Hampshire Regiment .....	Austin and Paley, Architects, Castle Hill, Lancaster .....	22
Hafof—Baptist Chapel .....	Rev. A. L. Keith .....	Wm. David, 34, Wayne-street, Hafof, near Pontypridd .....	22
Watford—Extension of Brewery Premises .....	School Board .....	George Adlam and Sons, Architects, Bristol .....	23
Tending—Infirmary Wards (91 beds), &c., at Union House .....	L. & N.W. & G.W. Joint Committee .....	F. Whitmore, Architect, Chelmsford .....	23
Oulton—Isolation Hospital .....	North-Eastern Railway Co. ....	Alfred Clarke, Architect, 126, London-road, Lowestoft .....	23
Workington—Alterations to Green Dragon Hotel .....	Gas Committee .....	Castiglione and Gibbings, Surveyors, Washington-st., Workington .....	23
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler .....	W. Richmond .....	E. Stanley Peach, F.R.I.B.A., 28, Victoria-st., Westminster, S.W. ....	24
House at South-Eastern Fever Hospital, Hatfield-street .....	3rd Vol. Batt. Hampshire Regiment .....	A. F. Long, Town Engineer, Warminster .....	24
Warminster—Pumping Station, &c. ....	Rev. A. L. Keith .....	J. S. Story, County Surveyor, County Offices, St. Mary's Gate, Derby .....	24
Shirebrook—Lock-up .....	School Board .....	A. B. McDonald, Engineer, City Chambers, Cochrane-st., Glasgow .....	24
Glasgow—Foremen's House, Waiting-Rooms, and Lavatories at Ruchill Park .....	L. & N.W. & G.W. Joint Committee .....	Wm. F. Derry, Clerk, Vestry Hall, Upper-street, N. ....	24
Holloway, N.—Pulling Down and Removing Buildings .....	North-Eastern Railway Co. ....	William Thorburn, Secretary, Schoolhouse, Brydekirk .....	27
Brydekirk—Library Hall .....	Gas Committee .....	Fredk. G. Hughes, Surveyor, Hampton-on-Thames .....	27
Hampton—Alterations to Volunteer Drill-Hall .....	W. Richmond .....	W. Peachey, Architect, 3, Amber-street, Saltburn .....	27
Bedale—Manse and Two Cottages .....	3rd Vol. Batt. Hampshire Regiment .....	J. Hall, A.M.I.C.E., Borough Surveyor, Municipal Offices, Cheltenham .....	30
Cheltenham—Reconstruction of Montpelier Baths .....	Rev. A. L. Keith .....	Giles, Gough, & Trollope, Archts., 23, Craven-st., Charing Cross, W.C. ....	30
Talgarth—Asylum .....	School Board .....	G. H. Hunt, Architect, Evesham .....	31
Evesham—New Shop and Residences, Bridge-street .....	L. & N.W. & G.W. Joint Committee .....	J. W. Jones, Architect, Brooklake, Acrefair, Raabon .....	June 5
Cefn Mawr—Additions to Ebenezer English Baptist Chapel .....	North-Eastern Railway Co. ....	The Archbishop's House, Carlisle-place, London, S.W. ....	—
Brentwood—Repairs, &c., to St. Charles's Schools .....	Gas Committee .....	J. W. Start, F.S.I., Architect, Colchester .....	—
Colchester—Villa, Maldon-road .....	W. Richmond .....	W. J. Moore, Architect, Whitehall Buildings, Ann-street, Belfast .....	—
Belfast—Rebuilding Licensed Premises, Millfield .....	3rd Vol. Batt. Hampshire Regiment .....	Jackson and Priestman, Surveyors, The Exchange, Bradford .....	—
Great Horton—House at Bank Bottom .....	Rev. A. L. Keith .....	Kaye, Parry, and Ross, Palatine Chambers, 63, Dawson-st., Dublin .....	—
Farnley—Bank Premises .....	School Board .....	George Reavall, jun., A.R.I.B.A., Alnwick .....	—
Alnwick—House and Stabling .....	L. & N.W. & G.W. Joint Committee .....	C. T. Lewis, Solicitor, Cambridge-road, New Malden, Surrey .....	—
New Malden—Offices and Stable Buildings, &c. ....	North-Eastern Railway Co. ....	John Stalker, M.S.A., Architect, 57, Highgate, Kendal .....	—
Githeroe—Six Semi-Detached Villas .....	Gas Committee .....	Briggs & Wolstenholme, Architects, Richmond-terrace, Blackburn .....	—
Melrose—Alterations at Roxburgh District Asylum .....	W. Richmond .....	Sydney, Mitchell, and Wilson, Architects, 13, Young-st., Edinburgh .....	—
Tanbridge—Five Houses, South View .....	3rd Vol. Batt. Hampshire Regiment .....	T. Ernest Crossling, Architect, Stanley, R.S.O. ....	—
Meltham—Rebuilding New Inn Hotel .....	Rev. A. L. Keith .....	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff .....	—
Sheffield—Eight Houses, Goddard Hall-road .....	School Board .....	Edmund and Fenton, Architects, 14, St. James's-row, Sheffield .....	—
East Cottingham—Classroom at Board School .....	L. & N.W. & G.W. Joint Committee .....	John Thomas Slights, Clerk, East Cottingham .....	—
Morecambe—Alteration of House, Regent-road .....	North-Eastern Railway Co. ....	Marshall Bros., Architects, Back Crescent, Morecambe .....	—







# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, MAY 19, 1899.

### THE DISPUTE IN THE BUILDING TRADE.

A SETTLEMENT ARRIVED AT.

WE have said comparatively little about the points at issue in the recent lamentable series of disputes, because we have felt sure all along that the good sense of both sides would avoid the threatened disastrous lock-out or strike, about which some of our contemporaries have been writing so glibly during the past week or two.

We believe that, at the moment of going to press, an arrangement has been arrived at between the representative organisations of the masters on the one side, and the men on the other, which will, if formally ratified, terminate the struggle within the next few days, and afford a lasting basis of future concord. We have little doubt ourselves that this ratification will be accomplished.

We believe that the questions of apprenticeship and demarcation are to form the subject of a special arrangement by a special joint committee. With regard to the matter of alleged boycotting and blacklisting, the men give an undertaking which guarantees the avoidance of these practices in every case where the employer abides by the mutually-agreed upon trade rules. We also believe that a satisfactory formula has been arranged which covers strikes against non-unionist labour.

If sectional bitterness should by any unhappy chance upset the agreement practically arrived at, the responsibility on either side will be a very heavy one. We cannot believe in its possibility. We feel sure that the good sense of both sides, which has facilitated an intervention as honourable as it has been effectual, will prove equal to the task of adjusting all details of a settlement which, in our opinion, is a statesmanlike and generous one.

### ESTIMATES.—VI.

BRICKWORK, TILE-PAVING, ETC.

THE application of "constants of labour" to the determination of values in the trades of building is worth more attention than is usually bestowed. A "constant" is really a number or a fraction which is used to fix or preserve the results of observation as to any particular thing—in this case, labour; in fact, a constant represents the average time of executing each kind of work. Many French writers on construction have employed them in all the trades, and in numerous works on building and construction, as in Dobson's "Guide to Measuring," in Hurst's "Handbook," &c., a series of constants for the trades are given. A constant represents, in days and decimal parts of a day, the time which it takes to execute a certain unit of work like a yard or a foot. By multiplying the amount of the workman's wages for 10 hours by the given constant we find the cost of the unit of a yard or foot. If, for example, a bricklayer gets 9s. 9d. per hour, which is the wage paid in London, and he works 10 hours, the amount of his wages will be 95d., or 7s. 11d. Let us apply the constant for cutting and bonding new in old work, which is '022 per foot super. Multiplying 95d. by '022 we get 2-090, or, say, 2d. per foot super. for labour. For rough cutting to birdsmouth the constant is given as '008 day of a bricklayer. Thus  $95 \div '008 = 760 = \frac{1}{4}$ d. per foot run.

The cost of labour can only be determined by a close observation of the work done by each workman. One man will do a fair day's work, another only half the quantity. In London the wages per hour are given as under, and upon these we base our labour items:—

	£	s.	d.
Excavator .....	0	0	6½
Labourer .....	0	0	6½
Bricklayer .....	0	0	9½
Mason .....	0	0	9½
Fixer .....	0	0	10
Carpenter .....	0	0	9½
Joiner .....	0	0	9½

The following is the rate of wages issued by the London County Council. They are also those of the trade-unions in the London district, and comprised within a radius of 12 miles from Charing Cross:—

	Per hour	(a)	(b)	(c)
Carpenters .....	9½d.			
Joiners .....	9½			
Bricklayers .....	9½			
Bricklayers (cutting and setting gauged work) .....	10½			
Plasterers .....	9½			
Masons .....	9½			
Masons (fixing) .....	10½			
Painters and glaziers .....	8½			
Smiths, fitters, &c. ....	9 to 10			
Labourers .....	6½			
Plumbers .....	11			

Columns a, b, c represent the hours of labour per week; a are the summer hours, b and c are the 14 winter weeks after the first Monday in November; b giving the three weeks at beginning and three weeks at end of that period, and c the eight middle weeks.

Plumbers work 47 hours in summer, 44½ hours during the three weeks at beginning and end of winter, and 42 hours during the eight middle weeks.

With these preliminary remarks we resume our bill.

140ft. super. Filling-in to hollow walls with White's "Hygeian Rock" composition, 2in. thick, as vertical dampcourse.

This is priced at 1s. 4d. per foot super., but it is desirable to obtain a quotation for special requirements.

543ft. super. Dampcourse of Callender's Pure Bitumen, ½in. thick.

Price at 3d. per foot super.

Callender's Pure Bitumen Dampcourse is sold in pieces 24ft. long, of the following widths and pieces:—5in. wide 2s. 3d., 10in. wide 4s., 12in. wide 4s. 10d., 15in. 5s. 9d., 19in. wide 7s., 24in. wide 9s. 3d., 27in. wide 11s. net cash.

Taking a 14in. wall and using the 15in. wide piece at 5s. 9d. the piece, the cost for the material works out at a trifle over 2d. per foot super. To this ½ may be added for labour. It is better to obtain estimates for this and other special preparations, as the cost will largely depend on quantity.

30ft. run rough-cut birdsmouth.

2d. is a fair price for this item.

55ft. run rough, cut chamfer to inside arches and jambs.

This may be put at 1½d. per foot run.

20ft. run rough-cut splay 5in. wide.

Put this the same.

35ft. run. Cutting chase for pipe 4½in. by 4½in. Say 4d. per foot run.

No. 80. Frames bedded in lime and hair, reveals screeded and pointed.

The cost may be calculated as follows:—

	£	s.	d.
Lime and hair .....	0	0	2
Plasterer and labourer half an hour, say .....	0	0	8
Fixing rough deal screeds, say .....	0	0	4
Profit .....	0	1	2
Each .....	0	0	1½
Each .....	0	1	3½

Of course the value depends on the size of

frame, and a bill should give the dimensions of frame.

605ft. super. Facings in picked stocks finished with neat struck joint.

This is sometimes put at 2d. per foot.

The extra value only on facings may be obtained by deducting the difference per thousand between stocks and the facing bricks, and divide remainder by 10 to find price in pence per foot.

The number of facing bricks to each rod may be put at 1,000.

Picked stocks are usually selected.

A usual contract price in the Metropolis is 1d. per superficial foot, including pointing. The best malm facing Laxton prices at 5½d. per foot, labour and materials, and dark red Bracknell at 5d. per foot. Best white Suffolks are 4½d., and red Fareham bricks at 5½d. The number of facing bricks per superficial foot is about seven.

230ft. super. Extra facing with Lawrence's (Bracknell) best red facing bricks, including raking out joints and pointing with a neat bevel joint in fine mortar.

Obtain price per thousand of bricks in field, add carriage, loading and unloading and stacking, and deduct price of ordinary bricks.

	£	s.	d.
Price of bricks delivered on works, say.....	3	0	0
Deduct price of ordinary bricks, say.....	1	14	0
	1	6	0

Say the extra cost of seven bricks at this rate per thousand is 2½d. per foot, add raking out and pointing, say 2d., will give 4½d. per foot super.

The following prices are quoted for Thos. Lawrence and Son's Bracknell facing bricks:

	£	s.	d.
No. 4, Orange red, pressed, per 1,000 ...	3	7	1
No. 5, Cherry red " " " .....	3	10	1
No. 6, Dark red " " " .....	3	12	7
No. 12, Orange red " " " .....	2	14	3

These prices are delivered at Nine Elms Station, then to these prices add unloading and loading, cartage, say 3s. 6d. within two miles.

Other well-known bricks are used for facings, such as the Fareham red, the Loughborough white pressed, Kent gault bricks pressed, and best malms, Red Ruabon pressed. Here are a few quoted prices:—

	£	s.	d.
Red Ruabon pressed facing bricks, per 1,000 .....	2	15	6
Blue ditto, per 1,000 .....	2	15	0
Buff ditto, per 1,000 .....	3	0	0

These prices are in trucks at works.

Ornamental bricks are supplied by Mr. James Brown, of Essex Wharf, Whitechapel, whose London prime cost prices are:—

Ordinary patterns of moulded strings, 3in. high headers, and stretchers:—

11s. 6d. per 100; angles square, 3d. each.

Moulded plinths, strings, labels, &c., 4½in. high, set on edge (4 to a foot):—

13s. 6d. per 100; angles 6in. square, 6d. each.

Moulded courses 5½in. high:—

15s. per 100; angles, 1s. each.

56ft. run. Extra on brickwork for labour in moulded brick and facing to one course of moulded brick as string, oversailing, raking out, and pointing to match facing:—

	£	s.	d.
Moulded bricks at £4 10s. per thousand	4	10	0
Railway rates, cartage, &c. ....	0	15	0
	5	5	0
Deduct 1,000 stocks at .....	1	14	0
	3	11	0

Say there are three moulded bricks to the foot run of string at the above price per 1,000, extra cost of these would be	0	0	2½
Add labour, raking out, and pointing 6in. girt = ½ft. at 1½ per foot super. ...	0	0	0½
	0	0	3½



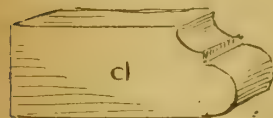
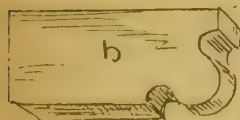
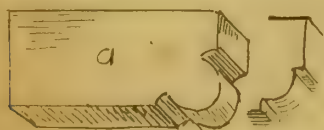
55ft. run. Extra in brickwork in moulded brick course, raking out and pointing.

Suppose this item is to be of James Brown's moulded bricks  $\frac{1}{2}$ in. high, set on edge:—

Price at London depot 13s. 6d. per 100, £ s. d.	
allowing four bricks to a foot, <sup>100</sup>	
= 25ft. run, and 25ft. run at 13s. 6d.	
= 7d. per foot	0 0 7
Railway cartage, &c.	0 0 $\frac{1}{2}$
Add labour, raking out, pointing, 9in. girt = $\frac{1}{2}$ ft. at 1½d. per foot super.	0 0 $\frac{1}{2}$
Deduct stocks, say	0 0 2
	0 0 7½

56ft. super. Extra on facings, rubbed and gauged segmental arches in Lawrence's No. 10 red rubbers, raked out, and pointed in putty.

In pricing this item we have to obtain the price of bricks per thousand, adding expenses of railway rates, loading, unloading, cartage, &c.; then find cost of rubbers necessary to do 1ft. superficial of gauged arches,



and deduct from this the cost of ordinary facing, and add labour for rubbing, setting, &c.

say, bricks per thousand, including railway rates, 2½ tons, &c.	£ s. d.
Cartage to works within two miles	4 15 0
Unloading and stacking	0 2 6
	0 1 0
	4 18 6
Ten bricks to the foot super. is generally allowed for gauged arches, including waste, and the cost of same is at the above rate, say	£ s. d.
Deduct cost of facings	0 1 0
	0 0 2½
Add for labour, rubbing, and setting	0 0 9½
	0 1 2
Say cost per foot super. 2s.	0 1 11½
Add profit	0 0 2
	0 2 1½

42ft. super. Extra on facings, segmental arches of best malms, gauged and set in putty.

This may be put at the same price. One price-book prices it as high as 2s. 9d., all materials.

Last week we illustrated a section of a hollow wall, showing a cavity of 2½in., and an inner wall of 9in., and an outer wall of 4½in., above the frame of window opening, intended to show how the window frame is protected from moisture. A piece of 4lb. lead of the whole width of frame, and a few

inches beyond on each side, is tucked into a joint of the brickwork of the outer and inner thickness a course or two above the frame, and bent to form a gutter as shown. The gutter is dressed to give a fall from centre each way, so that the moisture which comes through outer wall is thrown off into the hollow beyond opening.

The previous section showed a similar cavity wall, tied together with galvanised iron ties (four to each superficial yard), and the manner the cavity is formed below the plinth.

This week we show some ordinary kinds of moulded bricks. These bricks are  $\frac{3}{4}$ in. thick. The price of Ruabon bricks is £5 10s. per thousand. The sections are suitable for cornice joints, sills, and plinths; *e* is a good plinth, *b* a string cornice or sill brick; *a* *c* *d* are also good cornice or sill mouldings.

### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE fortnightly meeting of this Institute was held on Monday evening, the President, Professor George Aitchison, R.A., in the chair.

#### THE ARCHITECTURAL ELEMENT IN ENGINEERING WORK.

A paper on this subject, or rather on that phase relating to bridges, was read by Mr. H. HEATHCOTE STATHAM, and was illustrated by lantern slides. The author discussed the respective spheres of the professions of architecture and engineering, and observed that the purely utilitarian structures of the engineer had an interest of their own, if of a lower order than that of architectural structures, and he held that those who persistently decried engineering work gave evidence not so much of superior taste as of one-sided education. The appearance of a railway girder bridge was redeemed by its obvious suitability to its purpose, and it was absurd to blame engineers for erecting steel bridges and thus spoiling the scenery when their duty to their employers practically left them no choice. The author, who apologised for not having completed his paper, gave a running commentary on a series of lantern slides of bridges, beginning with a crude Canadian suspension structure of branches, and passing on to elaborate Japanese works of steep gradients, and then to trestle viaducts in the United States and Cornwall, and on to the consideration of stone and steel structures. Most bridges, he pointed out, were characterised by simplicity. But within the last 25 years the minds of engineers had become possessed with the idea of producing handsome structures, for which their training had not fitted them, and this desire on their part had resulted in things of which there was real reason to complain. Hammersmith Bridge was a terrible instance of lack of sense of scale. The Tower Bridge again illustrated a different vice—a total want of simplicity—and a desire to make the structure look what it was not, and here an architect whose name was concealed had been called in to ornament the superfluous granite boxing of the piers. The proposed new Vauxhall Bridge was an example of trying to make a very ornamental thing instead of being content with a simple one. It was said to be an imitation of a bridge at Coulouvrière, near Geneva. This latter from a distance was picturesque; but its detail was not good, and no architect would have designed it. He regretted the engineer to the Bridges Committee had ever seen it. He then criticised the design of Vauxhall Bridge in detail, concluding with the observation that the whole thing was a jumbled collection of details which might be got out of books put together by someone who did not understand the language of architectural design. Why should not an architect design a bridge, assisted by an engineer?

In the discussion which followed the Earl of WEMYSS urged at great length the importance and advantages of making models of all new structures with their surroundings, which would, he believed, enable members of the Houses of Parliament to understand the merits and demerits of proposed buildings and engineering works, and, if provided, would have prevented the adoption of the recent designs for the War and Government Buildings—a suggestion good-naturedly applauded by Mr. J. M. Brydon, who was seated just behind the octogonarian

lord. He proceeded to twit the President and Council of the Institute with having done nothing to protest against the work in progress at St. Paul's Cathedral, and with having been inactive as to the new buildings in Whitehall.

Mr. A. T. WALMSLEY thought architects had no more desire to undertake great engineering works than to prepare their own quantities. He held that engineers should be made responsible for the stability of these immense engineering undertakings, and architects might, perhaps, be called in to advise as to the arrangement of parts and details.

Mr. HENRY LOVEGROVE reminded the lecturer that the late Sir Horace Jones designed the details of the Tower Bridge, and after his death the work was continued by Mr. D. T. Stevenson. To which Mr. STATHAM replied that Sir Horace Jones made a design, but this was quite different to the executed work.

Mr. BERESFORD PITE remarked that if Sir Alexander Binnie took up the same position with regard to Vauxhall Bridge as Sir William Richmond had done at St. Paul's, they would be in an *impasse*. Architects had no quarrel with the construction of Vauxhall Bridge, although they might object to casing concrete with granite.

Professor KERR said the address had not been so academical as he had expected, but it was very suggestive. The lantern views shown had been delusive, as they were taken from points of view to suit artists, and not architects. The point was, why should not the construction of engineers be beautified? If the public did not, as Lord Wemyss seemed to think, understand drawings, by all means let models be constructed of all new works.

Mr. W. WOODWARD observed that at an early stage of the correspondence between the Institute and the London County Council as to Vauxhall Bridge, Messrs. Waterhouse and Mountford wrote to Sir A. Binnie expressing their "entire satisfaction" with the design, subject to a few corrections to be made by Sir Alexander. Did not this strong expression of approval close the mouths of the Institute with regard to the buildings? The lecturer had criticised the details of that bridge, and especially a column on each pier carrying nothing; but, unfortunately, an hotel could be seen in High-street, Kensington, designed by a distinguished architect, where there were columns carrying nothing, and dozens of examples by other well-known members of the Institute could be seen in various parts of London. Again, Mr. Statham had objected to the casing of concrete by cement; but he must know that all the Italian churches were merely veneered with marble, and, further, it was difficult to understand, on structural grounds, why concrete, which admittedly had structural advantages, should not be encased in a more durable material. The lamp standards had also been criticised; but instead of regarding the design as one of unmitigated ugliness, he believed most of those in that room were impressed with the dignity and general excellence of the design of that bridge. ("Oh, oh," and laughter.) Mr. Statham would have been well advised if he had confined his criticism to general matters; when they came to examine the wonderful design for the improvement of the bridge, prepared by the joint effort of Messrs. Statham and Mountford, they must condemn the drawing for its "unmitigated ugliness," worthy of an engineer; and he, for one, could see no improvement on the accepted design. The narrowness of the piers was, they knew, not the fault of the engineer, but was due to the Thames Conservancy Board.

Mr. E. W. HUDSON asked Mr. Statham's opinion of Page's bridge at Westminster, the lines of which he thought very graceful.

Mr. E. W. MOUNTFORD contended that Sir A. Binnie had been successful in reproducing some of the objectionable features of the bridge at Geneva without any corresponding advantages. The bad appearance of Vauxhall Bridge was certainly partly due to the smallness of the piers, owing to the refusal of the Thames Conservancy Board to permit wider ones to be put down. The Institute Committee suggested that these should be widened by some 5ft. or 6ft., for appearance sake, but were informed that it would be quite impracticable. Still, the opposition of the Institute had not been in vain. Mr. Statham had not, as Mr. Woodward supposed, objected to the casing of the concrete; it was necessary to cover it in, and it had been suggested that Sir W. B. Richmond might turn his attention from St. Paul's and incase the bridge with mosaic. The letter to Sir A. Binnie, expressing general approval of the



general outlines of the design, was intended to be private, and was written with a purpose.

Mr. W. D. CAROE having pointed out that the difficulty was to get the public and the engineering profession to understand what was ornament, Mr. STATHAM replied remarking that Westminster Bridge looked well, but lost its interest when one knew that the graceful lines of the bridge did not correspond with those of the ironwork which really carried the load. He had not objected to the casing of concrete with granite.

Mr. WOODWARD asked if Messrs. Mountford's and Stathan's design for Vauxhall Bridge would be published in the *Institute Journal*.

Mr. STATHAM replied No, he did not prepare designs for Mr. Woodward to criticise, and wrote his paper for quite a different class of person.

The PRESIDENT announced that a special meeting would be held on May 29 to rescind for the time being by-laws 3 and 11, to allow of the election of G. F. Bodley, A.R.A., as a Fellow.

## THE ARCHITECTURAL ASSOCIATION.

THE closing ordinary meeting for the present session of the Architectural Association, was held on Friday evening at 9, Conduit-street, W., the President, Mr. G. H. Fellowes Prynne, F.R.I.B.A., in the chair. Mr. G. B. Carvill, Hon. Sec., proposed a vote of thanks to Messrs. G. H. Fellowes Prynne and F. A. Walters for conducting visits over new churches at Ealing, on April 29th, and to Mr. H. Greville Montgomery for arranging a visit to the Building Trades Exhibition on May 6th. Mr. E. Howley Sim, Hon. Sec., announced that the Annual Dinner would be held on Wednesday, May 31st, at the Holborn Restaurant. The following gentlemen were elected as members: W. H. Baines, H. McGowan Bowes, J. Faraday, G. H. Lovegrove, G. H. Pesche, W. J. Windrum, J. Saunders, and N. D. Sheffield. The President called attention to the fact that the visit arranged for Saturday, June 3rd, to Hatfield Hall could not be held, and that the members would see in lieu thereof Cobham Hall, Kent.

## ASPECT AND SOIL IN RELATION TO THE DWELLING-HOUSE.

A paper on this subject was read by Dr. G. V. POORE, who pointed out that the conditions under which dwelling-houses are built have been revolutionised by steam machinery. Modern facilities as regards water supply and sewerage have made curtilage unnecessary, and have enabled us to build towers of flats which, from the sanitarian's point of view, are most undesirable. While all recognise that overcrowding is the greatest of social evils, both as to morals or health, the lecturer pointed out that public opinion is at present mainly in favour of overcrowding in cities, and, further, that overcrowding is encouraged both directly and indirectly by modern municipalism and the by-laws which regulate building operations. The speculative builder considers the question of cost and cost only, and until the public recognise that aspect has a real money value and is worth paying for, there is no likelihood that the question of aspect will trouble the mind of the builder.

## URBANISING IN PRACTICE.

The engineer and the surveyor have too much the "whip hand" of the architect, and by the time the building estate has been laid out the whole question of aspect has been practically settled, and the architect has really no choice in the matter. The author described in racy terms the "development" (so-called) and the wholesale urbanising of a rural spot, with all the evils attendant thereon, and showed that where a recreation ground was rescued from the speculating builders' clutches, the houses which surrounded it did not look upon this green oasis, but were directed to the main roads, while a dismal array of privies and washhouses were turned towards the open space.

## ASPECT.

Since the best aspect for the chief rooms of a house is one looking to the south-east, it is obvious that if the main roads of a building estate run from south-west to north-east, the houses flanking such roads would have one side turned to the south-east. On the north side of the road the fronts would face the south-east, and on the south side the backs would face the south-east, unless the local council permitted, and the builder were willing, to allow the backs of the houses on

the southern side of the road to be turned to the street. Speaking as a doctor, he urged that it would be advisable to turn the backs to the street, if by so doing a good aspect can be obtained for the chief rooms. By adopting this plan we have the additional advantage of bringing the culinary and sanitary arrangements close to the street, and thereby greatly simplifying the sewerage arrangements. Whether houses with their backs to the street would meet with the approval of "the masses," he could not say. If it were considered essential that the chief rooms of a house should face the south-east, there could be no difficulty in attaining this end (except in streets running from north-west to south-east), provided the houses were placed obliquely to the street line and were built *en échelon*—a mode of building which tends to secure privacy, although it probably adds to the expense of building and the difficulties of plotting out the estate. Is it necessary that all the roads on a building estate should be absolutely straight and at right angles to each other? Is it quite impossible to rest the eye and give some variety by an occasional curve?

## DOCTOR SUNLIGHT.

The question of aspect is very much a question of sunlight, and the latter has great influence on health. The Italians have a proverb which says that the doctor comes to those places which the sun does not visit, and it is certain that there is most tuberculosis in places which are overcrowded, and to which the sun finds access with difficulty. Among children under five there is more tubercular disease in London than in any other county, and probably for the reason that the number of persons on a given area is greater in London than in any other county. It is, indeed, a remarkable fact that in only two of the registration districts in London (Lewisham and Hampstead) is the death-rate of children from tuberculosis less than it is in England as a whole. In all the other districts the death-rate from the tubercular diseases is much higher than in the country at large. This prevalence of tuberculosis is due to overcrowding of houses on the land and overcrowding of people in the houses, to the dirt-laden air and the darkness and the gloom. In London it is almost idle to talk of aspect. If aspect is mainly a question of sunlight, then in London it is not only necessary to have your house facing towards the sun, but also to make sure that no screen in the shape of a tower of flats intervene between it and the sun. To have your house facing the sun, and with its chief living-rooms well exposed to it, means a considerable saving of fuel and gas. If a dwelling be detached and isolated it is generally possible to give the chief rooms any aspect which may be desired. It is common to find, however, that detached villas have their fronts parallel to the road, even though this position should entail a north-east aspect.

## A PLEA FOR THE ISOLATED DWELLING.

On the general grounds that overcrowding is to be lessened by every means in our power, sanitary authorities should encourage the erection of detached and isolated dwellings. The most important part about a "home" is not the house but the garden round it. The children of a country labourer, born in the commonest and cheapest erection of wood or mud and thatch, standing in its rood of potato-ground, have a much better chance of growing up healthy in body and mind than those who have been born under the fostering care of Urban District Councils in houses with concrete foundations, damp-proof walls, patent water-closets and traps, sewer-pipes, and rain-water pipes; with an expensive paving in front, and a tiny concreted yard behind, which is practically an air-well with putrefaction traps in its floor. This last class of dwelling, the outcome of by-laws which seem to be designed for the purpose of rapidly urbanising rural places, is very expensive, and the artisan finds that he has to pay, relatively, an enormous part of his earnings in rent and rates, and that his children have no private playground. The stringent building by-laws which are now in force in many places are admittedly necessary in crowded centres of population; and if they were still more strict on the question of height of houses, and the relation to be enforced between the cubic contents of the building and its surroundings, no one would object. On the other hand, these by-laws very much augment the cost of building, and thus it is becoming increasingly difficult to get an adequate return for houses erected for the wage-earning class. So much is this the case that it seems not

unlikely that municipalities will be called upon to provide dwellings and run them at the expense of the ratepayers as a whole. Many rural municipalities have adopted these by-laws, and appear to enforce them very often to the detriment rather than the advantage of the locality. The builder of an isolated dwelling ought, the lecturer contended, to be allowed to escape from these harassing by-laws, and ought to be permitted greater freedom in the choice of building materials than the speculator who is trying his hardest to put the maximum population on the minimum legal area. In relation to fire and infectious disease, the surest preventive measure is the isolation of the dwelling. If the dwelling be separated from the boundaries of other premises and the public thoroughfare by a distance equal to its height, it ought to be allowed to escape from the by-laws. The insurance offices will know how to enforce an adequate security against fire.

## WHY NOT WOODEN COTTAGES?

Mr. Till, of Eynsford, in Kent, recently erected two timber cottages in the country on either side of a road. One of these cottages was condemned because it happened to be within the boundary of a council which had adopted model by-laws. The only valid reason for such condemnation was the danger of fire. But it is evident that the danger of loss of life from fire is very slight in an isolated cottage with the bedroom windows, at most, some 10ft. above the ground. On the other hand, the danger to loss of property is indicated by the fact that the insurance offices charge 2s. 6d. per cent. instead of 1s. 6d. If, however, a model by-law cottage costs £250, while a wooden cottage equally large and wholesome costs £150, it is evident that the cost of insurance is equal in the two cases. The rent of the first at 5 per cent. would be £12 10s., and the rent of the second £7 10s. By living in a wooden cottage, allowing for rates at 4s. in the £, the working-man would save £6 a year, or nearly 2s. 4d. a week. But the isolated cottage must be under control as regards cesspools or any underground sanitary abominations, which may be an unseen danger to the neighbours; but on the grounds of the health and safety of the public, builders of isolated dwellings ought not to be harassed by by-laws.

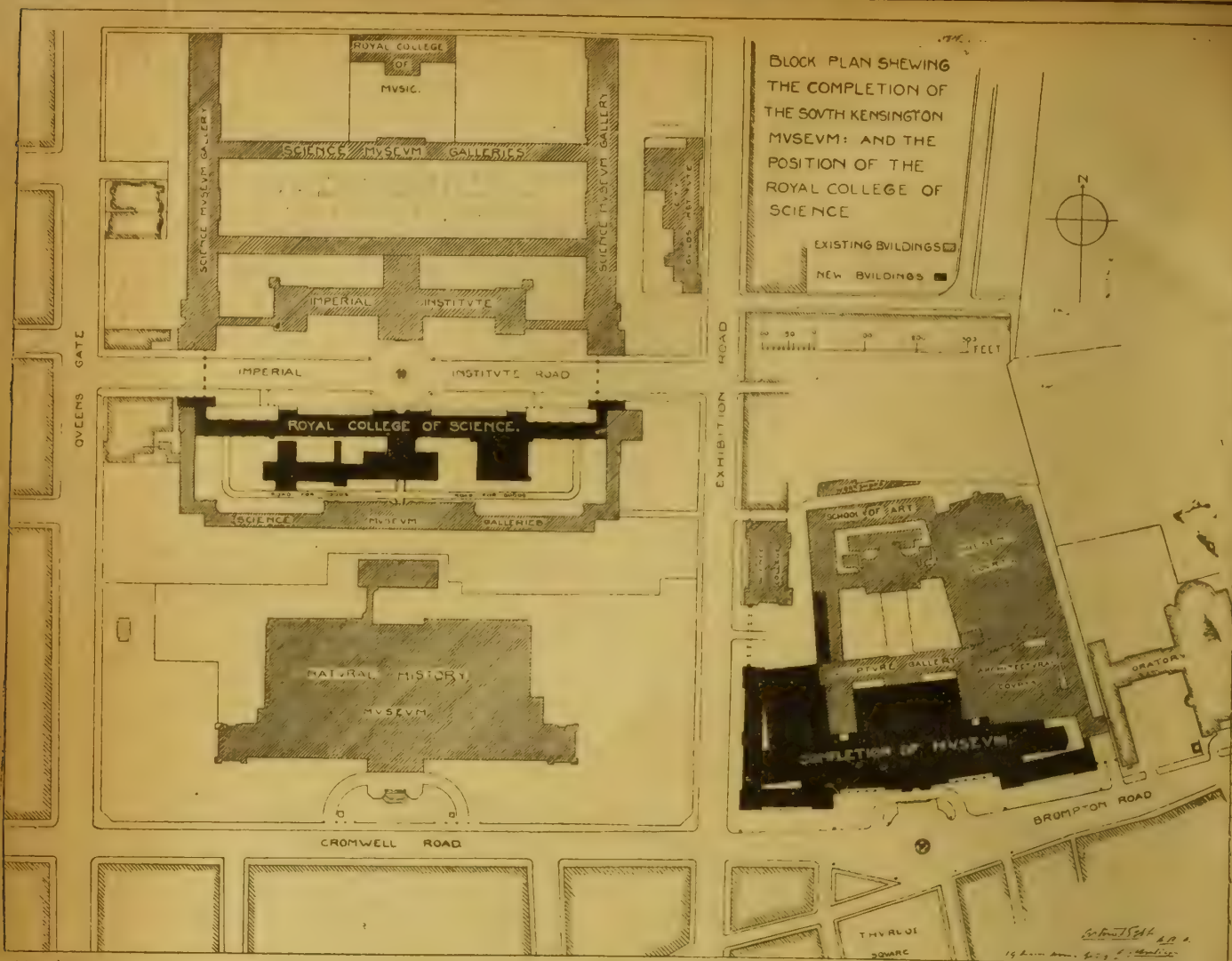
## SOIL: THEORY AND KNOWN FACTS.

The question of soil in relation to the dwelling is necessarily one of great importance. Assuming, in the first instance, that the soil selected is pure, the lecturer confessed that he had no evidence that in the matter of wholesomeness there is any difference between rocks, sand, gravel, or chalk. Nor is there any evidence that either of these soils gives rise to unwholesome emanations. In cities, where organic filth has been buried in the soil for ages, it seems likely that the gases of putrefaction may gain access to the house. In London, when the soil is opened up, there is always a stink of illuminating gas, and, obviously, it is desirable to keep that out of our dwellings. Further, impurities from sewers and cesspools are sure to leak into the soils of populous places. Therefore, the model by-laws insist that the ground upon which a house is built shall be covered with a regulation thickness of concrete. This is a reasonable provision in a populous place; but so soon as a crack or pinhole is accidentally made in the concrete, the alleged security given by it vanishes. In country places which have adopted the model by-laws, the covering of pure chalk or sand or gravel with concrete is equally insisted upon before a cottage can be built. This has the effect of increasing the cost and rent of the cottage, unless it be thought advisable to make the floor of concrete finished with cement. It goes without saying that for houses built in low-lying damp situations, an impermeable layer of concrete is necessary. It is quite possible to build a house upon clay which shall be perfectly dry, and through clay unwholesome gases find it difficult to travel, which is a theoretical advantage. Fogs are frequent on clay lands; but it is not clear that an occasional pure fog does any harm to a healthy person. The foul irritating fogs of London are, however, dangerous to many and deadly to not a few.

## WASTE WATERS.

The nature of the soil upon which a house is built has great influence on the ease with which the waste drainage waters are got rid of. On porous soils—such as sand, gravel, and many chalks—they soak away, and hence there has been a great temptation on such soils to construct





soak-away cesspools, which in the days of our ancestors, before the use of water-closets and fixed baths became general, were little likely to contain infective matter, and continued to act efficiently for years. Modern sanitation has raised the amount of waste water enormously, and the invention of the water-closet has greatly increased the danger and foulness of the waste waters. In conclusion, whether a house be on a permeable or impermeable soil: (1) all waste fluids should be dealt with before putrefaction sets in; (2) they should be delivered on to the surface, and not beneath the surface of the ground; (3) they should never be allowed to collect in cesspools, which encourage putrefaction, and merely postpone the inevitable work of distributing them over the ground.

A discussion followed, in which Mr. TILL, of Eynesford, Messrs. F. T. W. GOLDSMITH, E. SWINFEN HARRIS, W. BASSETT HOPKINS, W. H. SETH-SMITH, H. A. SATCHELL, A. S. FLOWER, and the President took part, and a hearty vote of thanks was accorded to Dr. Poore, who replied to various points raised.

#### THE A.A. TRAVELLING STUDENTSHIP.

The President announced that five sets of drawings were received in competition for this studentship. They were of exceptional interest and ability, and the Committee had awarded the Studentship to D. Theodore Fyfe, of Chetwynd-road, Highgate-road, N.W.; a second prize of £5 to Henry Tanner, jun., Queen Anne's-gate, S.W.; and hon. mention to H. Farquharson, of Leyland-road, Lee, S.E.

#### ELECTION OF OFFICERS AND COMMITTEE.

The PRESIDENT read the report of the scrutineers on the voting for officers and committee for the session 1899-1900 as follows:—President, Mr. G. H. Fellowes-Pryne; Vice-Presidents, Messrs. E. Howley Sim and H. T. Hare; Committee, Messrs. Beresford Pite, W. A. Pite, P. J. Marvin, A. H. Hart, F. G. F. Hooper, H. A. Satchell, M. Garbutt, W. A. Forsyth,

W. H. Seth-Smith, and A. T. Bolton; Hon. Treasurer, Mr. Hampden W. Pratt; Hon. Librarian, Mr. A. S. Flower; Hon. Secretaries, Messrs. G. B. Carvill and R. S. Balfour (the foregoing form the Committee); Hon. Solicitor, Mr. W. H. Jamieson; Hon. Assistant Librarian, Mr. W. B. Dukes; Hon. Auditors, Messrs. J. W. Stonhold and W. E. Davis; Assistant Secretary and Registrar, Mr. D. G. Driver.

The business of this session was closed at the end of a three hours' meeting by passing, by acclamation, of votes of thanks to the various retiring officers and members of committee.

#### VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

[WITH LITHOGRAPHIC ILLUSTRATIONS.]

THE very complete series of drawings which we publish to-day gives an admirable idea of the whole scheme of these new buildings, of which the Queen laid the foundation-stone on Wednesday. The general block plan accompanying these notes shows very distinctly how Mr. Aston Webb's additions combine with the existing galleries, as well as their relation to the Royal College of Science in Exhibition-road. A few weeks ago\* we illustrated Mr. Aston Webb's design for the new Science Buildings on the other side of the way, which will face the Imperial Institute, and occupy the site at the rear of the Natural History Museum. That part of the general scheme, however, has no structural connection with the larger group of new museum buildings in Cromwell-road; but inasmuch as the College of Science naturally formed a very important factor in the contrivance of the whole plan, it cannot be ignored even indirectly in a notice of this kind when dealing with the design now happily put in hand for execution. It is about eight years since the limited competition was held; when Mr. Aston Webb's design was

chosen. It will be found fully illustrated in the BUILDING NEWS for Aug. 7 and 14, Sept. 11, and Nov. 20, 1891. We likewise published all the other competitive designs at the same time. This week the drawings of the new scheme have been on view at H.M. Office of Works.

With these references and preliminary remarks we turn with renewed pleasure to the project as it will forthwith be realised. Several important changes have been made both in the plans as well as in the elevations; the former certainly are improvements, though we are not so sure that the alterations in the treatment of the façades will be altogether correspondingly welcomed. The plan gains very materially by the contrivance of the main façade in a quadrant line following the frontage boundary in Cromwell-road, and continuing the building line in Exhibition-road. The central portion of the south front is set back 30ft. The recasting of the plan in this manner not only enhances the picturesqueness of the distribution of its parts, but it has enabled the architect to utilise the site to a much better advantage. The new buildings will add 250,000ft. to the present floor area, which amounts to 180,000ft., so that the space covered will be more than doubled. The existing large quadrangle in front of the well-known refreshment-rooms will eventually be divided into two open courts by continuing the central avenue straight through from the principal entrance hall of the new museum buildings, and crossing on the way the antique casts corridor. There is a dignified symmetry about the scheme which is always conspicuous in good planning, while the new parts are made to fit ingeniously and squarely with the present buildings. Useful areas are introduced, where awkward deviations would otherwise occur, and, architecturally speaking, Mr. Webb's plan is well considered, and skilfully handled in a masterly way. The arcaded aisles or galleries, as they are called, dividing the southern courts from the north-west, and central courts, will afford scope for architectural effect in an unambitious manner,

\* See BUILDING NEWS, April 7, 1899.







design. This comparative failure of effective design which may thus be hinted is to some extent due, we fancy, to the size of the columns between the windows immediately over the entrance. The whole middle part might be lifted up and the detail made larger in scale. The freedom of treatment introduced by the angle-set buttresses furnishes ample excuse for a decided departure from the continuation of the secondary horizontal lines, which, quite apart from this central pavilion, are amply sufficient, if not in a minor degree excessive.

## SPECIFICATIONS.\*

(Concluded from p. 636.)

### THE AMBIGUOUS "BEST."

THERE is one word in a specification of which the meaning is often disputed. It is the word "best" when applied to workmanship and materials, especially to materials, and is, I grant, somewhat ambiguous. But I would not use such terms as "best finest," "extra best," "super best," "best best," and so on; but merely employ the word best once and for all, and attempt to define its meaning. Here is a suggested definition of this word. "The word 'best,' as applied to materials, articles, and workmanship shall mean that there is no superior quality of material or finish of article in the market, and no better class of workmanship obtainable." In fact, by defining this word "best," it will only be necessary to mention it in the one clause when stating that all materials and workmanship are to be of the best quality and class.

### MECHANICAL DEFINITIONS.

We are all apt to fall into the error of describing certain materials mechanically, such as timber from a market which has long since been entirely exhausted, or stone from a worked-out quarry, or we use misleading and exaggerated language, "timber free from knots," demanding what, in our own minds, we never expect to obtain. We should only specify what we can get, what we mean to have, and then see that we get it. At the same time we must not lose sight of the fact that our endeavour must be to obtain the most suitable and best material procurable in the market, and that the work when executed shall be a credit to all.

### SUB-CONTRACTS.

As to the question of sub-contracts, this would take some time to discuss, but, as a general rule, let a sub-contract go through the general contractor; but when this is impossible, then make the sub-contractor subject to all the conditions of the main contract equally with the general contractor, and in the main contract stipulate that the general contractor is to give every facility to the sub-contractor, and allow him the use of his scaffolding and plant.

### ARRANGEMENT OF STAIRS.

Having now, so far, settled the general scope and bearing of a specification, the next step is to put the various items into order and place. As I have before said, we cannot do better, generally, than divide the specification into separate headings or trades as they are called. As to the order in which these trades should be placed, I do not think that very important, only let each trade, if possible, come in the order in which the building would be erected. Thus the specification would be started with the preliminary items or general clauses, under which heading would come every item that would apply to the building generally as a whole. Then would follow the trade of excavator, this being the first start of the actual work. Then the trades embracing the structural parts of the building, such as bricklayer or mason, whichever trade would chiefly apply to the walls. In like manner you would go on constructing the building on paper until it was roofed in, when the trades taking the interior fittings, finishings, and requirements would follow, and finally the decoration and painting. As to what items each particular trade should embrace, or how many trades the specification should be divided into, that to some extent would be a matter of convenience and clearness, consequent on the nature of the building in question. Thus, if pavior is a considerable item, make it a separate trade, but if a very minor point, then the paving may come under the trade of bricklayer. Again, if the

drainage is a large item, I would make that a distinct trade, instead of putting it, as it is often done, under excavator. Further, floor and wall-tiling might either come under pavior, bricklayer, or plasterer, as each of these trades, in certain parts of the country, is performed by the same class of workmen. Many other items may be treated in the same manner. Each trade is

### STARTED WITH A PREAMBLE

or the general clauses mostly applicable to all the items under that trade, such as the description of the various materials, and the general covering clauses referring to similar parts of the work in different positions; after which follow in detail the actual items of work. Strictly speaking, a preamble is an introduction or preface; but in a specification the term is applied in the sense of denoting the general clauses and descriptions at the beginning of each trade. Going more fully into the various items of almost similar description under each trade, I think the best plan, in most cases, is to describe all the items of a similar nature to each floor separately, from the lowest to the topmost story, continuing with other similar items on each floor. But if the description of any item will apply equally over the whole of the building, describe it so, without reference to each separate floor, and thus save useless repetition. As to the exact order of the various items under each trade, I would put them as far as possible in that order in which they would be built. But there is no hard and fast rule to follow in this respect, as in many cases it will be clearer to run them on, regardless of that order. When describing the items

### DO NOT OMIT TO MENTION

the class of material: thus state the particular quarry and bed of stone, give the class of wood for the timber and joinery work, and state whether it is rough or wrot. A general clause, such as this, "that all exposed faces of timber and joinery work except where otherwise mentioned are to be wrot," will save repetition of this word "wrot." State if you mean Portland or other kind of cement; the word Portland is often omitted. And all other descriptions of materials should be clearly defined.

Reverting once more to what may be considered the best order in which to place the items of work under the various trades, I know that this is one of the chief difficulties of the beginner, and I will suggest an arrangement for some of the principal items. I have before mentioned that, as a rule, it is best to specify the items in that order in which the work will be built, but that it is not always possible to carry out that order. But I would say that, whatever order you once adopt, always follow in all your specifications and in all its parts, so that you will know yourself where to find an item. I have also said that each trade in every case should start with a preamble, or the general clauses and description of materials. Now to take the principal items under the various trades respectively.

### IN PRELIMINARY ITEMS

I do not think any particular order is essential, but it would be as well to keep the clauses in that order which would mostly run with the order of the work to the building. If old buildings have to be removed, the description would come under this heading of preliminary items. But if a housebreaker is employed then this work would form a separate and distinct contract by itself. In Excavator take the surface excavation first, then the deep excavation, such as that to basements and cellars; then the general excavation to the foundations and the attendant items, such as planking and strutting, filling and ramming; and, finally, any other small or particular items. Then describe the concrete foundations, after which the surface concrete and any brick rubbish under, then the concrete floors, roof, and stairs. If the walls of a building are in concrete I would take these immediately after the concrete foundations, of which they then would almost form a part. Under drainage describe the manholes first, then the pipes with the concrete, then the gullies and other similar items. The items under the trade of pavior are so simple that any order might serve, but take first the important items of internal paving, and follow on with the smaller items, and finish with the external paving.

### IN BRICKLAYER

commence with the general walls of the building, then the damp-course, hoop iron, and other attendant items. Then those parts in cement,

such as rough arches, trimmer arches, piers, sleeper walls, half-brick walls, and dry areas. Then the external facings and pointing, gauged or other external arches, dressings, mouldings and ornaments, external glazed brickwork, or flint facings. Then the internal facings and pointing, glazed brickwork, and wall tiling. Boundary and retaining walls, and such-like distinct items should come last, and be described separately and completely by themselves. Terracotta facings might either come with the other external facings or be kept as an item by itself after the description of the other general work, and before such items as boundary or other walling.

### IN MASON

commence with the rough stone, such as templates and corbels, if not elsewhere described, and follow on with the thresholds, sills, copings, internal paving, staircases, hearths, and chimney pieces. Then the external paving, steps, and curbs. If the walls are built or faced in stone I would describe these first completely, with all the labours, mouldings, and ornaments on them, and then follow on with the rough stones and internal items, and finally with the external items, such as pavings, steps, and curbs. I would not trouble to keep all stone of a similar nature under the one heading, unless it should happen to come in that order. Many make

### CARPENTER AND JOINER

two trades. In a large work perhaps it is better to separate them, but in a small work I should certainly keep them together. But it is immaterial whether they are separated or not as long as the descriptions are clear. Personally, I prefer them generally under one heading; you will perceive the reason from the order of the items I will now give you under these trades. Lintels, brassummers, posts, cradling, floor and ceiling joists and plates, sound boarding roof or flat timbers, felt, battens, gutters, and all external joiners' work to the roof or flats, except windows, doors, and skylights, such as rolls, facias, barge-boards, and such-like items. Then would come quartered partitions, followed on with flooring, windows, skylights, external doors, internal doors, framed partitions, skirtings, dados, wall and ceiling panelling, staircases, sinks, water-closets, and bath casings, and other internal fittings, such as shelves, cupboards, and such-like domestic fittings. Fencing, weatherboarding, or other outside work should be complete items by themselves, and come last. Half-timber work, with all its attendant items, might, I think, come after the description of the rough timbers. I would not separate hard woods from soft woods, but describe them as they come on each separate story.

### IN SMITH AND FOUNDER

take this order: lintels, chimney-bars, straps, girders, floors, columns, roofs, carriages, iron windows, gutters, stack pipes, external railings and gratings, stoves and ranges and heating. Heating may come under heating engineer. Under slater and tiler, roofs first, then vertical slating or tiling, shelves, cisterns, and such-like smaller items.

### IN PLUMBER

take gutters, flashings, and other roof finishings, flats and their gutters, and finishings, then drinking-water supply pipes, cisterns, sinks, lavatories, baths, and fittings. Then water-closet supply pipes, cisterns, water-closets, slop sinks, urinals and fittings, soil and ventilating pipes, hot-water circulation.

### ZINCWORKER AND COPPERSMITH.

Take flats, gutters, and finishings, pipes, lightning conductors. In plasterer describe first the general plaster work to ceilings, partitions, and walls, then follow with cornices, coves, centre flowers. Then those parts in cement, and, finally, the external plaster or cement work, or if preferred take the external work first.

### GLAZIER.

External glass to skylights, windows, doors, then internal lights and screens, and pavement lights last.

### PAINTER AND PAPERHANGER.

Internal work to ceilings, walls, wood and iron work, and polishing. Then external painting to wood, iron, and cement work. As to the order in the trades I have not mentioned, such as bellhanger, gasfitter, and electric lighting

\* By F. W. MACEY. A paper read before the London Architectural Association on April 29, 1899.



engineer, which are not generally of any considerable variation, there is very little to suggest, but keep the order of the work, such as the main items first and fittings afterwards. I might mention that the order adopted in bills of quantities is not precisely the same in all parts as that of a specification. The order in quantities is placed to an extent to facilitate the pricing, and the order in the specification should be to distinguish quickly the position of the work.

## PRICES.

One word before I come to the last part of this paper. If the prices in a bill of quantities are not to be taken into account in the settlement of extras and omissions, or if quantities have not been supplied, then a schedule of items should be provided for the builder to fill in, and be attached to the specification and form part of the contract upon which variations may be valued.

## ADDITIONAL HINTS.

I have now, I think, stated the various points which are necessary to be observed for efficient specification writing, and I will just mention a few matters which are worthy of attention and which are not always found to be clearly stated in a specification, but are sometimes omitted altogether, taking preliminary items first. Always state that the plant and temporary erections are to be removed when directed, such as the scaffolding, hoarding, shoring, clerk of works' office, and any other items temporary in their character. The provision of these items is usually stated in the specification, but their removal is not always mentioned. State if the hoarding is not to be let to an advertisement contractor. Clearly define what you mean by prime cost and provisional amounts. State if the employer's business is to be carried on during building operations. Mention that the contractor is to give due facilities to other tradesmen who may be employed on the premises, and also that the contractor is to allow such other tradesmen the use of his scaffolding and plant. State to whom any coins or curiosities found on the premises or during the excavations are to belong. If the contractor has done any work previous to signing the contract, then embody this work in the contract, otherwise an extra may be claimed for some small items which at the time of signing the contract were understood to be included in the contract amount.

## EXCAVATOR.

Where the foundations in a length of walling are not all one level, require the excavation to be in steps and not on the rake. Stipulate that there should be no excavations for ballast or sand unless necessary for the actual excavations, as this may affect the stability of the building. Specify that brick rubbish be put under surface concrete which receives wood-block flooring or paving. There will then be less liability of damp coming through. In clay soils, require the foundations to be taken down below the action of the weather. This may necessitate the foundations being taken down some 4ft., 5ft., or 6ft. below an otherwise good bottom. Specify a proportion of coke-breeze, slag, or gypsum in concrete fireproof construction. It will the better resist the action of fire. State that all foul earth and cesspools are to be removed and the excavation filled up with clean rubbish or concrete. Encase new drain-pipes in concrete; if a slight settlement occurs, they will then the better hang together. Half-channels in manholes are better formed in cement than with half-pipes. A cleaner flow of sewage can thereby be obtained. Then as to the items under bricklayer. Do not forget to mention these points: To tie the walls in; to build external walls hollow, if possible, but in damp situations certainly; and specify the lead covering over the heads of doors, windows, or arches coming within the hollow space. This will prevent the wet being communicated to the inner thickness of the hollow walls. Describe a weather joint externally to brick walls. Build the brickwork up in even heights and fill up all the joints. Let the sand be free from dirt and the water clean. Sea water or sea sand may be used where dryness is not essential. Build chimney-stacks, where they appear above the roofs, either partly down from the top, or else wholly, in cement, preferably the latter. Build all parapet walls and the brickwork immediately under the eaves a certain distance down in cement, and a second damp-course here and to chimney-stacks will not be amiss. Half-brick walls should, of course, be built in cement. Boundary fence

walling should have a damp-course, and preferably be built in cement. In retaining walls against earth do not omit the weeping drains or other device for taking off the accumulating water at the back. Smoke flues should not be too large—9in. by 9in. is sufficient for most fireplaces; and gather the brickwork quickly over the fireplace openings. Build all stoves around solid, and fill up the boxings to chimney-pieces. Fires have often occurred through neglect of this precaution. Do not put too long a description to terracotta work because it may be the custom. Put a straight joint between connecting walls and a heavy tower, and do not attach a large chimney-shaft to the main structure.

## MASON.

Stone templates should be of considerable area and tooled, and not left rough. In fact, any stone upon which work is built should be tooled as a least labour on it. Do not forget the cement packing between the rivet heads on the top of flange girders and the cover stones. Stone hanging steps are almost better placed in position and pinned in after the building is up, and courses being left in the brickwork for this purpose. In stone columns or pilasters the apophyses should be worked on the shafts. The effect is better. Portland cement will stain delicate marbles and some limestones.

## CARPENTER AND JOINER.

When possible, employ wood-block flooring on the lowermost floors next the ground. The ordinary joists and flooring for this position are more liable to decay. In this latter case let the joists and plates be of oak. Put cast-iron shoes or stone bases to all solid door-frames. Bed window-sills on to the stone sills in white-lead, and do not omit the iron tongue. The cleats to roof-trusses and horns on solid door-frames are sometimes forgotten. Snow-boards to roof gutters will often prevent wet penetrating when the snow melts. Open casement windows outwards if you want to be perfectly sure of keeping out the wet. The ends of timbers, where bedded in walls, should have a circulation of air around them. A little sap on the edges of timber exposed to the air will not be any very great source of weakness, and it will not be likely to affect the rest of the timber. All gutters should be wide enough to walk along. Small angle fillets at the junction of horizontal and vertical planes of a roof flat will make better work than if the leadwork be turned up sharply. This remark will also apply to lead gutters. In some cases it is almost preferable to put a p.c. amount for the ironmongery to each door, window, or other fitting, and select the class of ironmongery afterwards. Slater and Tiler.—Tiles and slates without boarding under should be torched. Smith and Founder.—Let rain-water pipes stand out about 1in. clear of the walls.

## PLASTERER.

Timbers over 3in. wide should have the arrises taken off before the lathing is nailed on; this will enable the plastering to get a better key. The walls at the backs of skirtings, or any other woodwork, should be plastered over to prevent vermin harbouring. The outside of all flues between timbers, floors, and where in the roof, should be roughly rendered over. This will be a preventive against fire. Single laths should not be lapped at the joints, as is often done.

## PLUMBER AND GASFITTER.

Do not omit the exhaust-pipe to hot-water circulation, or to the heating arrangements. Keep all hot and cold water pipes well away from each other, and from the action of frost. All pipes, whether gas or water, should be readily accessible, and, if possible, on the face of the walls. The furring-up of hot-water pipes is chiefly found between the boiler and the circulating cylinder or tank. This portion of the piping should be easily accessible for cleansing. All horizontal gas pipe should be laid with a fall, to prevent any condensed liquid remaining in any part of the pipes, and thereby affecting the efficiency of the gas supply. It is a good plan to fix all internal pipes about ½ in. clear of walls, especially hot-water pipes. Do not work the hot-water supply and heating arrangements from the same boiler. Failure is almost certain.

## GLAZIER.

All glass subject to jars should be bedded in wash-leather or indiarubber as well as in putty. I might mention that one of the best methods for glazing skylights is merely to seal the glass on a

bedding of putty, and then to sprig it in and paint the joint over with the woodwork of the bars. It is perfectly watertight, and there is no putty on the weather side to get out of order. This plan is much adopted in horticultural buildings, both vertically as well as in the top-light glazing. The laps of the glass to top light should be cut to a curve, the water being directed down the centre of the glass and away from the rebates in the bars.

## PAINTER.

External painting if done in the spring or autumn will give a more satisfactory result. No painting, papering, or other decoration should be done while there is a suspicion of dampness about the building. All ironwork should be well painted over before it is buried or covered up.

## WATER COLOUR DRAWINGS.

AT the Fine Art Society's Galleries, 148, New Bond-street, is to be seen a collection of water-colour drawings by Mr. Arthur Severn, R.I., a painter whose personal connection with Mr. Ruskin has led him to depict many of the beauties of the Lake district. Such drawings as "Entrance to Mr. Ruskin's Garden, Brantwood," views of the Cumberland coast, Conistone Lake, "Hyacinths at Brantwood," "Heather above Brantwood," show the great appreciation Mr. Severn has for this district, and the varied moods which season and atmosphere impart to the scenery. Conistone Lake is the subject of several sketches, showing sunrise and evening on the "Old Man," Autumn sunset, and other effects on the lake. Mr. Severn's forte is in sea, sky, and cloud effects, and we may notice the drawings of "Sunset at Seascale," the sea, and coast in "Afternoon Effect, Seascale," "After Storm, Cumberland Coast," a rough sea effect. The sunlight and colour of "Sea at Dieppe," "Cloud Effect, Seascale," "Stormcloud," at the same coast. The cloud studies, as in "Afternoon Effects," No. 80, represent a stormy sky and sea, the light bursting through the grey cloud and lighting up the sea near the horizon. Mr. Severn is also a close observer of rocks. His view of the "Rock at Monaco" the "Limestone Gorge, Constantine, Algiers," are clever rock studies. The view of "Avignon," the clever drawing of "The Dee, Kirkcudbright," splashing over rocky bed between trees; the dark mass of hills and reflection of sky in water, "Evening from Brantwood," are all characteristic studies. Several views of the Tower Bridge are shown by moonlight, sunlight, and evening effect, and the views of Westminster, especially No. 73, showing the Palace through a vale of smoke and vapour, and at sunset, are worth notice. The Land's End and views from Florence, the Riviera, Venice, Algiers, Abbeville, a sketch of the front of the cathedral, views of Cromer, St. Ives, &c., are in this collection, and are interesting as depicting natural effects under varied conditions. Mr. Severn uses freely body colour, which imparts to many of his works a depth of tone unattainable with water colour.

## THE SURVEYORS' INSTITUTION.

THE following Student Candidates have passed the Examination for the Professional Associateship:—

Rowland William Alderson, Leek Wooton, Warwick; John William Wilson Armstrong, Blaenau, Stratford-on-Avon; Ernest Witton Booth, Surveyor's Office, Town Hall, Morley, Yorkshire; Arthur George Bradshaw, 7, Gage-street, Lancaster; Clement Joseph Bentley Bridge-water, 94, Portland-place, W.; Basil Vassar Bruton, 29, Fleet-street, E.C.; Geoffrey Redmore Church, 2, Steeles-road, South Hampstead, N.W.; George Harry Cole, 10, Fernshaw-road, Chelsea, S.W.; George Edwin Cragg, 19, Greenside, Kendal, Westmoreland; George Herbert Croft, 10, Sussex-square, Brighton, Sussex; George Alfred Cutler, West Bank, Lewisham Hill, S.W.; Henry Dann, jun., Gwynant, Overcliffe, Gravesend, Kent; John William Statterley Humphreys Davies, 27, Kensington Park-gardens, W.; Henry Arthur Armystead Gate, 20, Mecklenburgh-square, W.C.; Herbert Alexander Glead, 21, Flodden-road, Camberwell, S.E.; James Caulfield Goff, Laurel Hill, Kingstown, Co. Dublin; Alfred Goodman, West Springfield, Upper Clapton, N.E.; Ronald George Gurney, Brook-street, Aylesbury, Bucks; John Sebastian Hall, Valkyrie, Muswell Hill, N.; Tom Percy Hartley, "Uffculme," Garlinge-road, West Hampstead, N.W.; Lancelot Gouldar Hawkins, Downham Market, Norfolk; Edward Robert Hinchliff, 23, Victoria-street, Crewe, Cheshire; Michael Anselm Hindmarsh, Crag View, Alnwick, Northumberland; George Howland, Rushmead, Colleshill, Amersham, Bucks; Percival Hurlbutt, Queen's Ferry, Flintshire, North Wales; George Potter Knowles, 15, Argyle-square, W.C.; Nianan P. Laird, Kirby Muxloe, near Leicester; Sydney Martin Lampard, 114, Clapton



Common, N.; Henry Lemmoine-Cannon, 252, Brixton Hill, S.W.; Hudson Little, Rose Villa, Wighton-road, Carlisle; Edward Adrian Lumley, 22, St. James's-street, S.W.; Sydney Mager, 28, Carleton-road, Tufnell Park, N.; Thomas James Meaby, jun., Canford, Wimborne, Dorset; Henry Arthur Newman, 48, Constantine-road, Hampstead, N.W.; Shirley Herbert Potter, 1, Wyndham-road, Edgbaston, Birmingham; Frank Percy Pratt, Castle House, Ongar, Essex; Thomas Reginald Ransom, Dunkeld, 69, Ritherdon-road, Upper Tooting, S.W.; Douglas William Reeve, St. Moritz, Mulgrave-road, Sutton, Surrey; Maurice Charles Riddett, Highclere, Ryde, Isle of Wight; Arthur Dennett Rutley, Birchwood, Caterham Valley, Surrey; William Henry Sanday, Blackwell Hall, Chesham, Bucks; Stanley Lunau Sandell, Belcaire, 77, Widmore-road, Bromley, Kent; John Henry Simpson, The Estate Office, Bryanston, Blandford; John Ambrose Smith, Tatton Dale, Knutsford, Cheshire; Frank Vincent Tait, 31, Pepper-street, Chester; Frank Treacher Terry, 8, Hopton-road, Streatham, S.W.; Arthur Henry Tyack, 88, Mosley-street, Manchester; Cypryan Charles Oswald Whiteley, 44, Ellison-road, Streatham Common, S.W.; Sidney Prudden Wigley, 29, Fleet-street, E.C.; Arthur Codrington Williams, Moor Court Farm, Sparsholt, Winchester Hants; Thomas Henry Wright, "Hawkhurst," Terrapin-road, Upper Tooting, S.W. \* Special Prize.

The following Non-Student Candidates have passed the Examination for the Professional Associateship:—

Gordon Campbell Atkinson, 162, Mercers-road, Tufnell Park, N.; Frederick George Barker, Bridge House, Fordingbridge, Hants; Alfred William Baylis, 9, Thanet-road, Erith, Kent; Edmund Brand, 2, St. Andrew's-place, Lewes, Sussex; Frederick George Brooker, Elm Bank, Hitchenbath-lane, Sevenoaks, Kent; William Nathaniel Brooks, Durwards, Witham, Essex; Ernest Newth Buttenshaw, South View, Sunnyside, St. Alban's, Herts; Richard Herbert Chichester, Cheswardine, Market Drayton, Salop; Leonard Eustace Clarke, 9, Chichester-street, W.; James Thomson Cole, Fell-court, Torquay, Devon; Edward Arthur Cook, Benington Lodge, Framlingham, Suffolk; Arthur Wesley Crampton, The Park, Mansfield, Notts; Hollis Augustus Crook, 43, Bridge-avenue, Hammerbury, W.; Herbert Hood Daniel, Hill-End House, Henbury, near Bristol; Robert Harvey Addington Delves, Stamford House, Derby-road, Woodford, Essex; James Murgatroyd Dickinson, Millans Park, Ambleside, Westmoreland; Eustace Cyril Theodore Dodd, Belle Vue, Ashcroft, Cirencester; Dugdale Oakley Dunlop, 20, Booth-street, Manchester; Hugh Wicksted Ethelston, Hinton, Whitechurch, Salop; Alfred Charles Stanley Fowler, 53, Oakfield-road, Stroud Green, N.; George Freeman, 44, Alexandra-road, Wimbledon, S.W.; William Pope Genge, jun., North Curry, Taunton, Somerset; Arthur John Hooley, The Poplars, Allestree, Derbyshire; Arthur Ernest Hope, 13, St. George's-square, Forest Gate, E.; Alan Herbert Howgrave-Graham, 12, Willow-road, Hampstead, N.W.; George Whitaker Hunt, South Eastern Agricultural College, Wye, Kent; Alexander Pearson Jolly, 6, Northbrook-street, Newbury, Berks; Philip Vivian Jones, Wood View, Hengoed, via Cardiff; George William Calver Kelly, Pembroke-street, Appleby, Westmoreland; Albert Tammons Latham, 5, Grosvenor-road, South Norwood, S.E.; Walter Bernard Laurence, 51, Eardley-crescent, Earl's Court, S.W.; Leonard Lickis, 33, Whittinghall-road, Parson's Green, S.W.; Albert Daniel Lomas, 8, Chatham-place, Liverpool; John Luke, jun., Corporation-road, Belgrave, Leicester; Dyneley Luker, 19, Waldeck-road, Ealing, W.; Humphrey Dod Lynes, Estate Office, Glanllyn, Bala, North Wales; Douglas Samuel Matthews, 650, Fulham-road, S.W.; Percy William Meredith, 20, Deerbrook-road, Herne Hill, S.E.; Frederick Walter Merrick, Poplar House, Stanwell Moor, near Staines; Ernest William Moat, 67, Kennington Oval, S.E.; Elvin Fowley Mumby, 8, Trinity-road, Upper Tooting, S.W.; Emmanuel Joseph Oram, 42, Lansdowne-road, Tottenham, N.; William Arthur Palmer, Featherstone, Yorks; Herbert Mostyn Parry, 9, Irving Mansions, West Kensington, W.; John Stonehouse Petch, Haltwhistle, near Carlisle; Roger Prosser, University College of Wales, Aberystwith; Alfred Ernest Protheroe, Bourn House, Leytonstone, E.; Ernest Edward Richardson, 23, Trinder-road, Crouch Hill, N.; Philip Robertson, Sandhills, Monkton, Ayrshire, N.B.; Samuel Messiter Rowlandson, 19, North Bailey, Durham; Arthur Lionel Rutter, 62, Sidney-street, Cambridge; Hubert Covell Sands, 67, Pelham-road, Gravesend, Kent; Douglas Smith, Windsor Estate Office, St. Fagan's, Cardiff; Robert Stephenson, jun., Burwell, Cambridgeshire; Edward Frederick Stimson, 8, Moorgate-street, E.C.; James Henry Sutcliffe, Hazelwood, Hebdon Bridge, York; Francis William Terry, Stratton Strausless, Norwich; George Thomas, 10, Waterloo-place, S.W.; Richard Squire Thorne, Agricultural College, Reading; Leonard Fielder Thurgood, Ringwood, Upper Richmond-road, Putney, S.W.; Arthur Tighe, 55, Durlston-road, Upper Clapton, N.; Henry Turner, 21, St. Paul's-road, Preston, Lancashire; Marcus Oswald Type, "Glendenthorne," Trafalgar-road, Moseley, Birmingham; David Alexander Watson, Estate Office, Shirkburn, Wellingford; Henry Stanton Weber, 8, Craufurd Rise, Maidenhead, Berks; Frederic Beauchamp Wells, Carlton Chambers, Baldwin-street, Bristol; Herbert James West, Mount Carron, Hainault-road, Leytonstone, E.; Edward Box Wetenhall, 27, Fitzroy-street, Fitzroy-square, W.; Percy Newton Wilkinson, 3, St. Mark's-square, Regent's Park, N.W.; James Bernard Witham, Oakleigh Boothroyden, Rhodes, near Middleton, Manchester; Frank Sydney Woodcock, 245, Underhill-road, East Dulwich, S.E.; Francis Edward Yewdall, 6, Penfold-street, Barnsbury, N. \* "Driver" Prize and "Ellington" Silver Medal.

IRISH CANDIDATES.—Donogh Richard O'Brien, 16, Upper Mallow-street, Limerick; George Pakenham Stewart, Laragh, Killiney, Co. Dublin.

The following Professional Associates have passed the Examination for the Fellowship in Division IV.:—

Sydney Wood Ambler, 10, Leighton-street, Woburn, Bedfordshire; Francis Houghton Angel, 50, Russell-road, Kensington, W.; Bernard Beresford Baddeley, "Lakefield," Woodberry Down, N.; Geoffrey Clinton Baker, 18, St. Anne's-crescent, Lewes, Sussex; Stephen

Allen Barnes, 51, Brooke-road, Stoke Newington, N.; Joseph Grant Bickford, 23, Charleville-road, West Kensington, W.; John Bowyer Bird, 25, Harrington Gardens, S.W.; \* John Friendship Bowden, Park View, Barnstaple, Devon; William Newbegin Brackett, 83, Maldon-road, Colchester, Essex; Albert Ernest Butler, Agricultural Chambers, 20, Blagrove-street, Reading; Charles Butler, 14, Queen-street, Huddersfield, Yorkshire; William George Cope, 8, Orchard-street, Portman-square, W.; Norris Tynwald Cowin, 21, Argyle-square, King's Cross, W.C.; William Thomas Cresswell, Barrack Reconstruction Office, Colchester, Essex; Charles Tylee Cronk, Sevenoaks, Kent; Cecil Golder Fearn Culverhouse, 9, Whitehall-place, S.W.; Thomas Samuel Dangerfield, 14, St. George's-terrace, South Kensington, S.W.; John Everington, Merton House, Dulwich Wood Park, Norwood, S.E.; Frederick Russell Fox, Imperial Hotel, Barnstaple, Devon; Robert Strachan Gardiner, Crosswood Estate Office, Wenall, Aberystwith; Douglas Fleet Goldsmith, Lavant-street, Petersfield, Hants; James Gunter, Estate Office, Glasbury, Radnorshire; John Edward Harrison, Estate Office, Allestree, Derbyshire; Mackintosh Meleng Holl, Sywell, Northampton; John Murray Kerr, Summerfield Park, Llanidloes, Montgomeryshire; Charles Frederick Dashwood Lang, Vigo House, Weybridge, Surrey; Donald Lloyd, Wells, Somerset; Arthur George Marshall, 1, Army and Navy Mansions, Victoria-street, S.W.; Arthur Morris, 15, Denbigh-place, S.W.; William Henry Morris, West House, Chirbury, Shropshire; John Oscar Nesbitt, 6, Limefield-terrace, Levenshulme, Manchester; Robert Mathewson Ogilvie, 10, Bolstro-road, Hayward's Heath, Sussex; Roger William O'neill, Gorst Hall Farm, Kidderminster; William Henry Pain, 41, Navarino-road, Hackney, N.E.; Richard George Gordon Reed, Glendevon, Addiscombe-road, Croydon; Arthur Bayliffe Richardson, 78, King Edward-road, South Hackney, N.E.; Archibald Lacy Scott, Bury St. Edmund's, Suffolk; John Eustace Secker, Estate Office, Warrington; Alfred Sydney Edward Sedgwick, 195, Tulse Hill, S.W.; Robert Harold Seel, Theatre Royal Chambers, St. Mary-street, Cardiff; Harold Sheldon, Town Hall Chambers, Middlewich, Cheshire; Charles Ayre Mackenzie Skues, Hyrst View, Campden-road, South Croydon; George Henry Smith, Brooklands, New Malden, Surrey; \* Sydney Arthur Smith, Head Master's House, Maitland Park, Haverstock Hill, N.W.; Herbert Percy Stimson, 2, New Kent-road, S.E.; Frederick Stanley Sutton, Willow Cottage, 133, Brixton Hill, S.W.; Horace Clare Waterfield, 30, Prince's-square, Bayswater, W.; Reginald Spencer Wigram, 12A, Savile-row, W.; Charles Albert Willoughby, 23, Friars-road, Croydon; Frederick Robert Wilson, 10, St. Nicholas-road, Upper Tooting, S.W.; Thomas John Young, South-Eastern Agricultural College, Wye, Kent. \* "Crawley" Prize. + "Penfold" Gold Medal.

The following Candidates have passed the Direct Examination for the Fellowship:—

Frank William Booker, Short Hill, Hollow Stone, Nottingham; William Harold Eve, 10, Union-court, E.C.; Banister Flight Fletcher, 23, New Bridge-street, E.C.; Thomas Marcus Houghton, 15, Montholme-road, Wandsworth Common, S.W.; Samuel Brown Saunders, L. and S.W.E. Estate Offices, Waterloo Station, S.E.; Arthur Courtenay Scott-Smith, 10, Gandy-street, Exeter, Devon; Thomas William Harris Taylor, Trebidy Estate Office, Camborne, Cornwall; Thomas John Woodrow, Cedar Lodge, Feltham, Middlesex.

## OBITUARY.

MR. GEORGE FOSBERY Lyster, late Engineer-in-Chief of the Mersey Dock Board, died at his London residence on Thursday night in last week from pneumonia. Mr. Lyster was born in Ireland in 1821, and was for many years regarded as one of the most eminent dock engineers in the world. He carried out a number of important engineering works before his appointment by the Mersey Board in 1861. That position he held until two years ago, when he retired, his son succeeding him as Engineer-in-Chief. The Liverpool Docks were practically remodelled under his direction, at an expenditure of 19 millions sterling.

A new drill-hall is being erected at Hanley, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

Lord Rothschild took part on Friday at the completion of the Cable-street Board School, St. George's-in-the-East. The building affords accommodation for 404 children in the upper standard, and is supplied with a gymnasium and workshop.

The Chester-le-Street Rural District Council have adopted plans, estimates, and a report submitted by Messrs. D. Balfour and Son, civil engineers, Newcastle, for a proposed new road from New Washington to Jingle Gate, near Felling. The road will be about 1½ miles in length, will be 30ft. in width, and will have footpaths at the sides. It will provide a practically level road from Hetton, Houghton, the Herringtons, Penshaw, and Washington, to Gateshead, thereby avoiding the heavy hills on the present route by Birtley and Wrekenton, &c.

At the Audit House, Southampton, on Wednesday week, Mr. F. H. Tulloch, M.Inst.C.E., one of the Local Government Board inspectors, held an inquiry relative to an application by the town council for sanction to borrow the sum of £1,200 for the purchase of land in Duke's-road, Fortswood, for purposes of a depot, and for works of paving and sewerage. Mr. W. S. G. Bennett, the borough surveyor, explained the proposals.

## Building Intelligence.

**BIRMINGHAM.**—On a site at the corner of John Bright-street, Station-street, and Suffolk-street a series of residences is to be built on the flat principle, after the style of the "mansions" which prevail in the Metropolis. The plans, which have been prepared by Messrs. Newton and Cheate, Newhall-street, provide for a red brick building, domestic in character, and three stories in height. On the ground floor shops will be arranged with separate entrances, basements, and conveniences, while above will be twelve sets of chambers, four on each floor. The cost of the building is estimated at £5,000.

**NOTTINGHAM.**—The Mundella Higher Grade School and School of Science has been opened by Sir George Kekewich. The larger school is in two separate blocks, divided into the Higher Grade and Science Department, and the laundry, gymnasium, and dining-rooms. In these accommodation is provided for 402 girls and 502 boys; whilst in a neighbouring building 230 infants will be accommodated. The front of the Graded School is of brick, with yellow terracotta dressings. On the ground floor is situated the girls' school, with assembly hall, 64ft. by 30ft. in width; on the first floor is the boys' school; and the laboratories, lecture-room, and drawing-class rooms occupy the second floor. The gymnasium; in the southern block, is 44ft. by 22ft. The infants' school has a central hall, 48ft. by 27ft. The contract for the schools and out-buildings, exclusive of fittings, amounted to £17,146. Messrs. J. Wright and Sons, of Nottingham, have supplied the school fittings.

**PONTYPOOL.**—The Pontypool Town Hall, designed in 1854 in the Italian Renaissance style by Messrs. Bidlake and Lovatt, of Wolverhampton, and opened in 1856, is now undergoing repair, alteration, and general decoration, including a heating chamber and heating scheme, some additional rooms, re-slating and leading, new illuminated clock faces (four), and the re-casting of the clock bell, all designed by and being carried out (by Messrs. Morgan and Evans, builders, of Pontnewynydd) under the superintendence of Mr. Robert Williams, F.R.I.B.A., of Lee, S.E., and Pontypool. The bell, from full-sized details prepared by the architect, will be cast in the town.

## CHIPS.

The Duke and Duchess of York will, on June 22, open the Milton House, a home for 24 boys, at the Colony, Chalfont St. Peter's, and also the home for 24 girls which Mr. J. Passmore Edwards has likewise erected for the National Society for the Employment of Epileptics. The Greene Home, for 24 men, will also be opened, and the Isolation Home erected at the cost of Mrs. D. Maurer. The architect of all these buildings is Mr. Maurice B. Adams, F.R.I.B.A.

The first of the four great windows in the Lady-chapel of Gloucester Cathedral, which it is intended to fill with stained glass, has been completed. The window is the gift of the Baron de Ferrières. The upper lights contain angels of the highest dignity on thrones, together with the Archangel Gabriel. The scene of the Incarnation occupies the middle lights. The third tier contains British saints—St. Patrick, Bede, Helena, Bridget, and David. The small lower light represents scenes taken from their lives. The Dean hopes before the end of the present year two more windows will be completed.

New banking premises have been built by Messrs. Bolitho and Co. in Princess-square, Plymouth, and were opened yesterday (Thursday). Mr. C. H. Tozer, of Plymouth, was the contractor.

The last of the five windows in the new chancel of Whitfeld Church, Glossop, has now been filled in with stained glass by Messrs. Ward and Hughes, the subject being the Nativity.

The finance committee of the Liverpool City Council have received an application from Messrs. Gamon, Farmer, and Company, solicitors to the Bishop of the diocese, asking for an extension of the time allowed for the demolition of St. George's Church.

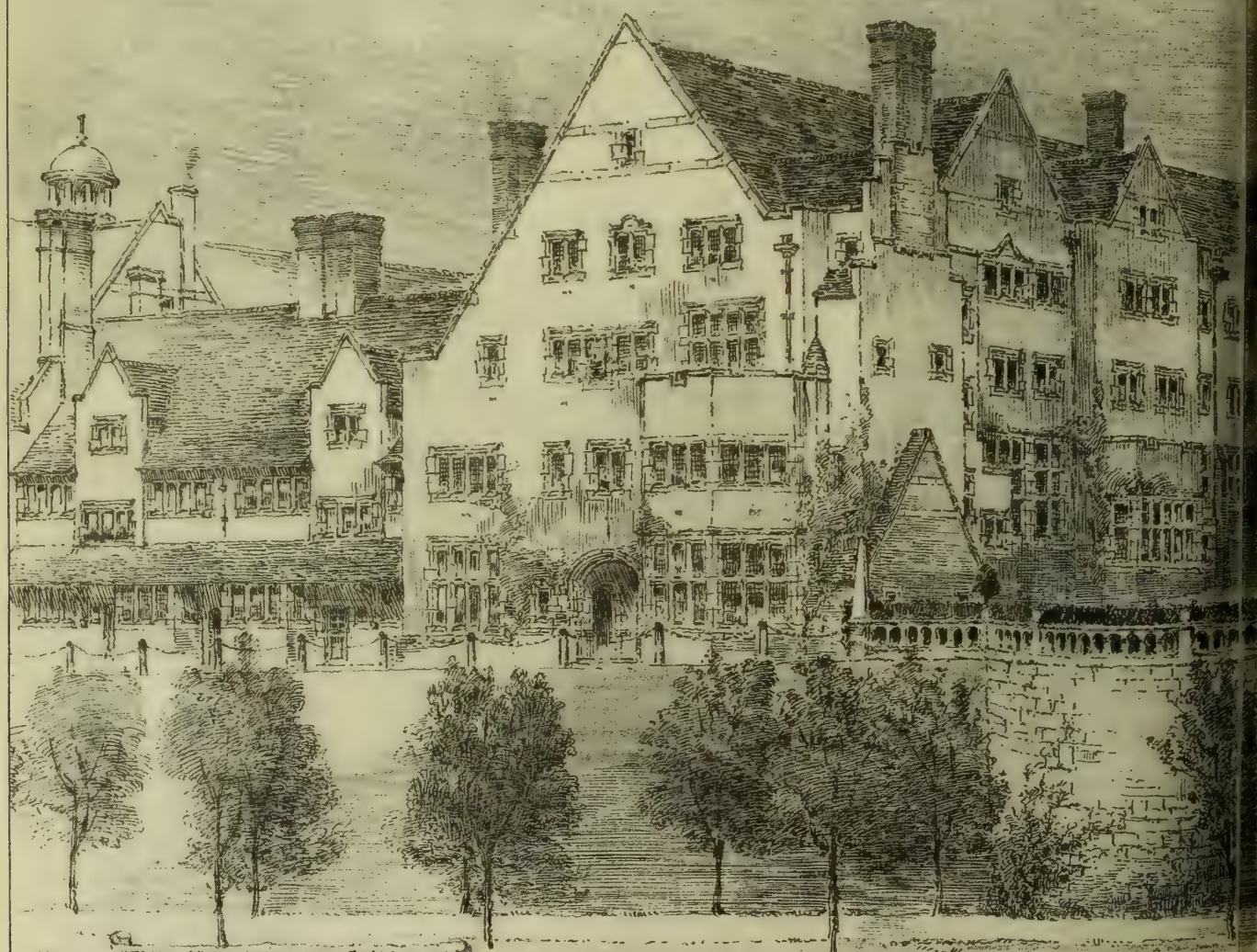
The Barrow Town Council have decided to go on with the original scheme for a new technical school at a cost of about £15,000. Plans were drawn up some time ago by Messrs. Woodhouse and Willoughby, of Manchester, but they were objected to as being too costly. These have been modified, and, although the cost will now be £5,000 more than the amount originally contemplated, the council will proceed with the scheme.







THE ROEDEAN SCHOOL BRIGHTON. VIEW OF CENTRAL BUILDINGS.



THE ROEDEAN SCHOOL



MAY 19, 1899.

W SIMPSON ARCHT



"PHOTO-TINT", by James Akerman 6, Queen Square, London, W.C.

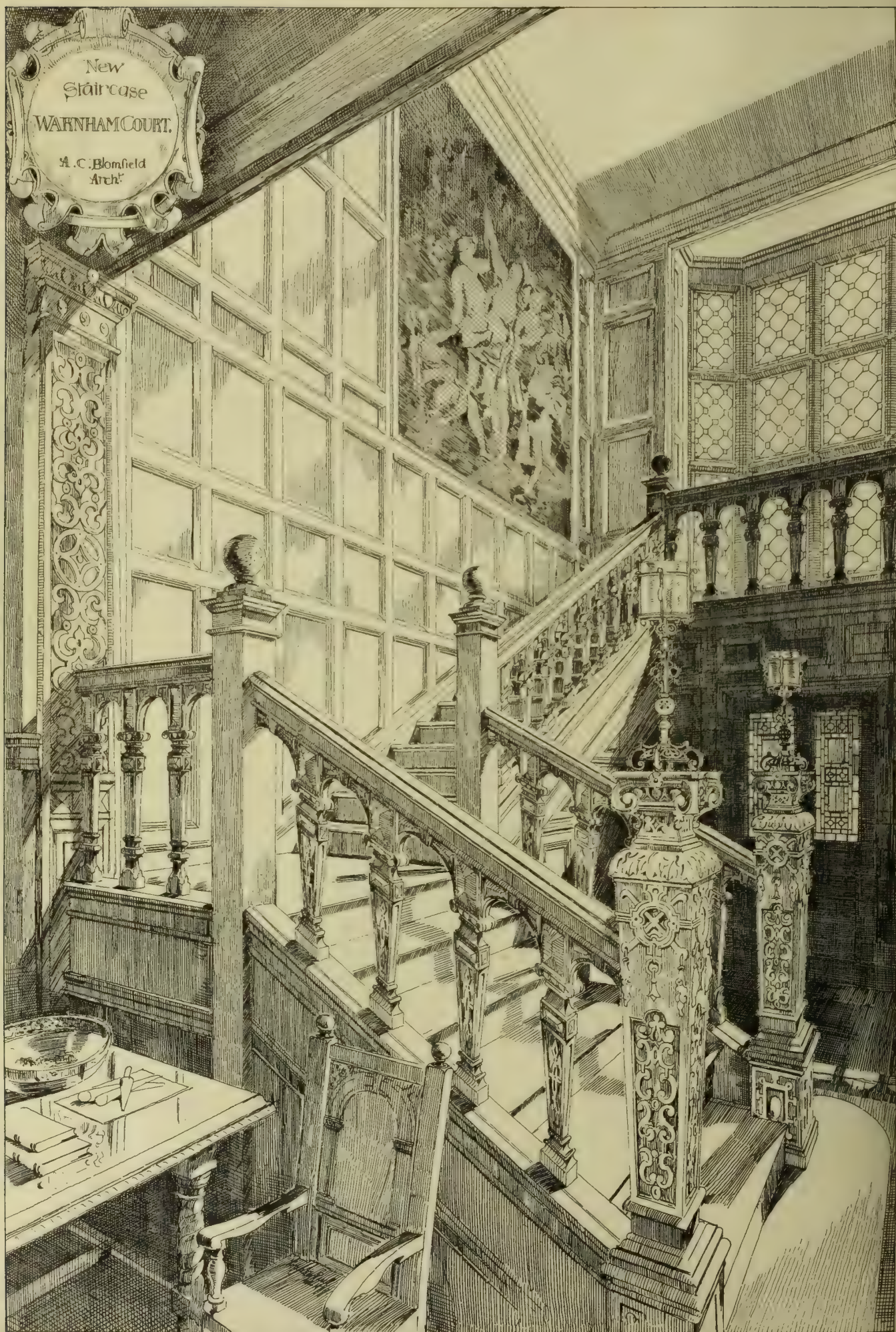




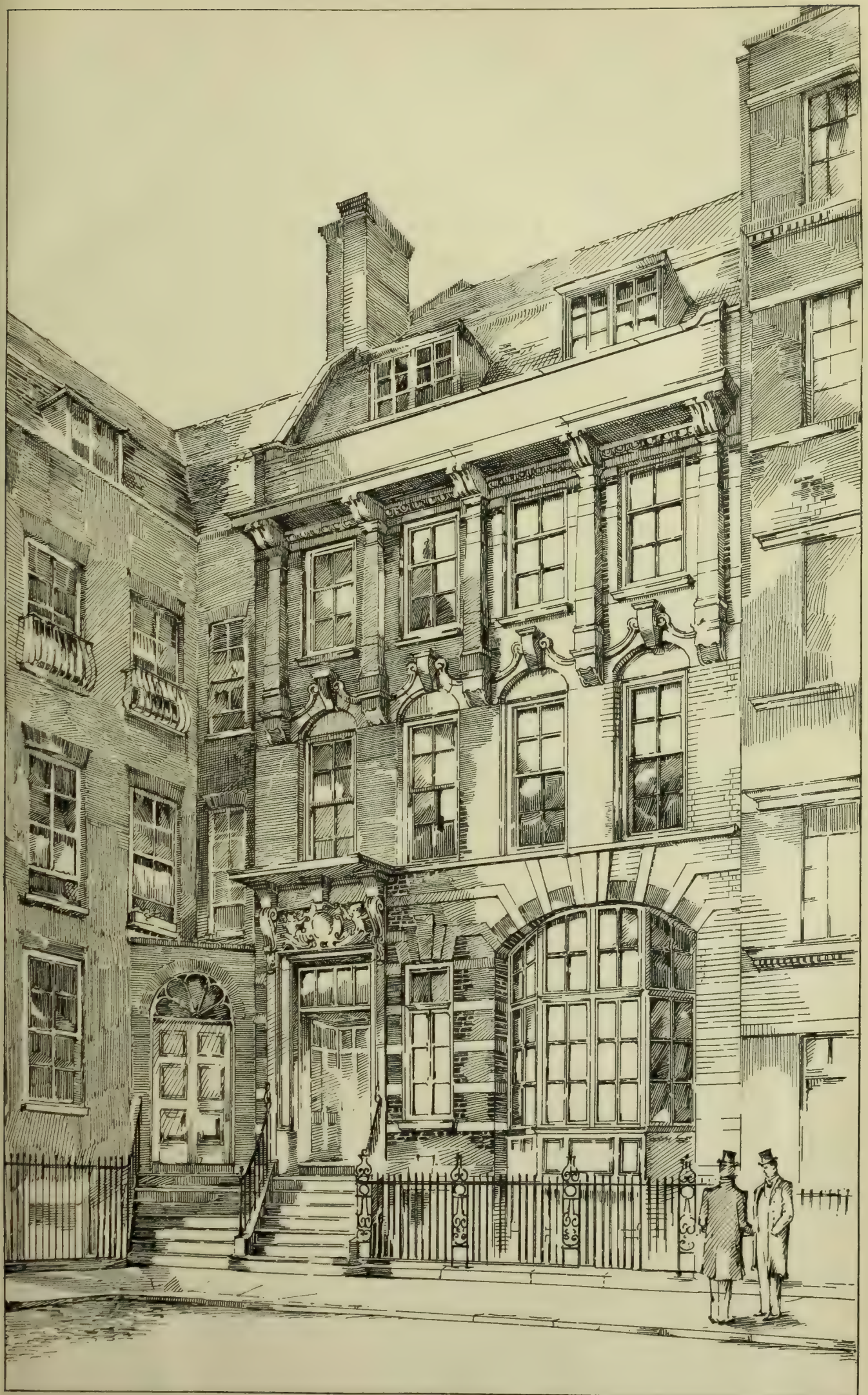










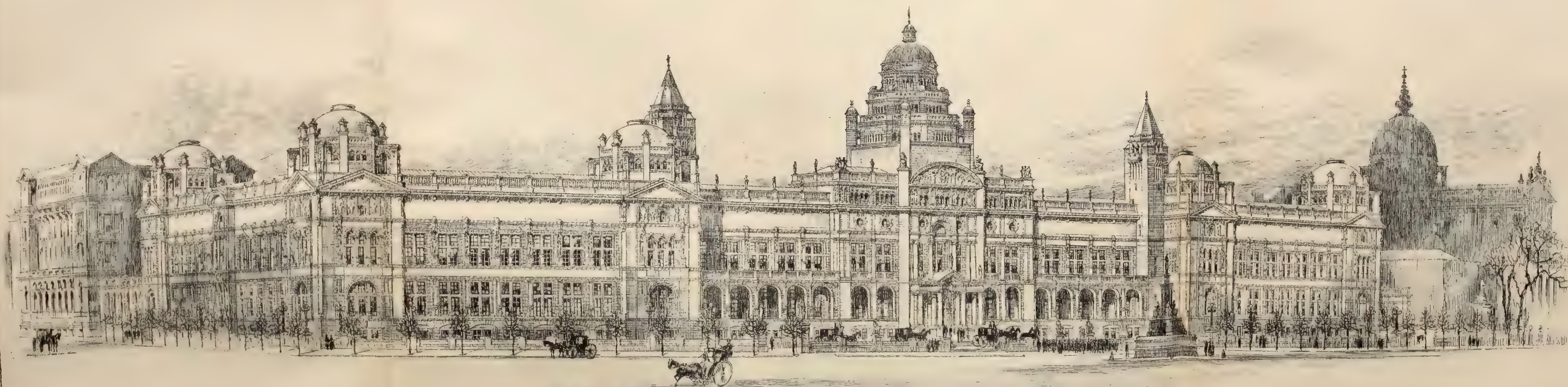








THE BUILDING PAPERS, MAY 19, 1899



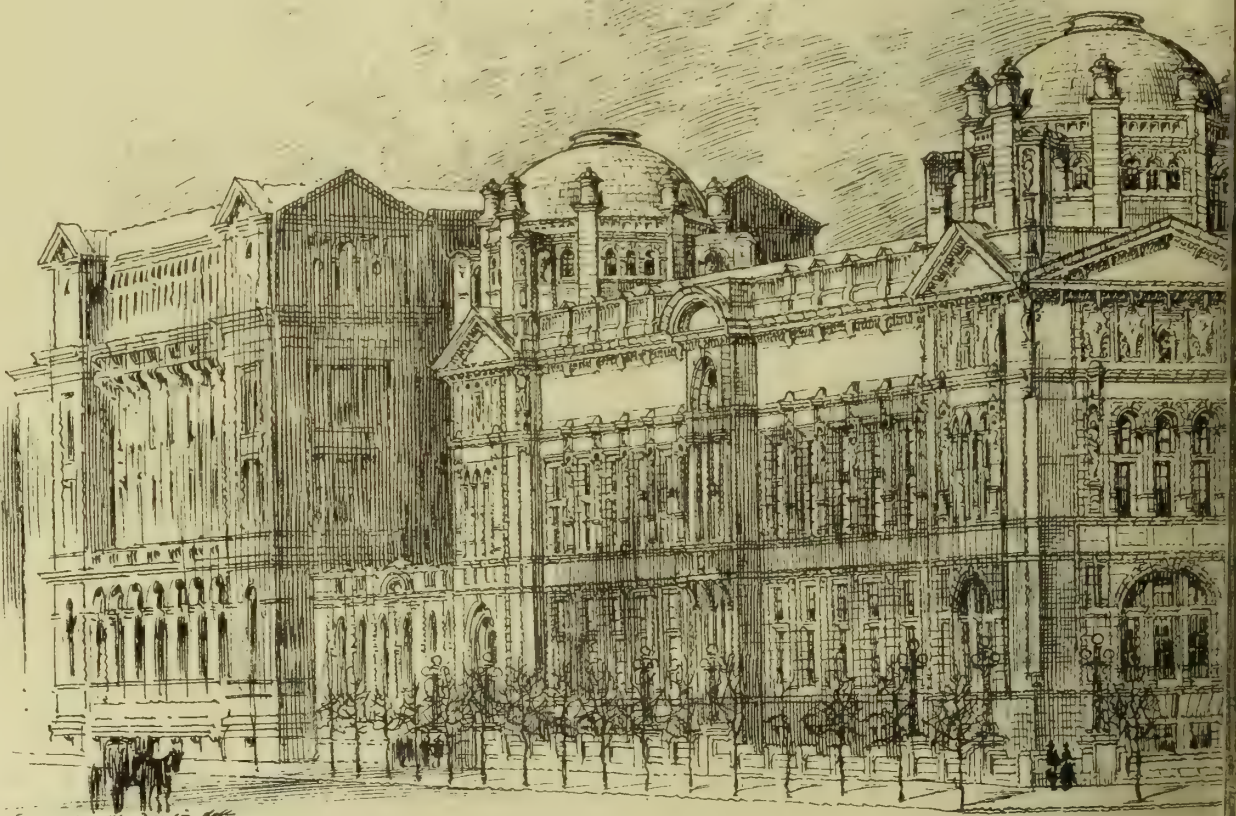
- May 1899 -

Arthur H. H. Allen  
Architect

COMPLETION OF THE VICTORIA AND ALBERT MUSEUM

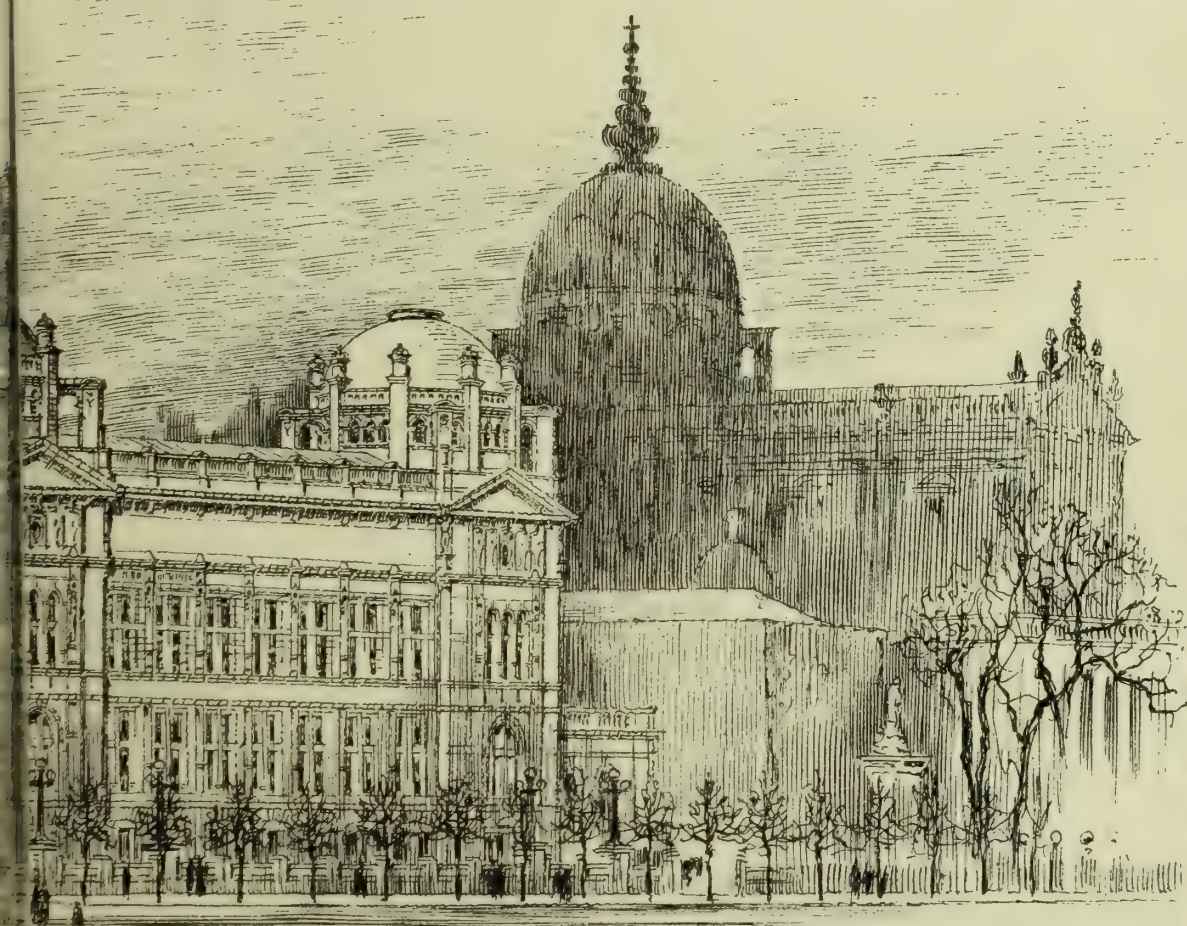
SKETCH OF FRONT TOWARDS CROMWELL ROAD





- May 1899 -





Abbey 346. 222  
Michele







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## ILLUSTRATIONS.

THE VICTORIA AND ALBERT MUSEUM.—THE ROEDEAN SCHOOL, BRIGHTON.—XV. DEVONSHIRE SQUARE, E.C.—NEW STAIRCASE, WARNHAM COURT.—ST. LUKE'S CHURCH, MUNICH.

## Our Illustrations.

VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

(For description and further plans of this important building, of which the foundation-stone was laid by the Queen on Wednesday, see p. 666.)

ROEDEAN SCHOOL, BRIGHTON.

This drawing, by the architect, Mr. John W. Simpson, is on view at the Royal Academy this year. The birdseye perspective, shown at Burlington House last summer, appeared in our pages for August 13, 1897, when a block plan was given, with a descriptive account of the work. The buildings, which are very extensive, are now in course of completion. The school occupies an elevated site overlooking the sea between Brighton and Ovingdean. The present view furnishes a more detailed sketch of the central part or school-house proper, with houses Nos. 2 and 3 to the right and left of the recessed quadrangle. The middle portal seen in the sketch leads into a wainscoted hall, and from thence an oak stairway rises by a dual flight as an approach to the great hall used for the assembly of the school. This apartment is located to the rear of the clock tower. The classrooms extend along the front of this middle block, and the big bay window over the entrance marks the mistresses' drawing-room. The head mistress's office is to the right hand of the porch. The upper range of rooms is devoted to the mistresses. The school comprises four boarding-houses in addition to the school block, and the music-rooms are situate to the back of the large hall. These houses are each distinct, with separate rooms for each of the forty pupils. Connecting corridors unite the whole together. A large gymnasium is a very real attraction. In each house there is a girls' dining-room, girls' drawing-room, house-mistress's study, preparation-rooms, prefects' studies, and complete accommodation, with kitchens, &c., for a distinct staff. A laboratory and adjacent classrooms are very complete in their appointments. Red bricks and rough-cast are used for the walling, and stone for the dressings. The roofs are covered with tiles. The chapel has not yet been built. From its position and size the school at Roedean makes a conspicuous feature in the landscape viewed from the marine parade at Kemptown. We gave a bird's-eye view of the building on Aug. 13, 1897.

NO. XV. DEVONSHIRE SQUARE, E.C.

This building, situated on the north side of Devonshire-square, is wholly occupied by a firm of solicitors, and was specially designed to meet their requirements, containing on four floors rooms for the partners and offices for the clerks, the top floor being used as a caretaker's house. Fireproof construction has been used for all the

floors. The wood finishings internally are in varnished pitch-pine. Externally, red bricks and Monk's Park stone has been used. Our illustration is reproduced from the drawing in this year's Academy Exhibition. Mr. Howard Chatefield Clarke was architect for the building, and the contractors were Messrs. Woodward and Co.

NEW STAIRCASE, WARNHAM COURT.

THE staircase shown in our illustration, from the architect's Royal Academy drawing, is part of a scheme for enlarging the main hall, and for giving more prominence to the main staircase of the house, which has hitherto been hidden away behind the end wall of the hall. The work entailed the removal of this wall and of the external wall of the old staircase, the latter being rebuilt some 5ft. or 6ft. further out, and containing a fine oriel window, which sheds a flood of light into the large hall. The staircase is entirely of oak, and was executed by Messrs. J. Thompson and Co., of Peterborough, who also carried out the structural alteration referred to. The architect is Mr. Arthur C. Blomfield.

ST. LUKE'S CHURCH, MUNICH.

WE continue our illustrations of this church, of which a description was given last week, with the exterior and interior views, by a cross-section of the building looking west, and a plan.

ALTAR SCREEN, WINCHESTER.

By an inadvertence in our descriptions last Friday the photograph reproduced was attributed wrongly to Messrs. Bolas and Co. The excellent view was taken by Mr. H. W. Salmon, of High-street, Winchester, whose beautiful photographs of architectural subjects particularly are well known.

At the last meeting of the Bradford Corporation the salary of Mr. J. H. Cox (city surveyor) was increased from £650 to £750, an amendment to refer the matter back to the committee being rejected.

Mr. Arnold Royle, C.B., on behalf of the Local Government Board, held an inquiry on Friday at the Salford Town Hall with reference to an application of the Salford Corporation for permission to borrow the sum of £19,550 for the extension of Ladywell Sanatorium. Mr. Henry Lord, of Manchester, the architect, explained the plans, by which 80 additional beds will be provided for patients, and twelve more beds for nurses.

The churchyard cross at Plymtree, South West Devon, was rededicated last week, after restoration, at a cost of £600. The head of the cross was found when the foundations of the new church-house were being dug two years ago. This, it was found, fitted exactly on to the shaft which was built into the Rectory garden wall. A new base only was wanted. The cross dates from the 13th century. The shaft and head were of one piece of granite, standing on a broad granite base with steps. Let into the sockets on the face and back of the cross head were carvings in some softer stone, probably representing, on the front our Lord's crucifixion, and on the back a figure of the Virgin. The cross now stands considerably over 10ft. high.

On the site of St. John's Church, Driffield, last week, the foundation-stone was laid of a new structure, to replace a wooden building erected 20 years ago. The church will consist of a nave and chancel, with transepts. It will seat 419 persons. The cost is estimated at £3,500. Messrs. W. Leason and Son, of Driffield, are the sole contractors, and the woodwork will also be done in the town by Messrs. Shepherdson and Son, Limited. The architects are Messrs. Hicks and Charlewood, of Newcastle-on-Tyne. Mr. Joseph Berry, of Driffield, is the clerk of works.

On Wednesday week St. John's Mission Hall, Cobham, Surrey, was dedicated for religious services by the Bishop of Guildford. The mission-hall has been designed by Mr. Leonard Martin, architect, of Cobham, and the building erected by Mr. A. Newland, of Church Cobham. The floor is laid with wood squares, and the seats accommodate 180 worshippers. The choir-stalls are of old English oak, costing about £160.

On Saturday, the foundation-stone was laid of new schools in connection with St. Andrew's Church, Wolverhampton. The entire scheme will cost about £4,000, but at present it is proposed to build only rooms to accommodate about 600 girls and infants. The school will be two stories high, and the upper floor will be used for the girls. The material will be red brick, with Hollington stone dressings, and the roof will be covered with tinted tiles, while internally the walls will be covered with enamelled bricks, and the fittings will be of pitch-pine. The architect is Mr. F. H. Lynes, and the builder is Mr. J. Herbert, both of Wolverhampton.

## COMPETITIONS.

HORFIELD, BRISTOL.—In a competition for a new Baptist Chapel and class-rooms, to be built at the corner of Gloucester-road, and Brynland-avenue, the plans of Messrs. R. Milverton Drake and Pizey, of Bristol, have been selected by the professional assessor appointed by the committee. Acting upon his award, the church have decided to go forward with the building, and have commissioned the authors to carry out the work forthwith. The cost of the scheme will be between £6,000 and £7,000.

MORECAMBE.—The school board has decided to advertise for competitive designs and estimates for the proposed new central schools in Station-road. The schools are to be in three departments, accommodating 500 boys, 500 girls, and 400 infants. The competing architects must reside or have an office within the school board district. The schools are to be a two-story building, with central hall for each department. The front of the building is to be of stone.

RAMSGATE.—Only four designs were submitted for the New Hall scheme for dealing with the Paragon Gardens on the West Cliffe Promenade at Ramsgate. The assessor has not yet been appointed to assist the Council in arriving at an award.

## CHIPS.

The Board of Trade have recently confirmed an order authorising the construction of light railways in the county of Middlesex from Uxbridge to Hanwell.

A receiving order has been made in the Leicester County-court against Herbert Carrington, builder and contractor, of Beatrice-road, Newfoundpool, Leicester. Debtor, in his statement of affairs, returns his unsecured liabilities at £3,830 4s. 3d., and his assets at £941 10s. 10d., leaving a deficiency of £2,888 13s. 5d.

The church of the Holy Trinity at Westward Ho! was built just 30 years ago, from the designs of Mr. William Oliver, architect, of Barnstaple. It has now been furnished with an oak reredos, 13th-Century in style, like the building itself, and executed by Messrs. Harry Hems and Sons, of Exeter.

St. Andrew's Church, Exmouth, having been completed, the newly-added portion was dedicated by the Ven. Archdeacon Sandford on Wednesday week. St. Andrew's Church will now seat about 550 persons. The expenditure entailed has amounted to £1,811.

The Hampshire County Council decided, on Monday, to purchase a farm in the neighbourhood of Basingstoke, as the site for a new lunatic asylum. Mr. George T. Hine, of Parliament-street, Westminster, has been selected as architect for the proposed asylum, and will be paid 5 per cent. on the cost of all work carried out under his direction, and his travelling expenses. At the same meeting it was decided to increase the allowance for clerical assistance to Mr. W. J. Taylor, the county surveyor, from £120 to £180 a year.

The county council of Kesteven, Lincolnshire, received and accepted at their meeting on Friday the resignation by Mr. Herbert Kirk, of Sleaford, of the offices of county surveyor and inspector of main roads.

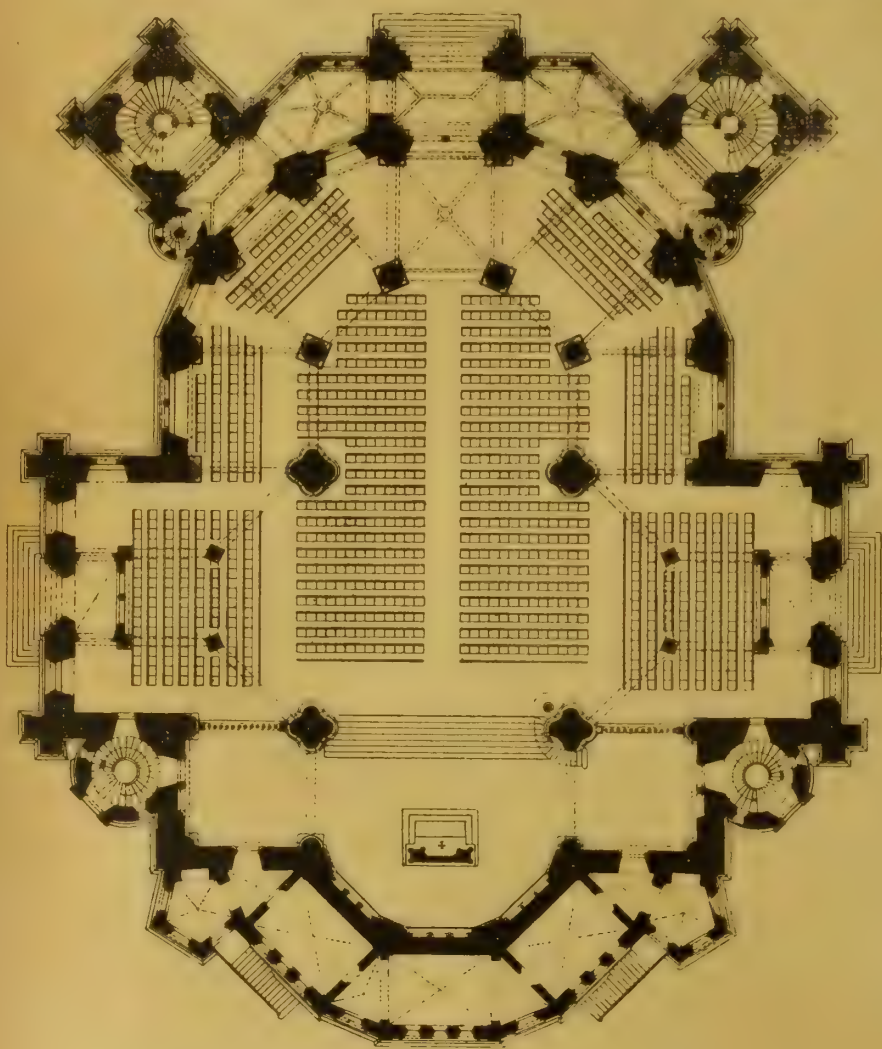
At Wigan a technical college is about to be built in Library-street from plans by Messrs. Briggs and Wolstenholme, of Liverpool and Blackburn, recently selected in competition. The style is English Renaissance, freely treated, and the estimated outlay is about £40,000.

Funds are being raised in Leeds for the erection of a new hospital for women, and the devotion of the existing building exclusively to the treatment of children. The adopted plans for the new buildings, which have been prepared by Messrs. Chorley and Cannon, Park-row, Leeds, comprise an out-patients' department, a hospital for women, and a maternity department. The estimated cost of the entire scheme is about £40,000, and of the section now to be built £23,000.

Herr Ernest Dirksen, the builder of the Berlin City and Circular Railway, and one of the ablest railway engineers in Germany, died at Erfurt on Saturday at the age of sixty-seven.

The collection of pictures bequeathed to the Art Gallery at Wolverhampton by the late Mr. Paul Lutz has now found a place on the walls of that institution. Altogether there are over thirty works, and they include fine examples of the styles of Alfred Vickers, George Morland, Old Crome, Sydney Cooper, E. le Poittevin, Edward Frere, Thomas Barker, William Collins, William Muller, Thomas Creswick, David Cox, J. P. Pyne, Landseer, F. Goodall, and Mark Anthony.

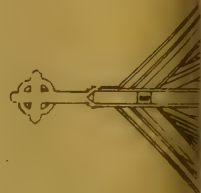
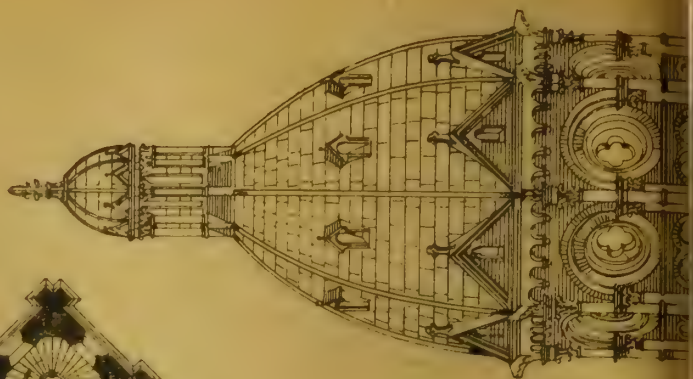




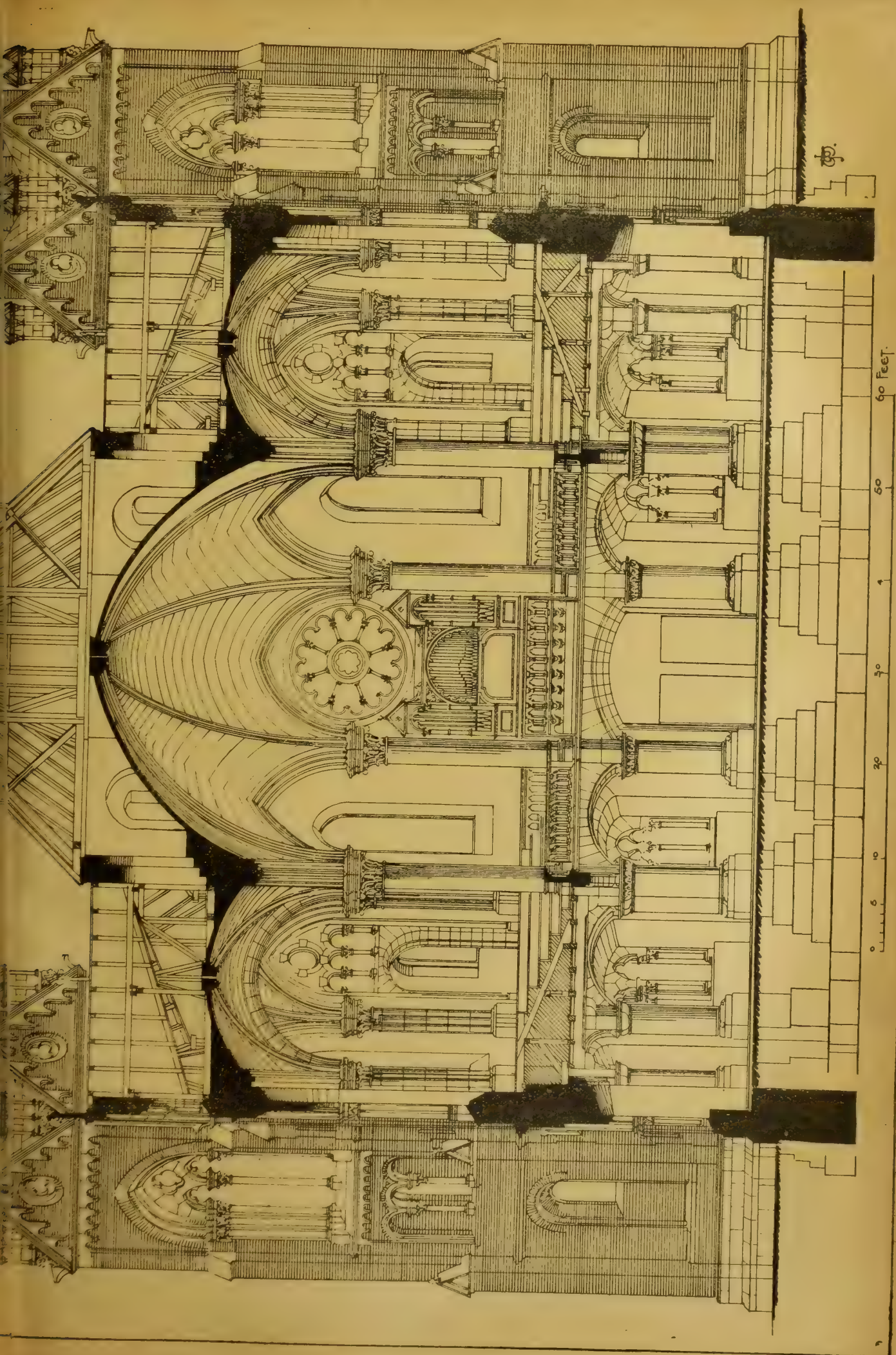
# ST LUKES CHURCH MUNICH.

ALBERT SCHMIDT ARCHT

CROSS SECTION LOOKING WEST.









## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 382, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

Sound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLIX., LI., LIV., LV., LIX., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; and the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be *prepaid*.

RECEIVED.—M. M. O.—T. P.—J. W. and Co.—G. T. K.—B. W. S. Co.—L. F. N. (Bristol).—H. S.

## Correspondence.

## THE R.I.B.A. COUNCIL ELECTION AND LADY ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—A type-written circular has just come to me from a Fellow of the Institute soliciting my vote to help him get a seat on the Council. He says:—

I believe the admission of females as members of the Institute a mistake, and, as the Charter is not clear on this point, I should advise that the Charter be altered, or a new by-law made prohibiting their election.

Some poor fellows are very sad over the election of Miss Charles as an Associate of the Institute; but the majority are glad to welcome the admission of a lady who has shown her fitness by passing successfully all three examinations qualifying for Associateship, and thereby fulfilling all the requirements of the Charter, notwithstanding the unwarrantable insinuation as to want of clearness in the circular quoted.

When there are names to strike out, it is, to me, always a difficult matter; but the name appended to this circular will go out with a good firm stroke, and I hope that all who have received a copy of this ungalant circular will strike out the name of the candidate who would selfishly prevent persons from occupying positions to which they are fully entitled.

Let this candidate and others like him set himself and themselves to work to purify the "profession" of such evils as they may find rooted within it, and they will get all the help I can give; but do not let them, by their selfishness, exclude an element which will not only tend to

refine, but also to make honest, the practice of the art which some of us still love.—I am, &c.,  
ROBERT WILLIAMS.

## THE "R.I.B.A."

SIR,—In the very unsatisfactory "Report" brought up at the last meeting of the Institute reference is made to a "revised" scale of charges. I have not seen this revised scale, nor is it of much use, as the old scale is useless, being merely a "suggestion" for charges, drawn up by the Institute, and is (like most of the suggestions emanating from the Institute), not recognised either by judges or courts of law. Not having been approved by any Secretary of State, nor sanctioned by the Crown, its terms cannot be enforced unless it forms the basis of an agreement between an architect and his client, and such an agreement does not need the aid of the Institute's "suggestions."

The chairman of the meeting also stated that it was "public knowledge" who were the six architects selected by the Council to compete for the rebuilding of the Old Bailey. I have not yet seen their names published in the professional prints; nor do I think it is quite a blessing to the ordinary members of the profession that the Council of the Institute should have the power to select competitors for public works, as it means the shutting-out of all but well-known (but not necessarily therefore able) men. Doubtless the fortunate six (whose names, even, I am unacquainted with) are well known to most of the members of the Council.

It is unfortunate for the profession generally that our Institute carries so little weight with the public and the authorities, and is so wanting in backbone; but until we have Registration we shall be, and deserve to be, snubbed accordingly.—I am, &c.,  
HORACE T. BONNER.

## A PLEA FOR MORE HANDRAILS.

SIR,—Having recently met with a severe accident, by falling down the steps in front of the Borough-road Free Library, I am desirous of calling the attention of architects to the advisability of introducing handrails wherever there are flights of steps or stairs, more frequently than appears to be customary at the present time. Such a provision need not be a disfigurement, nor mar the effect of any decorative surroundings, for while, on the score of efficiency, the rail itself should be always plain and somewhat prominent, it may be mounted in a way that should be well in keeping, both in form and colour, with the other portions of the work. Another matter may here be mentioned in the same connection—that is, that there should be a distinctly marked frontal line at the edge of every step, and where possible a harder material than the step itself. A more general introduction of such items would greatly contribute to the public safety, and would prove of exceptional service to the weak-sighted and feeble-footed, the former of which I am sorry to believe are fast increasing amongst us.—I am, &c., E. C.

## HIGH ALTAR AND SCREEN, WINCHESTER CATHEDRAL.

SIR,—Of course, one knows the cry: "The king is dead—long live the king!" but, is it not a trifle hard upon others—especially upon one who has passed away—to give the credit of the restoration of this famous screen, of which you render so admirable an illustration in the current issue, to Mr. G. F. Bodley, A.R.A.? Admirable as that accomplished artist's actual work in the immediate centre of the screen undoubtedly is, it should not be forgotten that the greater part of the general renovation was carried out under others, especially by the late Mr. J. D. Sedding, whose splendid drawing of what he had already done, and suggestive of that which remained to do, many readers will remember was exhibited in the Royal Academy in A.D. 1891. The statues that now so beautifully adorn the western face of this screen were, in the main, carried out under the direction of Mr. Charles Alban Buckler, the architect; whilst Mr. G. H. Kitchen, architect, is responsible for other goodly work, thereupon executed under his personal supervision, and from his working drawings.

My old friend, Mr. Richard Boulton, in a measure, shared the honour of executing the large statues with Mr. Tom Nicholls, of Lambeth, who modelled and carved the four central and most prominent ones. Mr. E. Onslow Ford, A.R.A.,

was also intrusted with some of the figure work; but his models, according to Dean Kitchin's report, dated February 13th, 1891, were paid for and then rejected.

Winchester lays claim to possess the finest of the four great screens of this class erected in the 15th century; but this boast can never be maintained before impartial judgment. The general scheme of St. Alban's and Winchester are both practically the same. The former is reared in English stone-clunch from the Tottenhoe quarries in Hertfordshire; the latter in Caen from Normandy. Our own English clunch is capable of much more delicate manipulation than is Caen stone. This was undoubtedly known to the 15th-century carvers, and with the result that the exquisite old detail at St. Alban's is, without a doubt, a long way superior to any at Winchester.

The apathy and ignorance of the ordinary run of good people in things architectural is strikingly illustrated by a notice I saw a few days ago in an artistic stationer's shop in High-street, Winchester. In the window is exhibited a large photograph of the screen in its restored condition, and under it is written:

"THE NEW (!) HIGH ALTAR SCREEN IN THE CATHEDRAL."

Whatever would good old Cardinal Beaufort (Bishop of Winchester A.D. 1404-47) say to such a notice of his work if he could rise from the grave he has occupied for the last five or six hundred years?—I am, &c.,  
Exeter, May 12.  
HARRY HEMS.

## THE VIAGRAPH.

SIR,—In your issue of 5th inst, referring to my remarks at Surveyors' exhibition meeting, I observe your reporter describes me, or makes me describe myself, as a "coach proprietor," which is quite wide of the truth. I am not in any commercial undertaking. I said I was interested in motor-cars, and therefore wanted better roads here. I owned a Serpollet, which I sold, and am building a novel form of electric car, which had a preliminary trial yesterday and promises well.

I do not own even a private coach—merely a waggone, &c., and a horse or two.

If you think it worth while to correct this, please do so.—I am, &c.,  
Longhurst, Dunmurry, Belfast.  
J. BROWN.

## Intercommunication.

## QUESTIONS.

[12239.]—**Pitches of Roofs.**—Why are the pitches of roofs shown so flat in textbooks? I observe in Newland's "Carpenter's and Joiner's Assistant" that most of the wide-span roofs are about one-fourth pitch, some even as flat as one-fifth pitch. In Mitchell's excellent work, the wide-span roofs are shown about one-quarter pitch, and many under one-third pitch, and in all cases they are, I believe, intended to be covered with slates. As in both the books mentioned it is stated that roofs should not be less than one-third pitch, why are they illustrated as flatter pitches, when such details are likely to mislead students?—EXCALIBUR.

[12240.]—**Modern Hotels.**—If any of your readers could recommend any books on modern hotel planning, &c., the undersigned would be greatly obliged.—UTILITY.

## CHIPS.

Tamworth Cattle and grounds will be formally dedicated to the townsfolk of that borough on Monday, having been purchased of the Marquis of Townshend as a Jubilee Memorial for £3,000. Another £1,000 is being expended in renovations to the building, and in laying out the gardens, some three acres in extent.

The Local Government Board has given its sanction to the proposal of the Manchester Corporation for the compulsory purchase, if necessary, of 213 acres of land at Carrington and Flixton, under the Lands Clauses Act, for treatment of sewage and sewage effluent.

Thomas Wade Foxcroft, a J.P. for Manchester, now residing at Valentine House, Rochdale-road, Blackley, Manchester, but previously at Castle House, Hill-lane, Blackley, and carrying on business as an estate agent at 14, Fountain-street, Manchester, attended at the Bankruptcy Court in that city for the purpose of being examined by the Official Receiver as to the causes of his bankruptcy. The statement of affairs showed gross liabilities £8,481 10s., of which as to £5,277 0s. 8d. the creditors were fully secured, so that only a sum of £3,067 was expected to rank for dividend. The assets were estimated at £1,483 9s. 4d., leaving a deficiency of £1,583 18s. 1d. to be accounted for.



## PROFESSIONAL AND TRADE SOCIETIES.

**DEVON AND EXETER ARCHITECTURAL SOCIETY.**—The annual meeting of this society was held at the Princess-square School of Art, Plymouth, recently, under the presidency of Mr. James Crocker, F.R.I.B.A., of Exeter. The annual report was presented by the hon. secretary, Mr. Harbottle Reed. It stated that the list of membership had slightly increased, and now stood as follows:—Members, 45; associate members, 9; associates, 13; honorary members, 4—total, 71, as against a total of 68 in 1898. The Architects' Registration Bill and the attitude of the society in relation thereto had been a source of considerable correspondence. The council had had before them the administration of building by-laws in rural districts; also communications from the Birmingham Architectural Society with regard to building by-laws and their administration, as well as the new building by-laws for Exeter. On Sept. 10 an excursion was made to Launceston by invitation of the ex-president, Mr. James Hine. It is proposed to make an excursion to Windsor in June. The prize offered by the society for the best sheet of measured drawings had been awarded to the only competitor, H. E. Roskrige, of Devonport. The balance in hand amounted to £8 14s. 11d. Perhaps the boldest action of the year was the deputation from the Society of Architects to the Lord Chancellor requesting him to consider the present state of the law upon questions of light and air. Of course, the proposal made, if it became law, would prevent a perfect shower of fees entering the pockets of a very deserving body of men; but those who had been much mixed up in this question could readily agree as to the immense blessing the appointment of a Commission would be in all such cases. After referring to the question of architectural education, he proceeded to express approval of the Architects' Registration Bill now before Parliament. Mr. Crocker was accorded a hearty vote of thanks on the motion of Mr. C. Cole, who indorsed the remarks upon the Architects' Registration Bill. Mr. James Hine seconded the vote, which was supported by Mr. Kitsell. On the proposal of Mr. O. Ralling, seconded by Mr. I. G. Luff, Mr. C. King, of Plymouth, was elected President for the ensuing year. Mr. C. J. Tait, A.R.I.B.A., was elected Vice-President, on the proposal of Mr. B. Priestley Shires, seconded by Mr. W. W. Dwelly, and Messrs. H. G. Luff, A.R.I.B.A., J. E. Harvey, and J. M. Pinn were elected members of the council. In proposing the re-election of the hon. secretary (Mr. Harbottle Reed), Mr. Crocker said a vote of thanks was due to him. This was seconded by Mr. King, and supported by Mr. Cole. A similar compliment was paid to the hon. treasurer, Mr. O. Ralling, and the branch secretary, Mr. P. B. Shires.

**NORTHERN ARCHITECTURAL ASSOCIATION.**—On Saturday, about thirty members of this association visited North and South Shields, and viewed the various buildings recently erected or still in progress. They first inspected to the new Coach Lane Schools, North Shields, erected from the designs of Messrs. Marshall and Dick, where Mr. Charles Marshall explained the various features worthy of note. The party then proceeded by the ferry to the New Empire Theatre in King-street, South Shields, under the guidance of Mr. W. Milburn (of Messrs. W. and T. R. Milburn, who, with Mr. F. Matcham, of London, designed the building), they inspected the interior of this theatre. After noticing, in passing, the new Britannia Hotel in Westoe-lane, erected from the designs of Mr. J. W. Donald, of South Shields, the members proceeded to the Ingham Infirmary, where Mr. H. Grieves conducted them over the new wing, designed by him, and now approaching completion. The visitors next arrived at Morimer Road Schools, where the infant school, designed by Mr. J. W. Donald, was gone over, the object of interest being the Plenum system adopted for securing a supply of fresh air in the various rooms. This was demonstrated, in the presence of the architect, by Mr. A. P. Tregolles.

In St. Mary's Hall, Coventry, on Friday, Mr. R. J. Sweeting, barrister, held an inquiry on behalf of the Local Government Board, into an application made by the Coventry Corporation for permission to borrow £5,888. Of this amount £5,000 was sought to carry out alterations and extensions at the City Hospital, and £888 for the purchase of land for City hospital purposes.

## LEGAL INTELLIGENCE.

**A PLYMOUTH ARBITRATION.**—An inquiry has been held at the Westminster Palace Hotel, before Mr. J. W. Penford, architect, sitting as umpire, to assess the value of a freehold property, situated in Westwell-street, Plymouth, known as St. Andrew's Hall, and covering a superficial area of between 7,800ft. and 7,900ft., which is required for the enlargement of the Plymouth Post-office. The property was valued by Mr. Elmond F. B. Fuller (Fuller and Fuller), of London, at £2 1s. 3d. per foot, which, with 10 per cent. added for compulsory sale, and £2,000 beyond for severance damage, brought his total estimate of the compensation to £19,937. Mr. Squarey, of Salisbury, valued at £20,408; Mr. Corderoy and Mr. Body, of Plymouth, at about £23,000; Mr. Walter Emden, P.S.A., L.C.C., of London, also at about £23,000; and Mr. Eve, of London, at a similar figure to Mr. Fuller. On the other hand, the estimate of Mr. Ryde, of London, amounted to £9,538; Mr. Daniel Watney's to £10,296; and that of Mr. Drew, of Exeter, to £10,825. The umpire reserved his award.

**A "PUBLIC" BUILDING.**—The Guardians of St. Leonard's, Shoreditch, appeared at the North London Police-court last week, by Mr. Glen, to answer a summons taken out by Mr. Meeson, one of the district surveyors for Hackney, for using a public building which was not constructed in accordance with his requirements. Mr. Milner Judson explained that the guardians had taken a large private house in the Clapton-road for the accommodation of about thirty workhouse children and three attendants. Certain alterations were made, but Mr. Meeson held that the building, being put to this use, became a public building, and he insisted that a separate staircase should be provided in case of fire. The guardians replied that the new premises were opened under an order of the Local Government Board, and that the children would simply sleep there. The question for the magistrate to decide was whether this was a public building or not. Mr. Meeson was of opinion that it came within the definition of the Act, "Schools, workhouses, or buildings used for any other public purpose," and that it should have full protection in the case of fire. Mr. Glen, while admitting the facts, contended that the section of the Act did not apply to this case. The magistrate might be asked to hold that every cottage in which a pauper child was boarded out was a public building. Mr. Fordham said he felt bound to hold that this building was a workhouse or an extension of the workhouse. He therefore had to find that the building was a public one, and used as such without the consent of the district surveyor. He imposed a fine of 1s. As it was a case of one public body against another, he should not grant costs.

**ARCHITECT'S CERTIFICATE FOR DELAY.**—DOULTON AND CO. V. NEW BRIGHTON TOWER AND RECREATION COMPANY, LIMITED.—This action, heard at Liverpool recently, by Mr. Justice Bigham and a special jury, was entered as defendant's counterclaim for damages for delay. Counsel for the defendants stated that the claim by the plaintiff firm was for £400, due for terracotta supplied to the New Brighton Tower on the certificate of the architect, and judgment had been obtained upon that claim. That left a balance, not disputed by the defendants, on the contract of £200. The claim was admitted by the Tower Company, subject to a counterclaim for delay in the delivery of the terracotta at the rate of £10 per week. That amounted to £660, and it was certified by the architect. Evidence was given and counsel were heard as to what damage the Tower Company had sustained by the delay in delivery, and on what basis the architect granted his certificate for the payment of penalties. Mr. Shee, on behalf of Messrs. Doulton, argued that, according to the contract, the certificate had to be the architect's own certificate, whereas it was not given until the architect had consulted counsel on the construction of the penalty clause of the contract, and therefore the certificate was not the certificate of the architect. Prior to the consultation with counsel the architect had drawn up a certificate for £200 odd, which he believed was the fair amount of damage sustained. Mr. Greer suggested that the architect should be allowed to make an amended certificate. Mr. Pickford argued that the certificate had been made by the architect upon his reading of the contract. His Lordship remarked that if he came to the conclusion that the architect made a certificate on a mistaken view of the legal aspect of the contract, he would consider whether it would not be a proper thing to send the certificate back to the architect for amendment. He would reserve his judgment.

**A BRIXTON ARBITRATION.**—A disputed case of value of two freehold houses standing upon an acre of land in Acre-lane, Brixton, possessing a frontage of 100ft., and a depth of 570ft., came before Mr. Under-Sheriff Burchell and a special jury. For the claimant, Messrs. Fuller and Fuller valued the property at £9,817, Messrs. Fox and Bousfield at £10,237, and Messrs. Farebrother, Ellis, and Co. at £10,337. For the School

Board defendants, Mr. G. A. Wilkinson estimated the value at £4,118, Mr. Burnett at £4,125, Mr. Stimson at £4,000, and Mr. Harrington at £4,125. The jury assessed the value at £8,450. The School Board had made an offer under seal of £4,400, and therefore the costs of both sides fall on them.

**A LIVERPOOL ARBITRATION.**—The award of the arbitration in regard to the acquisition of the George's Dock by the Liverpool Corporation has been delivered by Mr. Vigors, the arbitrator. He has ruled that the Corporation must pay the Dock Board the sum of £270,000. The Corporation will fill up the dock and undertake various works which will improve the approaches to the river. The Mersey Dock and Harbour Board will retain a portion of the site, upon which it is proposed to erect new offices for conducting the increasing business associated with the trust. The whole of the dock will be filled up, preparations for doing so having been already begun. The scheme of the Corporation is to continue Water-street, Brunswick-street, and James-street direct to the Pierhead, and to utilise the land not required for thoroughfares for public baths and other buildings. The total of the award is £305,224, divided into two amounts, one of £278,254 and the other of £26,970, the arbitrator having given his award separately in regard to two portions of the estate. The costs of the arbitration amounted to £1,089.

**UNLICENSED WOOD STRUCTURES.**—John Mountain, of Friern-road, East Dulwich, was summoned to Lambeth Police-court on Monday for setting up a wooden structure without having obtained a license from the London County Council. Mr. Thomas Chilvers, from the Solicitors' Department of the Council, appeared in support of the summons, and the defendant was represented by Mr. Eldridge. Mr. W. G. Perkins, an architect and surveyor in the office of the Council, stated that he went to Queen's-yard, at the rear of Queen's-road, Peckham, and found a wooden structure 47ft. long and about 25ft. in height, forming an advertisement hoarding. It was attached to the front of a two-story stable, and was let out to an advertising contractor, the defendant being the owner of the premises. An application had since been made to the Council by the defendant's architect for leave to retain the structure, but the application had been refused. The hoarding was still up. Mr. Eldridge submitted that this was not a structure within the meaning of the London Building Act; but Mr. Hopkins said it was clearly within the section. Mr. Eldridge said the builder who put up the structure advised the defendant that he would be within his rights in erecting it. Mr. Hopkins made an order requiring the defendant to take down the structure within 21 days, and also directed him to pay a nominal penalty of 2s. and £2 2s. costs.

## CHIPS.

A theatre is to be built opposite the post-office at Huddersfield from plans by Mr. Frank Matcham.

The new Infirmary, Basingstoke, is being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The death is reported as having occurred a short time since of Mr. Thomas Kershaw, M.S.A., of the Technical School, Huddersfield. Mr. Kershaw had been a member of the Society of Architects since 1888.

Bishop Wilkinson, of St. Andrews, officiated on Saturday at the laying of the corner-stone of the new mission church of St. Roque's, Blackcroft, Dandee. The church is estimated to cost £2,000, and will accommodate 300 persons.

Mr. B. T. Batsford will shortly have ready a new book on Embroidery. It will be the combined work of Mr. Lewis F. Day, who is just completing a course of lectures on the subject at the Royal Institution, and of Miss Mary Buckle, an accomplished embroideress and teacher of the art. Its scope is practical, and it is addressed to all interested in embroidery and embroidery design. It will be fully illustrated by reproductions of needlework on a scale large enough to show the stitch, and the artistic and technical sides of the art will be treated with equal thoroughness.

The work of the York Dispensary was transferred on Thursday to new premises in Dauncombe-place, which were opened by Dr. Jonathan Hutchinson, F.R.S. The premises are a continuation of the Classical style adopted when the improvement and widening of Dauncombe-place were commenced. The building is a three-storied one, 43ft. in height, and with a frontage of 73ft. Mr. Kirby, F.R.I.B.A., Liverpool, prepared the plans, and the contract has been carried out by Messrs. Wm. Ballerby and Sons, York, with Mr. Thomas Rawling (York), Mr. G. Hodgson (York), and Mr. Thomas (York) as sub-contractors for brickwork, plumbing, and painting respectively.



## Our Office Table.

A MEMORIAL, signed by over twenty well-known architects, has been presented to the Dean and Chapter of St. Paul's, protesting against the continuance of the works of decoration until full opportunity has been given for the consideration of the whole scheme by the best expert opinion available. The memorialists urge that Sir W. Richmond's scheme, whatever its abstract merits, has not been thought out in sympathy with and in subordination to the architecture of the cathedral. They point out that the chief inspiration of Sir W. Richmond's design has been sought in Byzantine art, with certain motives suggested by English designers of this century, that, in their judgment, a fatal injury is being done to the proportions of St. Paul's by this substitution of Sir W. Richmond's scale for the scale of Sir Christopher Wren, while the decorations now being carried out involve actual injury to the stonework of the cathedral as left by Wren. Sir W. Richmond has indeed, they declare, stultified the architect's design, and in nearly every detail of his decoration he has shown the same indifference to the clear intention of the architecture. The protest is signed by John Belcher, John F. Bentley, Reginald Blomfield, J. M. Brydon, James Brooks, Basil Champneys, T. E. Colcutt, Alexander Graham, M. E. Macartney, E. W. Mountford, W. C. Marshall, E. Newton, F. C. Penrose, Beresford Pite, E. S. Prior, E. R. Robson, J. Oldrid Scott, J. J. Stevenson, Leonard Stokes, E. P. Warren, Thomas H. Watson, H. Wilson, and R. Seldon Wornum.

At Tuesday's meeting of the London County Council, the Housing of the Working Classes Committee reported that the Council was now proceeding with the erection of dwellings on the Millbank estate. The estate was laid out so that 17 blocks of dwellings might be erected, and these dwellings would provide accommodation for about 4,300 persons. The average size of the living-rooms was 14½ sq. ft., and of the bedrooms 10½ sq. ft. It was recommended that the estimates of £47,120 and £28,500, submitted by the Finance Committee, be approved, and that the tender of Messrs. Holloway Brothers be accepted. The proposal of the Parks Committee for the demolition of the Tudor house at Bromley-by-Bow was, after a long discussion, referred back to the committee by 65 to 31 votes. It was agreed to contribute £3,000 towards the cost of the acquisition of the Dollis Hill estate by the Willesden District Council for the purposes of a public park.

The question as to whether contracts for the repairs of roads and other work should be given to contractors as heretofore by the grand jury or the workmen should be employed direct without the intervention of a contractor engaged the attention of the Limerick Council at its last sitting. Lord Emly moved a resolution to the latter effect, and the proposition was seconded by Mr. Coleman, representing the Croom Division. Lord Dunraven said he strongly objected to the direct employment of labour, as it would be impossible for the council to look after the business if they employed labour directly. He sympathised with the motion and should like to see the labourer's position improved; but he objected to the principle that the grand jury should become direct employers. Mr. Leahy, solicitor, advised the council that the Act specified that work should be done by contract, save where in charge of the county surveyor. The resolution was eventually defeated by 21 votes to nine.

## MEETINGS FOR THE ENSUING WEEK.

THURSDAY.—Society of Architects. "Some Essex Churches," with lantern illustrations, by G. Gard-Pye, M.S.A., St. James's Hall, Piccadilly. 8 p.m.

Carpenters' Hall Free Lectures. "Staircases," by James Bartlett, M.S.A. 8 p.m.

The death is announced from Liverpool of Mr. Beacon Hill, who for the past 22 years had been one of the district building inspectors, and for some years previously was engaged as a draughtsman in the borough engineer's office.

A new Baptist chapel in Thomas-street, Aston, Birmingham, was opened on Friday. It is of red brick with white stone facings, measures 65 ft. by 40 ft., and is seated for 500 persons, including 100 in gallery. The cost has been £1,750.

## Trade News.

### WAGES MOVEMENTS.

THE DISPUTE.—Yesterday practically decided whether we are to see an early settlement of the dispute between the Master Builders and the Plasterers' Association, or whether the conflict is to involve the whole of the building trades. A fortnight ago the National Association of Master Builders met at Birmingham, and resolved to ask the unions in the building trades to repudiate all sympathy with the plasterers, or to run the risk of a lock-out. The unions practically all declined to comply. These replies were considered by a special meeting of the National Association of Master Builders in Birmingham yesterday, when the future policy of the employers in the present dispute was determined upon—too late for the result to reach us before going to press. The employers may have resolved to continue the struggle on its present lines. They may put into execution their suggestion of a general lock-out. They may decide to have a general conference with all the trades. Or they may express themselves as agreeable to a conference with the plasterers alone, for the purpose of trying to effect an immediate settlement. We hardly think they will adopt the first alternative, and we sincerely trust they will not take the second. We hope that a conference will be decided upon, and think a conference with the Plasterers' Association alone will be the speediest way to a satisfactory settlement. If yesterday's meeting expressed itself agreeable to a conference with the plasterers, there is a very substantial prospect of an immediate settlement being effected on the lines we have elsewhere indicated.

THE SKILLED LABOUR MARKET.—The memorandum prepared by the Labour Department states that in all the important industries a further improvement in the state of employment has taken place during April, with the result that the percentage of unemployed members of trade unions is lower than that recorded in any month since June, 1890. In the 123 trade unions making returns with an aggregate membership of 495,496, 10,866 (or 2.2 per cent.) were reported as unemployed at the end of April, compared with 2.5 per cent. a month before, and 2.9 per cent. in the 116 unions, with a membership of 466,213, from which returns were received for April, 1898. Employment in the building trades has continued good, though the plasterers' dispute remains unsettled. The percentage of unemployed union members among carpenters and plumbers at the end of April was 1.3, compared with 1.6 in March. The percentage for April, 1898, was 1.1.

CHELTHAM.—Through the intervention of the mayor (Alderman Norman), an end has been put to the carpenters' strike, which had lasted a fortnight. The men claimed an advance of 1d. an hour—viz., from 7d. to 8d. They have now agreed to accept, and the masters have agreed to concede, ½d. an hour advance from this date till January 1, 1900, with a further advance of ½d. from that date.

NATIONAL ASSOCIATION OF MASTER HOUSE-PAINTERS.—A special meeting of this association took place on Friday at Leeds. The chair was occupied by the president, Mr. J. C. M. Vaughan, Hereford. A deputation representing the Master Builders' Federation waited upon the association, and explained the position of matters connected with the building trades, and a suggestion was made that the National Association of Master House-Painters should join the Federation. After discussion, a resolution expressing sympathy with the aims of the Master Builders' Federation was adopted. The question of joining the Federation was also considered, and the matter was referred to a committee. The next meeting of the association will be held at Birmingham in September.

WIGAN.—The Wigan painters and decorators returned to work on Friday, pending the arbitrator's decision on the questions in dispute. The men had been on strike a short time owing to the masters' refusal to concede the advance of wages and come to a better understanding regarding apprentices. The parties have now agreed to abide by the decision of Mr. Robert Stone, Newton-le-Willows, or, if he is unwilling to act, of Judge Jones.

WOLVERHAMPTON.—The master builders of Wolverhampton have refused to accede to the demands of the plumbers for an advance of ½d. per hour.

Mr. A. W. Soames, M.P., is in charge of a memorial from members of Parliament to the Dean and Chapter of St. Paul's Cathedral for an inquiry of experts into the alleged "decorative destruction" of the Cathedral. The memorial is being readily signed by M.P.'s, and the signatures have been obtained of Sir Henry Campbell-Bannerman, Mr. Asquith, Mr. Lecky, Sir Cuthbert Quilter, Sir Thomas Sutherland, and Sir Walter Foster, amongst many others.

## LATEST PRICES.

IRON, &c.		Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 10 0	to	£8 10 0
Rolled-Steel Joists, English.....	6 10 0	"	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	"	6 10 0
Bar Iron, good Staffs.....	7 5 0	"	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	"	17 5 0
Do., Welsh.....	5 15 0	"	5 17 6
Boiler Plates, Iron—			
South Staffs.....	7 17 6	"	8 5 0
Best Suedeshill.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised. £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge.....	£10 15 0	...	£11 0 0
Best ditto.....	11 5 0	...	11 10 0
Per ton.	Per ton.		
Cast-Iron Columns.....	£8 5 0	to	£8 15 0
Cast-Iron Stanchions.....	6 5 0	"	8 15 0
Rolled-Iron Fencing Wire.....	8 5 0	"	9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	"	9 5 0
Galvanised.....	11 10 0	"	12 10 0
Cast-Iron Sash Weights.....	4 2 6	"	4 5 0
Cut Clasp Nails, sin. to 6in. ....	9 0 0	"	10 0 0
Cut Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 16 17 18 19 20			
9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9			
per cwt.			
Cast-Iron Socket Pipes—			
8in. diameter.....	£6 2 6	to	£6 7 6
4in. to 6in.....	5 17 6	"	6 2 6
7in. to 24in. (all sizes).....	5 7 6	"	5 12 6
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lillsehall.....	106s.	to	110s.
Hot Blast, ditto.....	87s. 6d.	to	89s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard			
Liste f.o.b. :—			
Gas-Tubes.....			75p.c.
Water-Tubes.....			70
Steam-Tubes.....			62½
Galvanised Gas-Tubes.....			60
Galvanised Water-Tubes.....			55
Galvanised Steam-Tubes.....			45
10cwt. casks. 50wt. casks.			
Per ton.	Per ton.		
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 8lb. per sq. ft. super. ....	16 5 0	"	17 5 0
Pig Lead, in cwt. pigs.....	16 12 6	"	16 12 6
Lead Shot, in 28lb. bags.....	19 5 0	"	20 5 0
Copper Sheets, sheathing and rods.....	35 0 0	"	36 0 0
Copper, British Cake and Ingot.....	79 0 0	"	80 0 0
Tin, Straits.....	118 10 0	"	114 10 0
Do., English Ingots.....	116 0 0	"	117 0 0
Spelter, Silesian.....	28 10 0	"	28 17 6
T I M B E R.			
Teak, Burmah.....per load	£13 10 0	to	£16 15 0
" Bangkok.....	11 15 0	"	15 15 0
Quebec Pine, yellow.....	4 7 6	"	5 0 0
" Oak.....	4 10 0	"	5 0 0
" Birch.....	3 10 0	"	5 10 0
" Elm.....	4 12 6	"	5 5 0
" Ash.....	4 0 0	"	5 5 0
Dantisc and Memel Oak.....	3 5 0	"	4 0 0
Fir.....	1 7 6	"	3 7 6
Wainscot, Riga p. log.....	3 15 0	"	6 5 0
Lath, Dantisc, p.f.....	4 10 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	8 0 0	"	9 5 0
Box.....	4 0 0	"	15 0 0
Sequoia, U.S.A. ....per cube foot	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
1in. thick.....	0 0 5	"	0 0 7½
" Honduras.....	0 0 4	"	0 0 5
" Mexican.....	0 0 3½	"	0 0 4
Cedar, Cuba.....	0 0 2½	"	0 0 4½
" Honduras.....	0 0 10	"	0 1 8
Satinwood.....	0 0 8	"	0 0 7
Walnut, Italian.....	0 0 8	"	0 0 7
Deals, per St. Petersburg Standard, 190—12ft. by 1½in.			
by 1½in. :—			
Quebec Pine, 1st.....	£19 0 0	to	£25 10 0
" 2nd.....	14 0 0	"	17 5 0
" 3rd.....	7 0 0	"	10 5 0
Canada Spruce, 1st.....	8 5 0	"	10 5 0
" 2nd and 3rd.....	7 0 0	"	8 5 0
New Brunswick.....	7 0 0	"	7 15 0
Riga.....	8 5 0	"	9 5 0
St. Petersburg.....	9 15 0	"	14 5 0
Sweden.....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	18 0 0
Battens, all sorts.....	5 0 0	"	16 0 0
Flooring Boards, per square of lin. :—			
1st prepared.....	£0 12 0	"	£0 15 0
2nd ditto.....	0 10 3	"	0 12 0
Other qualities.....	0 5 3	"	0 6 6
Staves, per standard M :—			
Quebec pipe.....	—		—
U.S. ditto.....	£35 0 0	"	£42 10 0
Memel, cr. pipe.....	210 0 0	"	220 0 0
Memel, brack.....	190 0 0	"	190 0 0
O I L S.			
Linseed.....per ton	£18 0 0	to	£18 10 0
Rapeseed, English pale.....	25 10 0	"	23 0 0
Do., brown.....	21 0 0	"	21 5 0
Cottonseed, refined.....	16 0 0	"	16 10 0
" 31 0 0	"	"	32 0 0
Olive, Spanish.....	20 0 0	"	20 5 0
Sesal, pale.....	29 5 0	"	29 10 0
Coconut, Ceylon.....	25 10 0	"	25 15 0
Do., Ceylon.....	23 10 0	"	23 15 0
Palm, Lagos.....	18 15 0	"	19 15 0
Oleine.....	0 6 8	"	0 7 6
Lubricating U.S. ....per gal.	0 0 6	"	0 0 6½
Petroleum, refined.....	1 0 0	"	1 6 6
Tar, Stockholm.....per barrel	0 18 0	"	1 0 0
Do., Archangel.....	28 15 0	"	29 0 0
Turpentine, American... per ton			



## LIST OF COMPETITIONS OPEN.

Leeds—Market Hall and Shops, Kirkgate Market	£150, £100, £50	The City Engineer, Municipal Buildings, Leeds	June 1
Okehampton—Workhouse and Infirmary (9 inmates)	£50, £25	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton	1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks	£30 (merged), £20, £10	The Borough Engineer, Salford	6
Wakefield—Central Premises	£50, £30, and £20	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield	30
Buckie—Bridge over Buckie Burn (£1,600 limit)	25gs.	J. L. Naughton, Clerk to Commissioners, Buckie, N.B.	30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	July 3
Lichfield—Grammar School	£20	H. H. Brown, Clerk to Grammar School Governors, Lichfield	3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor)	£100, £75, £50	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead	27
Edinburgh—Midlothian County Buildings, Parliament-square	£75, £50, £25	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh	—
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.)	£30 (merged), £10	G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea	—
Totnes—Cottage Hospital		The Chairman, Cottage Hospital Committee, Totnes	—
Aldershot—Masonic Hall (£2,500 limit)		John Youd, Secretary, The Triangle, Aldershot	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Haslemere—Schools	Rev. A. L. Keith	Chancellor and Hill, Architects, 12, Jewry-street, Winchester	May 20
Cannock—Class-room	School Board	Bailey and McConnel, Architects, Bridge-street, Walsall	20
Kyleakin—House on Macdonald Estate		Jas. A. H. MacKenzie, Architect, Portree, Skye	20
Middlesbrough—Alterations to Premises, Linthorpe-road	T. G. Poole	Wm. Duncan, Architect, 43, Albert-road, Middlesbrough	20
Bishop Auckland—Twenty Houses at Close House	J. G. Thomlinson	W. Perkins, M.S.A., Architect, Bishop Auckland	20
Thornton—Enlarging Queen's Arms Hotel	R. Evers	William Watson, Architect, Barstow-place, Wakefield	20
Garforth—Villa	Wesleyan Society	Arthur Hartley, Architect, Carlton Chambers, Castleford	20
Butterknowle—Sunday School		E. H. Livesey, Architect, Newgate-street, Bishop Auckland	20
New Brompton—Villa, Gillingham-road	W. E. Strong	E. J. Hammond, Architect, 111, High-street, New Brompton	20
Workington—Semi-Detached Villas, Ashfield-road		Charles W. Eaglesfield, Architect, Falcon-street, Workington	20
Uley—Two Residences	Burgess and Sons	W. M. and A. Sugden, Architects, Keighley	20
Athlone—Shop and Premises, Church-street	Boyd's Endowment Trustees	J. G. Skipton, A.M.I.C.E., Northgate-street, Athlone	20
Belfast—Class-rooms, &c., Mayo-street		Young and McKenzie, Architects, 7, Donegal-square E., Belfast	20
Wrexham—Four Houses, Empress-road	Urban Sanitary Authority	J. Higginson, Stores, Victoria-road, Wrexham	20
Grimsby—Electricity Works and Chimney Shaft, Doughty-road	John Bryson, jun.	M. Petree, A.M.I.C.E., Borough Engineer, Town Hall-sq., Grimsby	20
Lurgan—Masonic Hall	Croeswynen C.M. Chapel Committee	Godfrey W. Ferguson, Avenue Chambers, Belfast	22
Wooler—Two Houses, Ramsey's-lane		Wm. Robson Hindmarsh, jun., Architect, Wooler	22
Broadheath—St. Alban's Church		Austin and Paley, Architects, Castle Hill, Lancaster	22
Wanfawr—Minister's House and School		Benjamin Williams, Brynhyfryd, Wafnawr	22
Robertstown—Altering Salem Independent Chapel		T. Roderick, Architect, Aberdare	22
Capoach—Renovating Bethlehem Chapel	Mrs. Skeen	Augustus Davies, 7, John-street, Capoach	22
Tarland—Villa		Walker and Duncan, Architects, 3, Golden-square, Aberdeen	22
Winstan—Rebuilding New Inn		J. G. Crone, Architect, 50, Grainger-street, Newcastle	22
Hafof—Baptist Chapel	Benskin's Brewery, Ltd.	Wm. David, 34, Wayne-street, Hafof, near Pontypridd	22
Watford—Extension of Brewery Premises	Guardians	George Adlam and Sons, Architects, Bristol	23
Tending—Infirmary Wards (91 beds), &c., at Union House	Barnsley British Co-op. Society	F. Whitmore, Architect, Chelmsford	23
Auchterless—Additions to Farmstead, Sillerton	Mutford and Lothingland R.D.C.	James Duncan and Son, Architects, Turfiff	23
Wath-upon-Deane—Business Premises	Corporation	Senior and Clegg, Architects, 15, Regent-street, Barnsley	23
Oulton—Isolation Hospital	Metropolitan Asylums Board	Alfred Clarke, Architect, 126, London-road, Lowestoft	23
Workington—Alterations to Green Dragon Hotel	Mrs. Wallis	Castiglione and Gibbins, Surveyors, Washington-st., Workington	23
Oxford—House, Blue Bear-street	Buchan and Co.	The City Estate Surveyor's Office, Town Hall, Oxford	23
New Cross, S.E.—New Chimney Shaft and Alterations to Boiler House at South-Eastern Fever Hospital, Hatfield-street	School Board	E. Stanley Peach, F.R.I.B.A., 28, Victoria-st., Westminster, S.W.	24
Thetford—Four Cottages	Urban District Council	Walter Henry Bell, Architect, The Market-place, Newbury	24
Hopeman—Two Shops and Three Houses, Harbour-street	Derbyshire County Council	John Milne, Architect, Elgin	24
Bargod—Hotel		T. Roderick, Architect, Ashbrook House, Aberdare	24
North Brenton, Tavistock—Reading-Room		J. N. Jackman, Burnville, North Brenton	24
Runcorn—Additions to Granville-street School		The Clerk of School Board, Town Hall, Runcorn	24
Warminster—Pumping Station, &c.		A. F. Long, Town Engineer, Warminster	24
Shirebrook—Lock-up		J. S. Story, County Surveyor, County Offices, St. Mary's Gate, Derby	24
Glasgow—Foremen's House, Waiting-Rooms, and Lavatories at Ruchill Park	Corporation	A. B. McDonald, Engineer, City Chambers, Cochrane-st., Glasgow	24
Holloway, N.—Pulling Down and Removing Buildings	Islington Vestry	Wm. F. Derry, Clerk, Vestry Hall, Upper-street, N.	24
Cwmaman—Boys' School	Aberdare School Board	T. Roderick, Architect, Clifton-street, Aberdare	25
Uppell—Manse	Trustees of Baptist Church	Kerridge and Sons, Architects, Club Chambers, Old Market, Wisbech	25
Artemore—Villa	Guardians	Davidson Croft, Clunie, Newtonmore	25
Skipton—Infirmary at Workhouse	W. Cecil Slingsby	Jas. Hartley, Architect, Exchange Buildings, Skipton	25
Disblair—Additions to Offices, Mill of Cavil	Lunatic Asylum Committee	George Reid, Bellfield, Disblair	25
Carlton—Six Cottages	Parochial Charities Trustees	James Hartley, Architect, Exchange Buildings, Skipton	25
Colchester—Kiln	N. Bird	W. Stopher, 11, Queen Victoria-street, London	25
York—Slatting with Westmoreland Slates a Portion of Asylum	School Board	Wm. Hepper, F.R.I.B.A., 4, Spurriergate, York	25
Brydekirk—Library Hall	South Stoneham Union Guardians	William Thorburn, Secretary, Schoolhouse, Brydekirk	27
York—Four Houses	School Board	T. Robinson, Fox Inn, Holgate	27
Hampton—Alterations to Volunteer Drill-Hall	Joint Stations Committee	Fredk. G. Hughes, Surveyor, Hampton-on-Thames	27
Stonehaven—Cottages, High-street	Committee	D. and J. R. M. Millan, Architects, 211, Union-street, Aberdeen	27
Workington—Two Cottages and Stable	W. and H. Smith	W. G. Scott and Co., Architects, Victoria Buildings, Workington	27
Bedale—Manse and Two Cottages	Urban District Council	W. Peachey, Architect, 3, Amber-street, Saltburn	27
Bristol—School at Wells-road, Knowle	W. R. Harding and Co.	H. Dare Bryan, 38, College Green, Bristol	29
Holyhead—Catholic Schools	Union Guardians	Brodrick, Lowther, and Walker, Architects, York Chambers, Hull	29
Westend—Cook's Room at Workhouse	School Board	Mitchell, Son, and Gutteridge, 9, Portland-street, Southampton	29
Birtley—Literary Institute	Joint Stations Committee	Liddle and Browne, Architects, Prudential Buildings, Newcastle	29
Bristol—School at Luckwell-lane	Committee	H. C. M. Hirst, A.R.I.B.A., 30, Broad-street, Bristol	29
Boston Spa—Residence, &c.	W. and H. Smith	W. H. and A. Sugden, Architects, Keighley	30
Wakefield—Roofing, Loading Stage, and Office	Urban District Council	The Engineer's Office, Hunt's Bank, Manchester	30
Talgarth—Reconstruction of Montpelier Baths	W. R. Harding and Co.	J. Hall, A.M.I.C.E., Boro' Surveyor, Municipal Offices, Cheltenham	30
Ervesham—New Shop and Residences, Bridge-street	Union Guardians	Giles, Gough, & Trollope, Architects, 28, Craven-st., Charing Cross, W.C.	30
Camborne—Post-Office	Rural District Council	O. H. Hunt, Architect, Evesham	31
Sutton, Surrey—Offices and Fire-Station	Rev. W. Oliver Williams	Oliver Caldwell, F.R.I.B.A., Architect, Penzance	31
Bradford-on-Avon—Additions to King's Arms Brewery	School Board	C. Chambers Smith, Surveyor, Public Offices, Sutton, Surrey	31
Sunderland—Administrative Block, Hylton-road	Urban District Council	W. H. Stanley, A.M.I.C.E., Market House Chambers, Trowbridge	31
Merthyr Tydfil—Altering & Renovating High-st. Baptist Chapel	Great Western Railway Co.	W. and T. R. Milburn, Architects, 29, Fawcett-street, Sunderland	June 1
Lisnaskea—Twelve Labourers' Cottages	St. Pancras Guardians	W. Probert, 11, 11, New Castle-street, Merthyr Tydfil	2
Pontypridd—Additions to County School	Admiralty	J. O'R. Hoey, Clerk, Lisnaskea	3
Oleyn Mawr—Additions to Ebenezer English Baptist Chapel	N. E. Holland U.D. Fen School Board	A. O. Evans, Architect, Post Office Chambers, Pontypridd	3
Morley—Schools, Victoria-road	Asylums Sub-Committee	T. W. Jones, Architect, Brooklea, Acrefair, Ruabon	5
Barking—Eighty-Three Cottages, Creeksmouth-lane	Watch Committee	A. A. Buttery and S. B. Birds, Architects, Queen-street, Morley	5
Aston, Middlesex—Station	W. and R. Bulmer	C. J. Dawson, F.R.I.B.A., Public Offices, Barking	5
Cardiff—Carriage Shed at Canton		The Engineer's Office, Paddington Station, London	6
Highgate, N.—Repairs, &c., at Infirmary, Dartmouth Park Hill		The Resident Engineer's Office, Theatre Royal Chambers, Cardiff	6
Portsmouth—Coastguard Buildings		Browell and Taylor, Surveyors, 9, Warwick-court, Holborn, W.C.	8
Brotherthorpe—Enlargement of Barley Sheaf School		The Director of Works Dept., 21, Northumberland-avenue, London	9
Wells—House on Asylum Estate		J. H. Tooley, Clerk, 6, Bridge-street, Boston	12
Warrington—Police Buildings, &c.		G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-st., Westminster	14
Brighton—Alterations and Additions to Public Library, Museum, and Art Gallery		R. B. Dick, Architect, 55, Northumberland-st., Newcastle-on-Tyne	15
Melrose—Alterations at Roxburgh District Asylum		Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton	July 27
Tantolite—Five Houses, South View		Sydney, Mitchell, and Wilson, Architects, 13, Young-st, Edinburgh	—
Merthyr—Rebuilding New Inn Hotel		T. Ernest Crossling, Architect, Stanley, R.S.O.	—
Sheffield—Eight Houses, Goddard Hall-road		H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff	—
East Cottingham—Classroom at Board School		H. Hill and Fenton, Architects, 14, St. James's-row, Sheffield	—
Morecambe—Alteration of House, Regent-road		John Thomas Slights, Clerk, East Cottingham	—
Rawtenstall—Conversion of Two Cottages into Shops		Marshall Bros., Architects, Back Crescent, Morecambe	—
Irlingthorpe—Three Houses		S. Whittaker and Son, Orchard Jan Works, Waterfoot	—
Seven Sisters-road, N.—Repair and Redecoration of Woodbury Down Chapel		M. R. Thompson, Architect, Wellingsborough	—
Morecambe—Alterations of House at Corner of Regent-road		W. Bradbear and Co., Architects, Canonbury Station, N.	—
		Marshall Bros., Architects, Back Crescent, Morecambe	—



## BUILDINGS—continued.

West Hampstead, N.W.—Block of Residential Flats .....	Salford—School in London-street .....	Palgrave and Co., Architects, 25, Victoria-street, S.W. ....
Udiale—Repairs to Tower and Steeple of Church .....	Stalybridge—Clubhouse .....	Ogilvie Duthie, Clerk, School Board Offices, Chapel-street, Salford ..
Pickering—Alterations, Black Swan Hotel .....	London—Proposed Hotel (£20,000) .....	Rev. G. F. Maynard, Udiale Rectory, Carlisle .....
Tankersley—Chimney (100ft. high) .....	Sheffield—House and Stores at Brewery .....	Eaton, Sons, and Cantrell, Architects, Ashton-under-Lyne .....
Pool—Alterations to Premises .....	Barrow-in-Furness—House .....	A. D. Kaye, Architect, 71, Albion-street, Leeds .....
South Kirby—Five Houses and Shop .....	Arundel—Re-erection of Offices .....	As Advt.: A. W. Box 455, Willing's, 125, Strand, W.C. ....
Pentraeth—Farmhouse .....	Nottingham—Improvements to Schools .....	The Manager, Liddett Colliery Co., Ltd., Tankersley, Barnsley ..
Nottingham—Volunteer Drill Hall .....	Manningham—Twenty-two Terrace Houses .....	Hall and Fenton, Architects, 14, St. James's-row, Sheffield .....
Bradford—House and Workshop off Manningham-lane .....	Godling—House .....	A. and W. Longson, Waterloo Ironworks, Poole, Dorset .....
London, N.—Alterations to Premises, Caledonian-road .....	Cardiff—Alterations to Theatre Royal Hotel .....	E. M. Young, Architect, 90, Duke-street, Barrow .....
Burntisland—Tenement, Somerville-street .....		Walter E. Richardson, Architect, 28, Bond-street, Leeds .....
		F. Wheeler and Lodge, Architects, Bank Chambers, Horsham .....
		I. Taylor, Estate Office, Colehill, Holywell .....
		A. N. Bromley, Prudential Buildings, Queen-street, Nottingham ..
		R. S. Anderson, C.E., County Buildings, Peebles .....
		Fairbank and Wall, Architects, Craven Bank Chambers, Bradford ..
		James Young and Co., Architects, 62, Market-street, Bradford ..
		John Kirkland, A.R.I.B.A., 19, Caldervale-road, Clapham, S.W. ....
		Mallett, Porter, and Dowd, 465, Caledonian-road, N. ....
		H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff .....
		R. and A. K. Smith, Ordained Surveyors, 1, Albyn-place, Edinburgh ..

## ENGINEERING.

Bardmony, Blairgowrie—Steel Girder Bridge (150ft.), Piers, Approaches, &c. ....	Promoters, per R. Watson, Solicitor .....	Geo. Wylie, Road Surveyor, Blairgowrie .....
Ashrigg—Stone Bridge .....	Tramways Committee .....	Walker Leaster, M.I.C.E., County Surveyor, Northallerton .....
Blackpool—Ten Bogie Trams .....		John Lancaster, Tramway Manager, Blackpool .....
Alnwick—Open Reservoir (250,000 gallons) and 4in. Cast-Iron Pipes (2½ miles) .....	Rural District Council .....	H. W. Walton, Clerk, Alnwick .....
Goole—Retorts, &c. ....	Urban District Council .....	Matt. Dunn, Engineer, Gasworks, Goole .....
Edinburgh—Fans at Electric-Lighting Station .....	Magistrates and Council .....	The Resident Engineer, Dewar-place, Edinburgh .....
Enniskillen—Electric Light Installation, Town Hall .....	Urban District Council .....	A. Scott and W. A. Scott, Architects, 16, William-street, Drogheda ..
Grove Park, S.E.—Sinking Well .....	Greenwich Union Guardians .....	T. Dinwiddy, Architect, 12, Croom's Hill, Greenwich, S.E. ....
Winwick—Siding Extension .....	Lancashire Asylums Board .....	Robert Curran, C.E., Horsemarket Chambers, Warrington .....
Ton Phillip—Single Line of Railway from Cefn to Ton Phillip .....	Ton Phillip Rhonda Colliery Co. ....	Cook and Edwards, Masonic Buildings, Bridgend .....
Watchet—Sea-Wall, &c. ....	Somerset County Council .....	C. A. Brereton, 21, Delahay-street, Westminster, London, S.W. ....
London, E.C.—Speciality Winches of Malleable Iron or Steel .....	James' Syndicate, Ltd. ....	The Syndicate's Office, 18, Billiter-street, London .....
Clacton-on-Sea—Sea-Defence Works .....	Commissioners .....	T. A. Cressy, Surveyor, Clacton-on-Sea .....
Highgate Hill, N.—Electric Light Installation at Infirmary .....	St. Mary, Islington, Guardians .....	Wm. Smith, Architect, 63, Chancery-lane, W.C. ....
Patricroft—Wiring, Lamps, and Fittings, Workhouse Infirmary .....	Barton-u.-Irwell Union Guardians .....	G. R. Peers, A.I.E.E., Electrical Engineer, 96, Deansgate, Manchester ..
Battersea, S.W.—Electric Lighting Works .....	Vestry of St. Mary, Battersea .....	Prof. Alex. B. W. Kennedy, 17, Victoria-street, Westminster .....
Halifax—Electric-Lighting, Workhouse and Union Offices .....	Guardians .....	Shepherd & Watney, Consulting Engineers, Greek-st. Chmbrs, Leeds ..
Bolton—Widening Line through Bolton and Construction of New Goods and Passenger Stations .....	Lancashire and Yorkshire Ry. Co. ....	The Engineer's Office, Hunts Bank, Manchester .....
Hackney—Electricity Supply Mains .....	Vestry .....	Robert Hammond, M.I.C.E., 64, Victoria-street, S.W. ....
London, S.W.—Twin-Screw Fire-Float .....	London County Council .....	The Clerk's Department, County Hall, Spring Gardens, S.W. ....
Shanghai—Electric Trolley Tramways (23 miles) .....	Municipal Council .....	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C. ....
Naples—Harbour and Docks (estimated cost £162,400) .....	Thornton Colliery Co., Ltd. ....	The Public Works Department, Rome .....
Thornton—Railway Siding to Dogton Colliery .....		Harry W. Lewin, 154, West Regent-street, Glasgow .....

## FENCING AND WALLS.

Littlehampton—Oak Fencing, &c. ....	H. Howard, M.S.A., Town Offices, Littlehampton .....
Manchester—Boundary Wall and Wrought-Iron Railings at Gibbon-street Open Space .....	
Darlington—Hurdles (500), Horse and Dog Show .....	Parks Committee .....
Oban—Parapet Wall, Soroba-road .....	The City Surveyor, Town Hall, Manchester .....
Farnham—Wooden Fencing, Workhouse Premises .....	C. Coates, Secretary, 6, Arden-street, Darlington .....
Brighton—Wrought-Iron Hurdle Fencing .....	John Alcorn, Borough Surveyor, Municipal Buildings, Oban .....
Wood Green, N.—Oak Fencing (120 rods) .....	Sidney Stapley, Architect, West-street, Farnham .....
Tottenham—Boundary Wall Fencing and Convenience, Chestnut Estate .....	Francis J. C. May, Borough Engineer, Town Hall, Brighton .....
	Urban District Council .....
	P. E. Murphy, Engineer, 712, High-road, Tottenham .....

## FURNITURE AND FITTINGS.

Bacup—Ninety Sash Windows and Four Shop Windows .....	J. W. Eyre, 14, Market-street, Bacup .....
Great Grimsby—Wintringham Higher-Grade School .....	H. C. Scapling, Architect, Cour. Chambers, Grimsby .....
Halifax—Borough Hospital, Stoney Royd .....	David Travis, Sanitary Inspector, Town Hall, Halifax .....
Leigh, Lancs—Cooking Apparatus Fittings, Astley Sanatorium .....	Banks, Fairclough, and Stevens, Architects, Leigh .....

## PAINTING.

Surfleet—County Bridge .....	Holland County Council .....	H. Chaderton Johnson, Clerk, Sessions House, Boston .....
New Mills—Central Premises, &c. ....	New Mills Co-Operative Socy., Ltd. ....	Peter Wain, Secretary, New Mills .....
North Aldershot—Painting, &c. ....	War Department .....	M. H. Goldie, Col., Commanding R.E., North Aldershot .....
London, W.C.—Casual Wards, Mecklin-street .....	St. Giles and Bloomsbury Guardians .....	J. Appleton, Clerk, 57, Broad-street, Bloomsbury, W.C. ....
London, W.C.—Workhouse, Endell-st., and Offices, Broad-st. ....	St. Giles and Bloomsbury Guardians .....	J. Appleton, Clerk, 57, Broad-street, Bloomsbury, W.C. ....
West Brompton—Infirmary, Fulham-road .....	Guardians of St. George's Union .....	Edwin T. Hall, F.R.I.B.A., 57, Moorgate-street, E.C. ....
Edenfield—Church .....	Council .....	R. Walton, Hawthorn House, Edenfield .....
Warrington—Fire-Engine House .....	Kingston-upon-Hull School Board .....	Thomas Longdin, Borough Surveyor, Town Hall, Warrington .....
Wingate—Primitive Methodist Church and Schools .....	Guardians .....	Thos. Greenwell, Front-street, Wingate .....
Hull—Eleven Schools .....	Berks and Bucks County Councils .....	D. Jno. O'Donoghue, Clerk, School Board Offices, Albion-st., Hull ..
Barnet—Workhouse and Infirmary .....		The Master, Workhouse, Barnet .....
Heywood—Technical School .....		W. H. Meadowcroft, Town Clerk's Office, Mun. Bldgs, Heywood ..
Datchet—Iron Bridge spanning the Thames .....		Joseph Morris, County Surveyor, Reading .....
Exmouth—Public Lamps, Shelter Seats, and Public Seats (Three Years) .....	Urban District Council .....	W. G. Harding, Surveyor, Exmouth .....
Richmond, Surrey—Workmen's Dwellings, Manor-grove .....	Town Council .....	The Borough Surveyor, Town Hall, Richmond, Surrey .....
Southall—Schools .....	St. Marylebone Guardians .....	H. T. Dudman, Clerk, Northumberland-st., Marylebone-road, W. ....
Macclesfield—Two Gasholders at Tytherington .....	Gas Committee .....	J. Newbigging, Engineer, Town Hall, Macclesfield .....
Seascale—Pavilion and Caddie Shelter .....	Golf Club .....	H. Braithwaite, Hon. Secretary, Seascale .....

## PLUMBING AND GLAZING.

Bedminster—Luckwell School .....	Bristol School Board .....	H. C. M. Hirst, A.R.I.B.A., 30, Broad-street, Bristol .....
Bristol—Wells-road School, Knowle .....	School Board .....	H. Dare Bryan, 23, College-green, Bristol .....

## ROADS AND STREETS.

Annan—Paving Streetway (6,000 yards) with Granite Cubes .....	Commissioners .....	Murray Little, Clerk, Annan .....
Londonderry—New Street off Creggan-road .....	W. Baldrick .....	R. E. Buchanan, Architect, 33, Shipquay-street, Londonderry .....
Annan—Footpath at Cemetery .....	Parish Council .....	John Laurie, Clerk, Parish Council Office, Annan .....
Bolton—Widening Chorley Old-road .....	Town Council .....	The Borough Surveyor, Town Hall, Bolton .....
Enniskillen—Road Approach, Inismore Viaduct, Co. Fermanagh .....	Urban District Council .....	The County Surveyor, Enniskillen .....
Pokesdown—Making-up Roads .....	St. John's Vestry .....	The Clerk, Council Offices, Cromwell-road, Pokesdown .....
Kilburn—Wood Paving .....	Town Council .....	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead .....
Bolton—Street Works .....	Rural District Council .....	W. Marsden, Private Works Surveyor, Town Hall, Bolton .....
Ardee—Road Maintenance (One Year) .....	Urban District Council .....	Thomas B. Dromgoole, Clerk, Board-rooms, Workhouse, Ardee .....
Barnet—Making-up Sebright, Puller, and Calvert Roads .....	Corporation .....	H. A. Mansbridge, Surveyor, 40, High-street, Barnet .....
Kingston-upon-Thames—Tar-Paved Footpaths (6,000sq. yds.) .....	Rural District Council .....	W. H. Winsor, Town Clerk, Clatter House, Kingston-upon-Thames ..
Hertford—Road Repair (Nine Months) .....	Urban District Council .....	J. W. Riggs, Highway Surveyor, Ranshawe-street, Hertford .....
Winborne—Road Works .....	Urban District Council .....	C. Munckton, Surveyor, Council Offices, Winborne .....
Tottenham—Repairing Tar and Asphalt Paving .....	Urban District Council .....	F. E. Murphy, Engineer, 712, High-road, Tottenham .....
Kettering—Completion of Twenty-Two Private Streets .....	Glamorgan County Council .....	Thos. R. Smith, Surveyor, Market Hill, Kettering .....
Cardiff—Kerbing Footways on Main Roads .....		The County Surveyor's Office, Town Hall, Bridgend .....

## SANITARY.

Londford, Gloucester—Pipe Sewers (3,000 yards) .....	Rural District Council .....	J. Fletcher Trew, County Chambers, Gloucester .....
Plymouth—Stoneware Pipe Sewer .....	Corporation .....	James Paton, Borough Engineer and Surveyor, Plymouth .....
Port Glasgow—Main Sewer, Bellhaven-street and Brown-street .....	Commissioners .....	James Murray, Borough Surveyor, Town Buildings, Port Glasgow ..
Rochdale—Drainage at Workhouse .....	Guardians .....	R. A. Leach, Clerk, Union Offices, Townhead .....
Forlock and Lucombe—Sewers .....	Williton Rural District Council .....	F. H. Anson, 15, Dean's-yard, Westminster, S.W. ....
Lamesley—Sewers for the Village of Bewick Main .....	Chester-le-Street R.D.C. ....	John H. Mole, Surveyor, Birtley, Chester-le-Street .....
Hampstead, N.W.—Flushing Tanks .....	St. John's Vestry .....	Arthur P. Johnson, Vestry Clerk, Vestry Hall, Hampstead .....
Sutton Coldfield—Sewer .....	Corporation .....	W. A. H. Clarry, Borough Engineer, Town Hall, Sutton Coldfield ..
Lytham—Sewer .....	Urban District Council .....	Henry Bancroft, M.I.C.E., 88, Mosley-street, Manchester .....
Salcombe Regis—Sewerage Works .....	Honiton Rural District Council .....	Edward G. Warren, Surveyor, Commercial Chambers, Exeter .....
St. Anne's-on-Sea—Sewer .....	Urban District Council .....	Henry Bancroft, M.I.C.E., 88, Mosley-street, Manchester .....
Eccles—Sewering & Paving Joseph-st. & Farrin-lane at Winton .....	Highways Committee .....	Arthur C. Turley, Borough Surveyor, Town Hall, Eccles .....



## THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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## REBUILDING AND IMPROVEMENTS.

**R**EBUILDING old premises and additions to our streets are rapidly transforming the Metropolis, not always for good from an architectural point of view, nor beneficial from a sanitary aspect. The tendency of rebuilding is to make the same area of ground accommodate a larger number of people than the old premises, either by placing two or three new houses where formerly only one house stood—a case very frequently met with in the suburbs, or by erecting the new building twice as high as the old one, often found in the rebuilding of premises in the City and West End. Both are manifest evils, for while we pull down the old and unhealthy premises for buildings more perfect in their sanitary arrangements, we undo the good by cramming more people on the same site. For a widened thoroughfare a good deal has been sacrificed; buildings have been cramped in depth and width, as in Charing Cross-road, parts of Clerkenwell, and in Fulham, and in other thickly-populated districts like Camberwell, we find large back areas and garden grounds inclosed or built over, forecourts absorbed by road or occupied by shops, side passages utilised—all to make more roomy premises. We cannot see here exactly where improvement comes in. An instance occurs to us of this mania for filling up spaces, even when they adjoin a public building, and have been left to give light or to reveal its features—we refer to an alleged agreement that has been made between the rector and churchwardens of St. Dunstan in the West, and the Law Life Assurance Society, Ltd., for the sale to the latter of the space on the west side of St. Dunstan's Church in Fleet-street. Can this act of encroachment really be contemplated? The church in question is neither an ancient edifice, nor one of which we can be proud as a specimen of Gothic; but it is, at least as far as the octagonal plan and the steeple are concerned, a feature in the street—in fact, the space on either side, by separating the tower from the adjoining premises, adds greatly to the effect of the former, which would be entirely destroyed if the spaces on either or both sides were to be filled up with buildings. In this instance also important windows of the church receive their light from the areas in question. They add immensely to the appearance of the tower by showing its return sides. We know how some of Wren's City churches have been spoiled by building up close to their towers—as, for example, St. Martin's on Ludgate Hill.

We hope that any petition for a faculty to fill up the space in question will not be entertained, as if it were granted other of our churches and public buildings which have open spaces left in front or rear for emphasising their design will be similarly sacrificed to the greed for making extension. Certainly we are surprised that any such spoliation can be seriously entertained by rectors and churchwardens who are trustees of our churches.

This is only one illustration of the "filling-up" craze which threatens to rob us of every forecourt or space at the side or rear of our buildings. The usual form it takes is to build over a back court or area, which can be done under the London Building Act if a space of 100sq.ft. be left for light and air to any habitable basement. Section 41, referring to space at rear of domestic buildings abutting upon a street, provides at the back

an open space of not less than 150sq.ft., but this open space may be provided above the level of the ceiling of the ground story or a level of 16ft. above the adjoining pavement, so that in many cases the whole area on the ground floor may be utilised by building. Again, what a little space is actually required under the Act! Only an area of the width of building and a depth of 10ft. So that it becomes too easy to fill up a large area at the rear of a building provided there is an area well for light and air provided of the size named.

Then we have the increased height of new and rebuilt premises. Limited as it is by the Building Act, we cannot avoid the reflection what some of our narrower streets will become, when even a large proportion of the number of houses are built to the height allowed. The great piles of offices and residential blocks erected at Kensington, Knightsbridge, and other parts of the West End are threatening to destroy the private houses in their neighbourhood by raising rents and creating a desire to rebuild to greater height. If we take the neighbourhood bounded by Piccadilly on the north to King-street and St. James's-square on the south, the Green Park and Regent-street on the west and east respectively, we shall find several large blocks of buildings, in progress or already finished, of this class. At the corner of Duke street and St. James's-square a large block of shops and premises is being finished by Holloway Brothers, which has in all seven stories, and is to be provided with the Otis elevator. The architectural features are plain; red bricks in the flat piers are relieved by large stone bay-windows with five-canted sides, and the corner to St. James's-square has a commodious bay window of several lights carried up to the second story, above which it is reduced in size, and surmounted by an octagon turret. The stonework details of the windows are simple and effective; the transoms are carried through and outside the mullions. The floors are of iron and concrete. The wide, flat-canted bays of stone help to relieve the flatness of the elevations, besides adding to the size and cheerfulness of the rooms. In a few years we may see other old houses in St. James's-square rebuilt as many-storied blocks, and the quiet air and aristocratic appearance of the old square will gradually disappear. Of course, there is a strong temptation to increase the tenantable area of houses in expensive neighbourhoods by raising the buildings to several stories in height, and this tendency appears to be strongest in the more expensive parts, such as the West End. We can imagine the effect of a few "skyscrapers" in squares like those of St. James's, Berkeley, and Grosvenor. We have monster hotels already near some of them, and this cosmopolitan taste in building is gradually extending amongst us by the yearly arrivals of wealthy American families. How to preserve the compactness and sobriety of our residential architecture amidst all this speculative activity is not very easy. Sudden jumps in the skylines of all our main thoroughfares are ominous of what we are to expect, when all we value in those qualities which make architecture are threatened, when rental value and all that it implies will usurp the first place, and the individual monopolist or syndicate will assert authority over every artistic consideration.

## PICTURES AT THE ROYAL ACADEMY.—IV.

**T**HE large subject picture "Laus Deo," by Solomon J. Solomon, in Gallery VI., is the chief composition, and is conspicuously hung as a centre piece. The knight clad in full armour, and his fair lady, with an aureola round her head, who is crossing the brook on his steed, is a design of much

beauty and power, and displays a decorative motive and treatment. Beyond the brook, in the glade of a forest, are discerned figures. The drawing and modelling of the horse and rider are bold, there is majesty in the triumphant step and the wing-like radiance behind the fair lady who is behind.

Alfred Parsons' large landscape "Village by the Links" (434), with its red sunset and stormy sky, under the semi-gloom of which a few people are playing golf, is one of the most successful landscapes of the year. There is breadth and vigour displayed in this thoroughly English landscape, which represents Holme Church, near Hunstanton. Cecil R. Burnett's full-length standing figure of a lady (443) is well modelled, and graceful in pose.

John S. Sargent's portrait of Lady Faudel Phillips—a presentation portrait—is one of this painter's successes; we may compare it to his other remarkable portrait of Miss Octavia Hill for the individuality and expression he has given us in each. In the former we see the lady philanthropist, benignant but practical; in the latter the popular Lady Mayoress, with her pleasant, good-natured face lit up by a smile. The latter is dressed in black with low body, and is set off by a red background.

Charles Kerr paints feelingly a village scene in Brittany, "When Other Helpers Fail" (451), a friendless girl kneeling before a village cross. The dark, cloudy sky, which casts a sombre light over the green and its groups of peasants, is in unison with the theme, and the work is handled sympathetically.

Frank Bramley, whose subjects of fishing-village life have always an interest, paints a group of garrulous old fisherwomen gossiping together in the parlour of a cottage before a comfortable fire (471). The characters are cleverly portrayed, the firelight, which throws a ruddy glow over the room and its occupants, is appropriately introduced.

Near it, Ralph Peacock has a pleasing study of a little girl seated on a bank beneath a tree, called "Bunny" (476), very admirable as a study of juvenile life and character, putting us in mind of some of Millais's studies of children. The little girl, in a flowered-muslin frock, her hands clasped in her lap, has an expression of innocence and contentment. Beyond her rises the brown hilly slope of a beech forest; there are a directness and simplicity in the composition that give it a poetic charm.

John White's "The Brook and the Sea" is simple. Over the arm of the brook where it joins the sea is a rustic bridge, upon which a woman is talking to her child. There is breadth and pleasing harmony of tone.

The portrait of Mr. Gladstone in 1894, by Frederick Goodall, one of the latest of the great statesman, has a melancholy interest. Although there is a pallor in the face, and a lack of vivacity when compared with his earlier portraits, the features and individuality of the man have been fully presented.

Few pictures of any note detain us in Gallery VII. E. Blair Leighton's "Elaine" (544) is another version of a favourite legend, and depicts the "Lily Maid of Astolat" in her beautiful chariot bier, on the barge before a Norman entrance, the steps of which lead down to the river; King Arthur and his Court stand to bid farewell in the porch. Mr. Leighton depicts the scene in his usual scholarly and brilliant manner. The fair lily maid has in her hand a lily, and over her the "braided blazonings." The painter appears to have taken inspiration from Tennyson's verse:

In her right hand the lily, in her left  
The letter—all her bright hair streaming down,  
And all the coverlet was cloth of gold  
Drawn to her waist, and she herself in white,  
All but her face, and that clear-featured face  
Was lovely, for she did not seem as dead,  
But fast asleep, and lay as tho' she smiled.

The chariot bier, in white and gold, is



adorned by garlands of white flowers at the head and foot, and is of elegant design: the king and his retinue of knights and ladies, their costumes, and the enriched Norman archway are accomplished adjuncts to the one recumbent and brilliant figure.

John MacWhirter's "The Silver Strand: Loch Katrine," suggested from "The Lady of the Lake," is a beautiful piece of scenery, recalling the fairy dream of the poet, reflecting the autumnal foliage with distant blue mountains beyond. David Farquharson conjures up another dreamland called "Romantic Ground" (539), full of charm and misty light, a stream winding its way round the base of an old castle in a beautifully undulating landscape. Contrasting with these calm and peaceful scenes we come to a large canvas occupying a central position, full of tumult and the horror of a naval battle. It represents "The Battle of the Nile," by W. L. Wyllie, whose ability as a painter of marine subjects is unquestioned. Here we see all the historic battleships in deadly combat, one large vessel dimasted and helpless, and her rigging lying in a heap over her sides, another vessel on fire, sky and water red with flames and destruction. Mr. Wyllie has succeeded in giving a graphic and powerful representation of the great naval battle. We understand this picture and Mr. H. W. B. Davis's landscape, "Approaching Night," have been purchased under the terms of the Chantrey bequest for the Tate Gallery.

A powerfully painted interior in warm glowing red tones is Gonzalo Bilbao's "Baile de los Seises"—dance of the choristers in the Cathedral of Seville. This curious old Spanish ceremony of semi-religious meaning is depicted with much animation and ability. Before a brilliantly lighted high altar, raised by a flight of steps above the level of the choir, the choristers, in scarlet cassocks and white cottas, are dancing to the music of the choir. Round it sit dignitaries in their robes; boys hold large lighted tapers, which throw a ruddy light over the interior. Costly fittings and accessories, huge gilt candlesticks, censers, rich metal-work, carving, and decoration form a rich setting to the function, and combine to make an imposing spectacle. The gloom irradiated by the light of hundreds of candles lend a mystic and religious air to the measured movements of choristers. The painter has shown his skill as a delineator of ecclesiastical ceremonial.

Joseph Farquharson (573) has a noble landscape, "The yellow sun declines, and with long rays and shades the landscape shines." Through a vista of trees sheep are passing, gleams of sunlight flicker through the foliage, and brightly gild the backs of the herd and the pathway below. Mr. Farquharson has given us an idyllic scene; his streams of evening light illumine the forest road and the rich summer foliage of the trees; there is a delicacy and tenderness in the handling of the intertwining foliage, and the flickering beams seem to move through the branches and on the backs of the sheep. Another attractive landscape is Yeend King's "The River and the Brook" (594). This painter of landscape is certainly improving in his colour; the cold tones of green we have before noticed in his work are not found in this instance, which shows a brook joining a river as it passes a village. There are atmosphere and delicate handling in the work.

We must not pass by John R. Reid's very delightful piece of rural scenery, "A Kentish Idyll" (559)—a bright country cottage study, such as the late Mr. Birket Foster loved to paint. Mr. Reid tells his tale with a directness and a sympathy that cannot fail to carry conviction. A young peasant labourer's wife is at the gate of a farmyard near the sea, her baby is being supported by her on the top of the gate, while an elder child stands on one of the rails. In a field beyond

are two men at work digging, and the sea beyond. There is a spring-like delicacy and brilliance in the foliage and landscape, and Mr. Reid's vigorous touch and sparkle of light and shadow are dominant. Alfred East's moonlight scene, "The Miller's Daughter" (606), is picturesque. The mill, surrounded by tall elms, and the quiet meadows and "sleepy pool," are cleverly managed. The girl in a punt is probably the miller's daughter.

One of the best pictures in the gallery that will draw attention is C. Napier Hemy's "Smugglers" (600), an incident of a past age, shows a boat load of smugglers being pursued. The subject has been powerfully handled by Mr. Hemy in his usual masterly way. The party of smugglers are being hotly pursued, and are opening fire on their pursuers from the stern of their vessel; they are making desperate efforts against a heavy sea to get away. The drawing of the boat, half-swamped, and the sturdy crew within it are vigorous, full of animation and movement, and the work is worthy of this accomplished sea and boat painter.

Another popular incident is painted by Fred. Roe (601), representing "Joan of Arc, 1429," leaving a fortress clad in white armour on her black charger. The young and gallant peasant girl is represented turning her face to the people, and asking them to pray to God for her success. It is this incident, recorded in a contemporary letter by Count de Laval in Lord R. Gower's "Life of Joan of Arc," that Mr. Roe has painted with much success. Herbert J. Draper has a large and cleverly painted subject, "Ferdinand and Ariel" (616), where Ariel is perched on a rock in an expansive landscape in an island, with an expanse of sea and white cliffs beyond. The composition and colour are handled with much breadth and harmony. Two other subjects are worth notice. One is J. Wimbush's "Fide et Amare feci," a monastic sculptor kneeling on a scaffold before a statue in a niche he has presumably been carving, painted with skill and reverence; and Charles Stuart's large picture, "In the Sanctuary," a very fine piece of moorland scenery, a refuge of wild deer, a rocky headland, clad with herbage. The atmosphere and the dark shadow of the rock at its extreme scarped end are skilfully managed, and reinforce the lighted side of the rock.

T. C. Gotch, whose clever, symbolically-conceived subject "The Heir to all the Ages" and other similar pictures drew attention in late exhibitions, has this year "A Pageant of Children," a procession of children, boys and girls of varying ages, led by a little boy carrying a standard, and intended to represent childhood's ideal of happiness and gaiety. The figures are arranged in pairs in order of age, the younger lead, and the elder bring up the rear. There is also a meaning suggested in the musical instruments and objects they carry. Thus, two boys are shown with trumpets, others with drums and cymbals, and the two elder girls behind, dark and fair, carry books. The costumes are harmonious and pleasing, of semi-Medieval character, and the colours of the draperies are made to contrast with the subdued colour of tapestry background. The work is, of course, painted in a decorative key of colour, and the treatment, therefore, rather flat.

"The Golden Hour" (640), by Arthur Hacker, is this versatile painter's chief picture. The scene is an umbrageous glade; through the foliage gleams of sunlight dapple the sward. A group of ladies, in evening dress, sit with musical instruments, but are for the moment rapt in ecstasy by the cadences of Eros. Mr. Hacker has painted a charming composition. The Titian-like richness of colour, and play of light and shadow are soft and harmonised.

Ernest Normand, whose work is marked

by refined drawing and colour, sends "The Legend of Pandora" in three panels (645). There is a Leightonlike execution and refined grace in the figure, the modelling is good, but the work lacks the emotional.

A fine seascape in grey tones is Fred W. Jackson's "Return from Line Fishing" (664). William Stott paints his "Hide and Seek in the Garden of Epicurus" (675) in a more solid manner than has been his wont, and this work is one of promise.

J. Aumonier's "Sheep Washing" (666) is a work of much power, beauty, and directness. David Murray is a prolific painter of Scotch landscape, and his large Scotch river scene (660) is powerful; but we almost wonder whether he can find time to paint so many subjects direct from nature.

Gallery IX. contains several very beautiful studies to which we cannot allude here. Alfred Morgan has some pleasing little pictures. L. Alma-Tadema, a portrait of Mrs. Marcus Stone. Laura T. Alma-Tadema is well represented, and there are deftly-painted works by Lexden L. Pocock (710), Spenlove-Spenlove (727), H. W. B. Davis, Stuart Lloyd, a clever work, "March in Granada," by Alfred Waterhouse, J. Henry Henshall, W. H. Margetson (809), Jessica Haylar.

In the next gallery we have Gennaro D'Amato's large "Diamond Jubilee Service at St. Paul's Cathedral," a well-painted scene, though rather slighter in handling than the two we have noticed. We notice a few trifling differences, such as the scarlet cassocks worn by the choir, but the grouping is well managed.

"Love the Conqueror," by Byam Shaw, is, despite its eccentricity, one of the pictures of the year. We always look with interest on what this very original painter does. His clever picture "Truth," of last year, is in the remembrance of many. In this large frame he depicts a procession of great men and women of all ages who have been made captives by the "ruling passion." It is an allegory. We see in the long and winding procession Henry VIII., Shakespeare, numerous kings and queens and celebrities, who all pass by Love seated on a war-horse—a mere toy-looking figure, and of very crude drawing. There is the charm of quaintness and Mediævalism about the drawing and colour of this curious picture. Mr. Byam Shaw loves the enigma in art. His method of painting is quaint and archaic in expression, and if we do not see exactly what he sees, nor value his eccentric style, his work is nevertheless attractive.

There is little of any interest in Gallery XI. T. C. Gotch has a portrait of a lady (935) in delicate shades of fawn and rose; W. Dendy Sadler (936) has one of his amusing incidents, told with his wonted technical skill and humour, "The Plaintiff and the Defendant"; H. W. B. Davis, a noble landscape on the Wye. The blossoms are painted with consummate beauty and realism.

"My Lady's Garden," by J. Young Hunter (997), is a distinguished picture. A young lady in gorgeous garments is walking over the green lawn of an old-fashioned garden, carrying a Venetian bowl. On either side of her is a peacock, and a third with outstretched plumage walks behind. The technical workmanship, the trim-cut beds of box, and richness of colour, are qualities which invest this picture with much interest, and it is one that is selected for purchase by the Chantrey Trustees. We can only notice one other picture, "Forest Oaks" (990), by Ernest A. Waterlow, delightfully broad in handling and colour.

Mr. J. Prout, who has been for some time secretary to the Master Builders' Association at Barry, was presented by that body with a marble clock in acknowledgment of his services. Mr. Edward Phillips, Newland House, made the presentation.



## ESTIMATES.—VII.

FACINGS, GAUGED ARCHES, MOULDED WORK.

**FACINGS** should be taken "as extra on common brickwork," including pointing. The bricks should be specified, also the pointing, and it is necessary in billing to state if the "joints are to be struck fair as the work proceeds" or "rake out and point." Openings and gauged arches are deducted. Cornices and string courses are taken either as "extra on facings" or "extra on common brickwork." If the former, the projection is measured as brickwork; if in cement, it should be stated as extra only. The mouldings are girt and billed with facing, deducting the general facing behind; if extra on common brickwork, the projection is measured as ordinary work, deducting facing behind.

**250ft. super.** Extra on common brickwork for facings of picked stocks finished with neatly struck bevelled joint as the work proceeds.

Let us take 7 bricks per foot super. :—

Selecting seven bricks at 2s. 3d. per thousand	£ s. d.
Striking bevel joints per foot super.....	0 0 0½
Per foot super.....	0 0 0½

Say 1d. per foot usual price.

**82ft. super.** Extra on picked stock facings for gauged segmental arches in Brown's best red rubbers, set in cement and raked out and tuck-pointed.

Price of bricks per thousand, say	£ s. d.
Unloading, cartage, and stocking, say...	4 15 0
	0 3 6

Allow ten bricks per foot super. for gauged arch and waste, say.....	£ s. d.
Deduct cost of stocks.....	0 0 11
	0 0 2½

Labour, rubbing, and setting in cement	0 0 8½
	0 1 2
Per foot super.....	0 1 10½

The number of bricks to be allowed per foot varies with the quality of bricks used; 10 bricks allows for waste.

Or—the calculation may be simplified thus:—

Cost of 10 rubbers at, say, 100s. per thousand	£ s. d.
Deduct cost of stocks, say.....	0 1 0
	0 0 2½

Cutting, rubbing, and setting.....	0 0 9½
	0 1 2

Add profit, say.....	0 1 7½
	0 0 2
	0 1 9½

**28ft. super.** Extra on common brickwork for rubbed and gauged facings of Lawrence's best red rubbers, in Flemish bond, in putty for carving.

This item may be priced at 9d. per foot. It is safer to obtain a price from an expert bricksetter, experienced in gauged and rubbed work.

**165ft. super.** Extra on common brickwork of best red Fareham facings set in putty.

Price per thousand of best red Fareham facings	£ s. d.
Railway rate to Vauxhall 11s. per thousand	3 1 0
Cartage.....	0 14 0
	0 2 6

Deduct cost of common stocks.....	3 17 6
	1 14 0

Cost of seven bricks per foot super. at above rate, say.....	2 3 6
Raking out and setting in putty.....	0 0 8
	0 0 2½
	0 0 5½

**60ft. super.** Extra on common brickwork for red-brick facings, joints raked and pointed in blue ash mortar with neat joints.

Cost of red facings per 1,000 delivered, say.....	£ s. d.
Deduct cost of stocks.....	3 5 0
	1 17 0

(This represents 2s. 9d. per hundred, about 2½d. per foot.)	1 8 0
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Facings per foot.....	0 0 2½
Pointing and material.....	0 0 1½
	0 0 4

Say, 4½d.

**82ft. super.** Extra only on common brickwork, gauged segmental arches in best rubbers, set in cement and raked out and tuck-pointed.

This item may be put down at 1s. 8d. per foot. (See item above.)

**48ft. run.** Extra on common brickwork for hand-moulded bricks and facing for cornice 12in. high, 8in. projection, as per sketch, including setting-out, raking joints, and pointing.

Cost of moulded bricks per 1,000	£ s. d.
Unloading, cartage, &c., say.....	5 0 0
	0 3 6

Deduct 1,000 stocks.....	5 3 6
	1 14 0

	3 9 6
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Extra cost of bricks at 69s. 6d.	0 0 6½
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Face 18in. girt = 1½ft. raking out, and pointing at 1½d. per foot super., say...	0 0 2
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Setting out.....	0 0 0½
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No. 4 mitres.....	0 0 9½
No. 2 returned ends.....	0 2 0
	0 1 0

Mitred angle-bricks cost about £10 per 1,000, or about 2½d. each.

**25ft. run.** Extra on facings for cut and rubbed moulding 9in. girt, raked out and pointed to match facings.

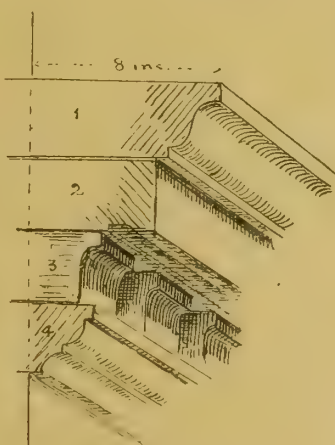
Say, 6d. per foot run.

No. 2 mitres :—Put these at 3d. each.

No. 2 moulded stops.

**320ft. super.** Extra glazed white brick facings, finished with a neat joint.

It is necessary to obtain a list of prices. These bricks range from about £10 per thousand at works for white or cream. The prime



cost at London wharf for white glazed bricks may be put at £12 per thousand, buff and cream £14, red £20, ordinary brown salt £8 10s. The second quality whites are about £2 less per thousand than the above. For carriage, the railway rate from Leeds is about 40s. per thousand, and for carting 10s. per thousand may be allowed.

Price of white glazed bricks per 1,000	£ s. d.
Railway carriage per 1,000	10 0 0
Carting, say.....	2 0 0
	0 8 0

Deduct 1,000 stocks at.....	12 8 0
	1 15 0

	10 13 0
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Allowing 7 bricks to the foot superficial, the cost of these at £10 13s. per 1,000, per foot super.....	0 0 9½
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Raking out joints and pointing at, say, 10d. per yard.....	0 0 1½
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	0 0 11
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(Say 1s.)

This is perhaps a rather low calculation; the price of the best quality, white or cream, would be £12, and the price per foot may be put, including profit, at 1s. 8d. Laxton prices it at 1s. 10d., and another price-book at 2s. 3d. per foot; but the price will largely depend on the quantity.

The item "raking out mortar joints and

pointing with cement," if resolved into its elements, will comprise the amount of raking out that can be done by labourers or boys, which amounts to about ¼d. per yard, the cost of a yard of cement mortar 1 to 2, bricklayer and labourer 9½d. and 1½d., may be put down as follows:—

Raking-out joints (constant 008).....	£ s. d.
Pointing, bricklayer, and labourer (the constant for bricklayer being taken as '080, say, and for labourer '027), we have, at London rates, say.....	0 0 9
Cement and sand, mixing, &c., per yard.....	0 0 1½

Per yard.....	0 0 11
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A yard of cement mortar will point about 22½ yards super.

**26ft. run.** Cutting and pinning edges of stone landings with cement.

This is meant to apply to the bricklayer's labour, cutting and making good, and will vary with thickness of stone landing. A 3in. landing would cost about 2½d. to 3d. per foot run. If two courses are cut out for a 6in. or 4in. landing, the constant '044 day of a bricklayer per foot run may be taken, say, 4d.; add cement, say 1d., or 5d.

**No. 50.** Ends of steps, curbs, joists, &c., cut and pinned in cement.

Such items as these vary greatly in kind, but one average price is affixed. Sometimes for large steps, beams, or girders apertures are left in the brickwork, and then the item is for making good after beam is fixed. There would be rough-cutting to sides and top. Say it takes a bricklayer 20 minutes, or one-third of hour.

Bricklayer at 9½d., say.....	£ s. d.
Labourer at 6d., say.....	0 0 3
Cement.....	0 0 2
	0 0 1½
	0 0 6½

Double this may be taken if the holes are cut.

**No. 10.** 9in. by 6in. cast-iron air-bricks and setting.

The price of this item will depend on the thickness of wall. Putting cast-iron air-bricks at 6d. each, add cutting reveals 6d., rendering sides of aperture 3d., pointing, &c., 1½d. Say, 1s. 5d.

**52ft. run.** Window-sill of red splayed bricks on edge, all headers, in cement, to 1½in. reveals and fitted ends.

Cost of four bricks at £4 per 1,000.....	£ s. d.
Cement and labour, &c.....	0 0 4
	0 0 2½

Fitted ends.....	0 0 6½
	0 0 2
	0 0 8½

**30ft. run.** Extra on common brickwork for best red rubbers as cornice 12in. high, 8in. projection, moulded 8in. girt, set in putty.

This may be put down at, say, 10d. per foot run.

No. 2 returned ends :—Say, 1s.

No. 4 mitres :—Say, 1s. 9d.

**92ft. run.** Circular and skewback cutting to facings. These cuttings have to be neatly made, and a fair price is about 2d. per foot run.

**No. 10.**—Setting registered stoves, including firebrick, labour, &c.

A bricklayer and labourer will take about two to three hours in setting. The fire-bricks are supplied with the stoves. Including filling-in with stock bricks and cement, the price may be put at say, 5s. to 7s., according to kind of stove.

**30ft. run.** Rake out and point to flashings in cement.

Put this at 1½d. to 2d. per foot.

**45ft. super.** One course tiles in cement.

This may be put at 3d. or 3½d.; for two courses double.



15ft. run. Cutting and pinning 4in. landing in cement.

Put this at 4d.

Cutting and pinning 18 solid steps in new work.

Say 6d. each.

Cutting and pinning ends of six window-sills, 6in. thick.

Put these at 5d. or 6d. each.

No. 8. Terracotta chimney-pots, 2ft. 6in. high, of approved design, and flaunching in cement.

Cost of chimney-pot, say .....	£ s. d.
Fixing in cement, say .....	0 3 6
	0 1 6
	0 5 0
Profit, say .....	0 0 6
	0 5 6

Chimney-pots vary from 1d. to 1½d. per inch in height, according to design. Obtain quotations.

#### TERRACOTTA.

For pricing items of terracotta, the only reliable guide is to obtain the lists of prices of leading manufacturers—such as those of Messrs. Doulton, J. C. Edwards, Ruabon, &c., or obtain special prices delivered. The prices of the latter for red Ruabon pressed facing-bricks is 55s. 6d. per thousand in railway trucks at works, the buff terracotta facings 60s. Separate contracts for terracotta work are generally made for large buildings. Terracotta is taken per foot cube of plain, moulded, or ornamental. A price of 5s. per foot cube, including models is usual.

2,405ft. cube. Terracotta facing, chambered, and filling-in with cement concrete, setting and pointing, &c.

Cost of terracotta delivered .....	£ s. d.
Setting and pointing, say .....	0 4 9
½ft. cement concrete filling at 14s. per yard cube, say .....	0 0 6
Mortar .....	0 0 1
Waste, cutting brickwork .....	0 0 2
	0 6 2

Deduct cubic foot of brickwork at £13 per rod, say .....	0 0 10½
	0 5 3½

1,230ft. cube. Terracotta in mortar, including hoisting and setting at various levels.

This item may be taken to comprise ordinary plain or moulded terracotta. Before a price can be affixed to such an item, the estimator should examine the elevations and details, know the colour, the thickness of the blocks, if chambered, if filled-in with cement concrete, and if before or after fixing. If hoop-iron is used for bonding it should be stated, or if the blocks are joggled.

Subject to any of these conditions, the price may be put at from 4s. 9d. to 5s. 6d. per foot cube (see former item).

320ft. cube. Enriched terracotta, ditto.

It is difficult to price this without knowing the design, and the best way is, therefore, to obtain a price. For ordinary work, add about 2s. per foot to above price.

The following notes and prices of bricks, facings, and terracotta may be useful:—

If we put stocks at 33s. and facings at 60s., the difference between these prices gives 27s. as the extra cost of facings per 1,000.

Picked stock facings per foot super. ....	£ s. d.
Ditto struck joint pointed .....	0 0 1½
Red facings, ordinary .....	0 0 2
Ditto struck joint .....	0 0 2½
Gauged facings of best cutters, set in putty and pointed .....	0 2 6
Martin's best facings, ditto .....	0 0 4½
Martin's seconds facings, ditto .....	0 0 2½
Fareham reds .....	0 0 4
White-glazed facings, half headers and half stretchers, extra over stocks per foot .....	0 1 9
Ditto struck-joint pointing .....	0 1 9½
Ditto tuck pointing .....	0 1 10½
Red moulded course, including extra pointing over the straight, and of alternate headers and stretchers 3in. high, extra only over red facings and pointing, per foot run. ....	0 0 2½

Angle bricks to ditto, each .....	£ s. d.
1d. moulded courses 4½in. high, extra over red facings per foot run .....	0 0 4
6in. enriched bands extra over red facings .....	0 0 11
9in. ditto, best patterns ditto .....	0 2 3
Best red cutters, delivered within two miles of Charing Cross, in quantities per 1,000 .....	7 0 0
Red moulded ditto .....	6 1 0
Malm cutters ditto .....	7 0 0
White Suffolks ditto .....	4 5 0
Ditto cutters ditto .....	7 0 0

#### TERRACOTTA.

Red, white, and buff moulded bricks, 3in. edge, per 100 .....	£ s. d.
Plinths, strings, moulded, 3in. edge per foot run .....	0 14 6
Ditto, 4½in. deep .....	0 0 10
Ditto, 9in. wide, 12in. edge .....	0 1 3
Architraves .....	0 2 6
Enriched bands or strings, 9in. by 3in., per 100 .....	0 1 0
Ditto, 6in. high .....	0 16 0
Ditto, 9in. high .....	0 1 6
Arch bricks, headers 9 by 4½ by 3in., each 10 stretchers ditto ditto .....	0 2 0
Keystones, enriched .....	0 0 8
Enriched panels, 24in. by 12in. .....	0 0 8
Ditto 36in. by 18in. .....	1 0 0
Enriched window heads, 4ft. long. ditto .....	1 5 0

These prices include cartage from London depot within two miles, and 10 per cent. profit; so for smaller quantities and longer distances the price must be increased in proportion.

#### "BUILDING NEWS" DESIGNING CLUB.

##### A STABLE FOR A SUBURBAN HOUSE.

TO lament over the inadequate merit of the designs sent in for this subject would serve but little purpose, and our space is too limited to allow of any lengthy remarks upon the faults which mar much of the work thus placed before us by the members of our Designing Club. The difficulties presented by the needs of a small stable are very trifling, necessitating no special knowledge, and yet affording good scope in a modest sense for the display of taste and skill. Here are the conditions and instructions issued to competitors:—

"A Stable suitable for the premises of a gentleman's suburban house, to comprise four stalls and two loose boxes, a coach-house for three carriages and space for cycles, a harness-room, groom's bedroom, and a hay-loft with shoot. Provide a covered washing space about 14ft. square or of that area. A simple brick and stone treatment to be adopted, in a picturesque and quietly dignified style. A clock-turret may be introduced, and a gateway leading into the stable-yard. A dung-pit and men's closet to be provided conveniently, but in a retired position. The entrance-front to face the south, and form the chief elevation. The group may be L-shaped in plan. Scale 8ft. to the inch. Plans may be smaller, to ½in. scale. View necessary. Site level."

We have placed the three best designs in the following order:—"McGilligan" one, "Thistle" two, and "Swan" three. We cannot say that either of these designs appears very satisfactory. The first is so commonplace and wanting in interest. The plan is fairly good, though the door to the stable would have been, perhaps, better in the centre. The loft doorway coming directly over the washing-space archway is not entirely an advantage, and there is not any need to make the archway so lofty and spacious. In effect, the idea of a gateway to drive through seems to have governed the author's intention. This appearance is too much in evidence in the perspective view. We do not object to the plain unadorned walling, but we miss a sense of good proportion and the value by contrast of voids and walls. The scheme is wanting in "go," while everything looks so dull and smug. There is all the difference between a manifest striving after effect and mere utilitarian building. The latter in its best sense is of the utmost consequence. Sometimes in the hands of the uninitiated mere elementary building becomes worthy of the name of architecture; but, if so, accident is generally to be thanked for the good effect. In nine cases out of ten the good result was not artistically the end in view. On the other hand, an affectation of simplicity is very easily discerned, while a pretence at quaint conceit is at best a poor device, not likely to remain in favour long. "McGilligan" is not blamed for the simple style which he has adopted, but the design is not

calculated either to rouse one's enthusiasm or captivate our appreciative faculties.

"Thistle," on the other hand, is more ambitious, and, bringing to his aid something of the kind which we have seen before, scarcely makes an effort to be original. His sheet is more effective and less ordinary. It evinces, too, both care and industry. The plan, however, is very faulty. The covered washing space is too mixed up with the coach-house, and the stairs to the loft come badly against the stable door. There is no connection with the harness-room, save by going out into the yard. "Thistle" can hardly have studied the scheme in section, for notice how the windows would be cut into by the loft stairs from stable; and he hardly realises what head room is obtained at their top, seeing how low the rafters come down at this point. If we remember rightly, "Thistle" has made the same mistake before; and if he ignores our criticism, improvement is not likely to be secured. He has overlooked the need of an external doorway to the loft; otherwise, how is the forage to be got in to the store? It is impossible to get hay up a corn shoot, and not convenient to import it through a circular window. "Swan," to whom we give the third place, avoids this objection. His plan is L-shaped, with a separate building for the cycle-shed and tools, an entrance gateway being formed into the stable-yard between. The windows, with inverted semi-circular arches for their sills, are not a good form to adopt, and the long, sprawling flat arches over the stable windows on the other front are not very pretty. Double doors to the stable entrance are not necessary. "Quadrant" puts quadrant-arched windows in the main wall of his stable, with doorways almost as wide as the piers between, so that only about a foot of brickwork serves to connect the upper half of the wall with the lower half, and that just at the springing of these arches. The effect is bad, and so, of course, is the construction. "Quadrant's" plan is almost identical with the last. The curved-shaped gable towards the road-front would not look well seen from the sides, and the pitch of the roof behind it could not well follow the rake of the roof over the stable. "Tudor Rose" makes more of a group with an archway drive into a quadrangular yard behind, gables and dormers giving height and break of sky-line. The stable is shut off from the harness-room, and there is a hospital stall beyond the fodder-place, in the corner. This design shows care and a sense of quiet dignity in design; but the mullioned windows do not look quite in character with a stable. "Delia" makes his design too much like a farm, next which the cut yew hedges shown are out of accord. The mounted cockney horseman so prominent in the perspective sketch is probably an importation from some comic journal. "Delia's" perspective is not correct, and the plan is cast together very roughly. The author with such an indictment hardly deserves, it would seem, to rank thus high in the list. He ought to do better, for his drawing displays an artistic fancy of a kind, enough to encourage a hope on his account. "Dachs" over-labours his design, overdoing it with features. On plan a large covered washing space is marked; but in the elevations and view this is left out, for the roofing would hardly work in advantageously. The author has, however, been at great pains, and for this our praise is due. The pity is that a more unambitious type of building was not adopted. "Astragal" is better in this respect, but his plan is not good. We do not say that the elevations are all that could be desired, though they bespeak a stable. The raking buttresses suggest a quaintness which is more notable in a drawing than in reality. "Arc" has several merits, and his drawings are neat and crisp. The dodge of blacking-in one range of panes in a window and leaving another white is adopted, and suggests a deception more likely to influence the designer himself than anyone else. The roofed washing-space projecting into the stable yard seriously hampers the coach-house, which is awkwardly contrived, with the door in the corner. "Tokio" draws in outline, and has a tower covered by a dome. It is uncertain how this circular roof would come over an elongated parallelogram. The bay windows to the stairs and harness-room are sumptuous, and the gateway, too, gives too much an air of opulence; but the plan is rather well worked out. "Casual" is odd. His draughtsmanship is painstaking and clever in touch, but not very effective. The same all-over appearance is pro-



duced by his design. The turret contrivance, with the clock and loft entrance, is too pretentious. The design lacks repose in treatment. "Nothe" is not so successful as usual. The quasi-tower marking the gateway through the front building looks so much more important and worth the doing than it would appear in execution. A small slice of roof breaking out of a lower one seldom looks well, and in this case the hip does not follow the rake of the valley with all the attendant bothers of a false mitre. The plan is fairly good, but the general idea of the elevation is devoid of interest. "Antony" believes in good deep eaves; though he has much to learn as to the value of good proportion. The big entrance arch is ungainly and out of scale. "V. L. K." puts his loft-door on the wrong side, opening into the park instead of the stable-yard. Externally, the effect of grouping three gables together is pleasing; but the chimney on one side spoils the symmetry of an effect depending so entirely on the balance of its parts. "Clegornie" comes next, neat and careful, but not very distinguished. The mullioned windows were not required for the coach-house. "Scruton" draws in a highly-conventional way, with an unreal sky and impossible trees. Divest his contribution of this mannerism, and the attraction is gone. Nothing is gained by the parapet and bay-front to the loft entrance and washing-space below. The style adopted has little to recommend it. "Rikki" seems to be a more serious competitor. We like his front elevation very well. The loose-box windows spoil its simplicity, and the perspective ruins the reputation won by the geometrical drawings. The groom's bedroom ought to have had a fireplace in it. The head-room, at the top of the stairs, looks to be a matter open to debate. We hardly think it could be managed under the roof-ridge. "Grip" sends a bird's-eye view. His stable is divided into two buildings under one roof. There is no doubt that "Grip's" design would look very well if built. His stable would be airy and lofty. The hay-loft is over the coach-house, however, and the cycle-shed can only be reached through the washing space. This is not a happy arrangement, and the manure-pit is very much out of the way, increasing labour needlessly. "Honeysuckle" draws in brown ink neatly and well. A stable-door right in the angle is open to objection, and the washing-space should be more directly connected with the stable. The cycle-shed ought to be a lock-up, and not a sort of porch to the harness-room. "Clovelly," also in brown, is not so good as the last, and seems the work of a junior. The yard is very cramped, and there is no need to build in a manure-pit, and the w.c. ought to have a window. In perspective no reveal is shown to the wall openings. "Butts" is another contributor who uses brown ink, and his design is overweighted by a dome-covered tower containing a clock, and inclosing a lumber-room. The plan is elementary and workable; but we can hardly praise the scheme. "Arno" makes much of the groom's bedroom by carrying up the gateway gable in a very marked manner somewhat picturesquely, the end of the granary making a second gable towards the front, where the loft doorway is placed. "Pup" has a quadrangle and a square tower in the corner. The loose-boxes are separated from the stable. In the corner of the washing-space is a mash-boiler. Externally the design has a regulation air dominated by horizontal lines. "Blackheart" gives a homestead appearance to his group, which would look countryified enough; but the L-shaped stable is not very convenient, neither is the corner position for the coach-house. We can only now enumerate the remaining designs. They come in the following order: "Desdichado," "Koh-inoor," "Vulcan," "Bits," "Lumps," "B. Guy-R," "Marcus," "Vigornia," "Sham-rock," "Dodo," "Philomel," "Rook," "First Attempt," "Niche," and "Dalma Lynn."

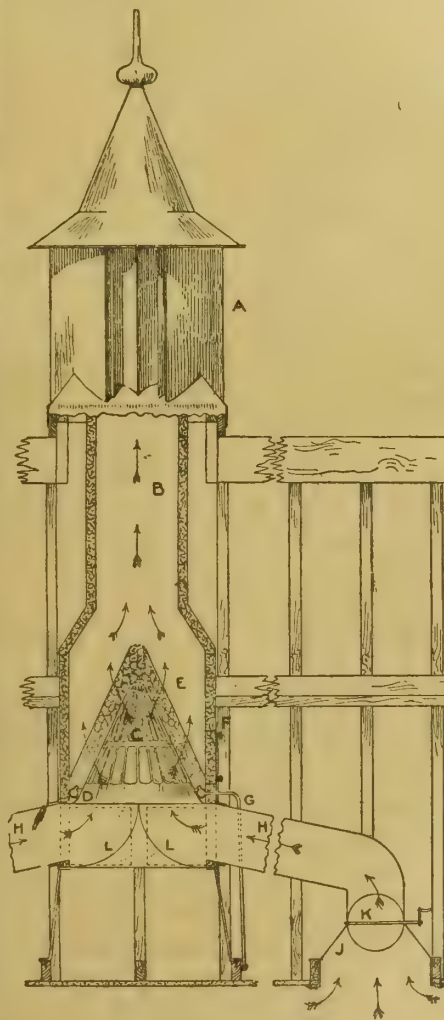
#### NATURAL VENTILATION.

THERE is, perhaps, no subject which is of greater importance, so far as health is concerned, than that of ventilation, and it is one in which we have all a very strong personal interest. Parkes says: "Health is only possible when to other conditions is added that of a proper supply of pure air. Statistical inquiries prove beyond a doubt that of the causes of death which are usually in action, impurity of the air is the most important." Another authority says: "Any-

thing which has passed through the human body ought to be treated as excreta and rejected;—just as sewage was thrown away into the drains, so air that had passed through the human lungs should be got rid of at the earliest possible moment without allowing it to go through the lungs of someone else. It was as unreasonable to breathe the same air twice, or twelve or twenty times over, as was the case in many places, as it would be to go to the sewer for drinking water."

No one has done more for the cause of practical ventilation than Mr. Robert Boyle, who has recently added another important appliance for the preservation of health to the already long list of the well-known sanitary inventions devised by him.

This appliance, which Mr. Boyle has named "Bactolite," is intended to be employed in



BACTOLITE (Boyle's Patent).

A, Boyle's patent "air-pump" ventilator made fireproof; B, main extraction shaft incased in larger shaft, with space between packed with non-conducting material; C, double grill with space between filled with perforated asbestos balls, through which the disease germs pass, and are consumed. (Note.—More than one of these double grills may, where required, be fitted one above the other.) D, ring of atmospheric burners, the flames from which render the asbestos balls incandescent; E, fireproof chamber containing grills; F, door giving access to chamber for lighting and other purposes; G, gas-pipe; H H, branch extraction shafts connected with openings in ceiling; J, cone covering opening in ceiling; K, weighted regulating valve; L L, doors for giving access to extraction shafts for cleansing purposes.

small-pox and other infectious-disease hospitals. The accompanying diagram shows the method of destroying the disease germs contained in the air of a hospital, as it passes, or rather is drawn, through an asbestos furnace situated in the roof, and connected with an "air-pump" ventilator, effectually consuming the poisonous germs, and preventing them from passing into and contaminating the outer air and spreading infection.

With the "Boyle" system of ventilation, as

applied to small-pox hospitals, the air inlets communicate direct with the external air through specially-constructed openings made in the walls, fitted with self-acting valves to prevent the air of the hospital passing by any chance out through these openings. The incoming air is warmed in cold weather to an agreeable and healthy temperature by means of Boyle's ventilating radiators, without the deterioration and discomfort which result from hot-air heating.

In warm weather, the fresh-air supply is cooled in its passage through adjustable refrigerating chambers attached to the radiators, and is washed and purified by filtration through saturated and medicated screens. The outlets and inlets are accessible in all parts for cleansing purposes. It would appear, from the tests which have been made by scientific experts, that air-screens are more effective when the air is drawn through at a low velocity by natural extraction than with mechanical propulsion. Sir Douglas Galton says: "If air is forced rapidly through a screen, it cannot fail to carry dust with it."

Important features in the system under review are (1) the fresh air is brought directly into the room from the external air, there being no long, tortuous, and inaccessible channels to harbour dust and dirt; (2) the air supply not being overheated, its health-sustaining properties are unimpaired. When a building is ventilated with hot air, which also constitutes the means of heating, to satisfactorily effect the latter it is necessary to raise the air to such a high temperature that the oxygen is partially destroyed and its life-giving qualities considerably reduced. There is also experienced with this method a feeling of closeness or want of freshness, even though the air is being rapidly changed.

Professor Corfield says: "Heating should be done by means of radiant heat, and not by means of air previously warmed. If air was previously warmed it would lose a portion of its oxygen, and if we get air short of oxygen we had to breathe a greater number of times to supply the required amount, and that meant more effort."

Sir Douglas Galton states that "the method of warming the walls by means of heated air necessarily leaves the walls colder than the air of the room, and the heat of the body is radiated to the colder walls. Hence, if the walls are to be warmed by the air admitted to the room, the temperature of the warmed air must be raised beyond what is either comfortable or healthy for breathing, and thus, if you obtain your heat by warmed air alone, discomfort in one form or the other can with difficulty be avoided." This method of ventilating and warming buildings by hot air is now gradually being discarded, as the objections to it are becoming more fully recognised. With respect to this change, Professor R. H. Smith says: "A most instructive historical fact is the present gradual abandonment in the States and Canada of the hot-air system of house-warming, which was for so long popular, in favour of hot-water pipe and other 'radiator' warming. It is, in fact, impossible that the human body should absorb heat from the air in which it is immersed if that air be not made oppressively hot."

What is understood by many people as constituting the "natural" system of ventilation is simply an open window and nothing more, and it is safe to say that there are but few who have not had some experience of the evils arising from that mode of changing the air in cold weather, however useful it may be in warm. "Natural" ventilation in that form is, as a consequence, very generally condemned. In connection with this, Dr. John Hayward says: "Hospitals warmed only by open fires are sure to be very imperfectly warmed; and if at the same time they are attempted to be ventilated only by open windows, they are most certainly also very imperfectly ventilated. In spring and autumn the weather is then generally too cold to have the windows always open, and yet not cold enough to have the fires continually burning, so that the abstraction cannot then be accomplished efficiently by either windows or fires." In a Blue Book, issued in 1898, "On the Ventilation and Warming of Board Schools," on page 23 occurs this statement in reference to ventilation by open windows. "In those cases in which the ventilation was effective the temperature of the dormitory would follow closely that of the outside air, and would not exceed that of the outside by more than about 2°." That is to say that with open-window ventilation with the outside temperature 30°, the inside temperature



would practically be the same, plus the inevitable cold draught.

This somewhat primitive form of ventilation should not, however, be confounded with a natural system of ventilation scientifically arranged to secure a continuous and imperceptible change of air at all times and in all seasons. Where comparative tests have been made with natural and artificial ventilation, open windows generally constituted the "natural" plan; but as open windows are really no system at all, such tests can only be misleading, and are obviously unfair to artificial ventilation correctly applied.

It must be admitted that the reputation of natural ventilation has also suffered a good deal from the abortive attempts of individuals having little or no acquaintance with either the science or the practice of ventilation, and by the employment of so-called ventilating apparatus of crude and unscientific construction. The selection of ventilators is likewise sometimes left by an architect to the contractor, who naturally supplies those upon which he gets the largest profit, without troubling himself about their efficiency. Parkes says: "Ventilation is a science, and it requires the study of a lifetime to master properly all its intricacies," whilst De Chaumont pronounces it to be "essential to the success of a natural system of ventilation, that both the outlet and inlet ventilators be of correct construction and skilfully applied. Where this is not observed, failure generally ensues with this form of ventilation."

It is now becoming more generally recognised that natural ventilation, when correctly applied, is found to satisfactorily fulfil all requirements, and the leading authorities are practically unanimous in their approval of that method. Natural ventilation on the upward principle, or top extraction, is the plan recommended by the Government commissioners in a recent Blue Book: downward ventilation, or extraction at the bottom, being condemned. "Whilst the air is in the lungs," say the commissioners, "it acquires so much heat that it becomes specifically lighter than the surrounding air, and rises above our heads. The heated air which passes upwards should pass away. . . . For the ventilation of rooms exits should be provided for the spent air near the ceiling. . . . The method of low ventilation (extraction near the floor) should be avoided on various grounds." Professor Smith, in a recent article in the *Engineer*, deals with the respective merits of upward and downward ventilation very exhaustively, and demonstrates the superiority of the upward method. "It is clear," says Professor Smith, "that the down system can never supply really pure air to be breathed by the lungs. The exhalations of the human body are, as they issue, so warm that they must perforce immediately rise. Therefore, if the supply of fresh air comes from above, it can only reach the nose and mouth by driving down with it, and mixing with, these foul exhalations, and there is unquestionably nothing to breathe except this polluted mixture. In order to keep down the percentage of pollution to a non-dangerous degree, under this system arises, therefore, the necessity of admitting for ventilation fresh air in quantities many times greater than that actually used for breathing, and also a correspondingly extravagant expenditure of heat if this supply be artificially warmed. Thus the only ideally perfect ventilation consists in inducing a regular up-current from a level below that of the human head up to the extraction outlets at the ceiling. Under this system the bulk of fresh air required to be admitted is immensely reduced, as is also the expense of warming it to any degree considered desirable."

In the report submitted to the United States Congress by the Commission on Ventilation, the following occurs:—

"The direction of the currents of air from the human body is, under ordinary conditions, upwards, owing to the heat of the body. This current is an assistance to upward and an obstacle to downward ventilation. In large rooms, an enormous quantity of air must be introduced in the downward method, or about three times the amount which is found to give satisfactory results with the upward method. For these and other reasons the Board are of opinion that the upward method should be preferred."

Dr. John Hayward, who is one of the highest authorities on the question, says that: "To the plan of abstracting the foul air near the floor there are at least four grave objections: (1) It is opposed to Nature's law of atmospheric pressure,

and therefore requires the use of special abstracting power by means of furnaces for its accomplishment; (2) by drawing down the foul air it causes it to be breathed over again, which recently-breathed air ought never to be; (3) the fresh air supplied is apt to be forced in overheated—in fact, burned—and so made unhealthy; (4) the long, tortuous flues cannot be kept clean, and will, therefore, become lurking-places for dust and germs. The plan is quite unsuitable for hospitals, and should certainly never be used where there is likely to be infection." Another authority denounces this method as "a standing menace to the health of society," and says that the dangers of it "cannot be exaggerated."

Dr. Parkes, in "A Manual of Hygiene," recommends natural ventilation as the best for this climate, and that "for hospitals natural ventilation certainly seems the proper plan." He further says, "Incessant movement of the air is a law of nature; we have only to allow the air in our cities and dwellings to take share in this constant change, and ventilation will go on uninterruptedly without our care. In this country, and, indeed, in most countries, even comparative quiescence of the air for more than a few hours is scarcely known. Air is called 'still' when it is really moving 1 or 1½ miles an hour. Advantage, therefore, can be taken of this aspiring power of the wind to cause a movement of the air up a tube."

Dr. Hayward also testifies to the existence of these powerful natural forces which may be utilised for ventilation. "If, therefore," says Dr. Hayward, "the inlets and outlets be properly proportioned and open, the ordinary atmospheric pressure will carry on the ventilation quite efficiently, and the whole hospital will be kept fresh and comfortable by the natural forces alone. There is no fear that the speed will not be enough to keep up efficient ventilation—it is more likely to be too great; but there need be no fear of its being too great, because it is completely under control, and can be regulated to any rate desired by the valves at the ward inlets and outlets. Natural ventilation is certainly much to be preferred to any and every artificial system, whether on the plenum or vacuum principle, and it is, of course, much less complicated. It is, indeed, comparative simplicity itself—merely arranging openings and warming the air, and, as shown above, it acts more than efficiently. It also involves very little original outlay, and comparatively no permanent cost for maintenance. Whereas all artificial systems involve costly original plant of machinery, as well as heavy permanent expense for maintenance in engines, engineers, fuel, &c., and with all they cannot be made as efficient or nearly so pleasant and healthy in operation."

At the Public Health Congress held in London, there seemed to be a consensus of opinion in favour of natural methods of ventilation in preference to artificial, as also at the congress of the Sanitary Institute held at Liverpool, one of the speakers, Surgeon-General Sir Thomas Crawford, saying: "My experience of the process of forcing air into buildings is not in its favour. The only safe and sound means for the supplying of air is the natural one of obtaining it from a pure source in a free and natural flow."

Professor Wade, as the result of his experience of both methods, arrives at the conclusion that "ventilation can only be successfully accomplished at all times when it is effected without assistance from mechanical or artificial contrivances. However perfect these may appear, they can never achieve results superior to those insured by judicious and intelligent adaptation of natural means, and they necessarily suffer from the very serious disadvantage that they are liable to interruption without warning, and with possibly disastrous consequences."

Mr. G. H. Bibby, F.R.I.B.A., the author of several well-known works, on the sanitary construction of buildings, expresses the views of an architect, who is also an expert, on the subject. "Perfect ventilation," says Mr. Bibby, "may be obtained without liability to those dangers and difficulties to be met with where a natural system is set aside in favour of exclusively mechanical modes. The expense of mechanical ventilation is unnecessary, for there is sufficient evidence to show that such buildings as asylums, workhouses, and hospitals are best ventilated by natural means, and no architects of great repute or position have of late years relied upon mechanical ventilation."

The ventilation of the small-pox hospital ship

*Castalia*, by natural means is a striking example of the power of that method when properly applied. Messrs. Robert Boyle and Son, who may be said to be the first to introduce natural ventilation in a scientific form, having been instructed by the Metropolitan Asylums Board to apply their system to the *Castalia*. On the completion of the work the Board instituted a lengthy series of experiments to test its efficiency, with the result that the air-pump ventilators were found to be extracting at the average rate of five million cubic feet of air per hour, changing the air of the wards once every five minutes. On the calmest day and in foggy weather, when the external air seemed to be perfectly still, it was found that a powerful up-draught was always maintained in the shafts, and not the slightest down-draught at any time. There was also, even though the air was being changed so rapidly, an entire absence of draughts in the wards.

Perhaps the Long Room of the London Custom House is the most notable example extant of the efficiency of a natural system of ventilation, so many different methods having been previously tried without success, even though such eminent scientists as Professor Faraday and Dr. Ure essayed the task. Her Majesty's Office of Works finally called in the aid of Messrs. Boyle, who applied their system, with results which are now historic in the annals of ventilation, and which would seem to justify the opinion expressed in the report on the ventilation that they, "as founders of the profession of ventilation engineering, had raised the subject to the dignity of a science."

One passage in the report certainly appeals to us poor fog-ridden Londoners, and at the same time shows to what a high state of perfection natural ventilation may be brought. The report says: "Before Messrs. Boyle's system was applied there used to be a perpetual haze, or cloud, hanging below the ceiling. This has since entirely disappeared. In foretime, when a fog got into the room, it was several days before it got out; now, when a dense fog prevailed outside, the atmosphere of the Long Room remained quite clear, and continued so throughout the day."

The Right Honourable C. Seale-Hayne, M.P., speaking recently at a public function, said of the Boyle system of ventilation: "I believe it to be absolutely the best system of airing a public building that is known to sanitary science." Messrs. Boyle's system is extremely simple, and may be described as the application of means by which the natural laws of ventilation can be effectively brought into operation, the power which operates in producing the currents being as constant as gravity. Houghton says: "Science proves that there is not a moment of time but when there is a movement of the air, and this movement properly utilised is sufficient at all times to change the air in a building and secure ventilation."

These powerful natural forces are what Messrs. Boyle utilise to the utmost by the scientific arrangement of their system, and construction of the "air-pump" ventilator, with respect to the action of which Professor Macquorn Rankin reported, after twelve months' experiment, "There is no time throughout the whole year but when there is a sufficient movement in the atmosphere to cause the 'air-pump' ventilator to act."

This report was endorsed by Professor Grant, who stated that the air-pump ventilator was "constructed on sound scientific principles, acts in strict accordance with the laws of nature, and cannot fail to operate."

Messrs. Boyle have, we understand, successfully applied a natural system of ventilation to over one hundred thousand public buildings in various parts of the world, including hospitals, churches, schools, council chambers, &c., in many of which artificial systems had previously been tried without success. That engine-driving columns of air through a building does not necessarily ventilate it is evidenced by the following extract from a recent report on the ventilation of the Houses of Parliament:—

"When one considers the enormous volume of air, equal to ten times the cubic contents of the House of Commons, which is passed through it every hour, also that the elaborate tables of air analysis are apparently all that could be desired, and yet the ventilation is so notoriously bad, it is clear that there is something very radically wrong with mechanical ventilation by impulsion, and that tables of analysis and of volumes of air passed through a building are not to be accepted



be correctly indicating either the general purity of the air or the efficiency of the ventilation."

Such eminent scientists as Lord Kelvin, Lord Clifford (member of the House of Lords Commission on Hospitals), Sir Douglas Galton, F.R.S., Sir Benjamin Ward Richardson, F.R.S., Professor Corfield, Professor Shaw, and amongst architects Sir Arthur W. Blomfield, A.R.A., Mr. Alfred Waterhouse, R.A., and Professor Geo. Aitchison, R.A. (President of the Royal Institute of British Architects), testify to the efficiency of natural ventilation as applied by Messrs. Boyle. The system has also been extensively used for railway carriages, and in the leading navies and steamship lines, Sir Hastings Reginald Yelverton, First Sea Lord of the Admiralty, reporting most favourably upon it; while Dr. Nansen has expressed his high opinion of it as supplied to the *Fram*. It was adjudged the best and awarded the prize at the International Ventilation Competition, opened in London by H.R.H. the Duke of Edinburgh, when all the best-known natural and artificial systems of ventilation in use at the time competed.

### THE PROTECTION OF SEA-BANKS.

IN a previous article\* we drew attention to a subject somewhat similar to that now engaging our notice; but while the former treated of the protection of river-banks, the present, as will be evidenced from its title, embraces a more extensive scope and a wider range. Although it must be admitted that the erosive and destructive action of strong fluvial currents upon the banks of a stream, especially if exposed to tidal influences, is both powerful and rapid, yet it lacks the rude shock and impactive violence of the mighty uncurbed and unbridled waters of the deep. Even when "warring winds have sunk to rest," and the surface of the ocean is calm and smooth, the same irresistible never-tiring agent is at work, and it is a matter of historical notoriety that, owing to its ceaseless efforts, villages, and even towns of considerable magnitude, have been undermined, swept away, and engulfed for ever beneath the billows. Since there is scarcely a country in the world that has not been at some time or another, or even is not now, liable to disasters of this description, it is no wonder that people have been compelled to devise and adopt means of protecting their habitations and themselves from these perpetual maritime encroachments. It is interesting to

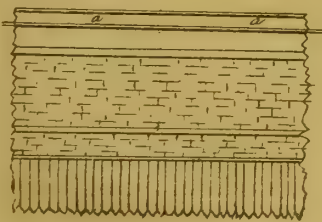


FIG. 1.

observe that, in different countries, different methods and precautions have been employed, although all of them tend to the same result, and have the same object in view. If we may use the term, it may be truly said that every nation has a *fashion* of its own in its constructive works, and that the old French proverb *Autres temps, autres mœurs* has a more extended application than is usually given to it.

It may be here remarked that Nature herself provides certain defences, certain obstacles, and impediments against the encroachments of water upon the more solid portion of the globe called land. Perfectly so; but the attacking agent is also one of the forces of Nature, and so the everlasting struggle is continued with unvarying pertinacity. Where, then, Nature fails, she invokes the aid of her handmaids, Science and Art, and they never refuse to respond to her calls for assistance, and generally, by their united efforts, the desired result is accomplished. Among the natural defences against the assaults of the sea upon *terra firma*, the most difficult to overcome is solid rock. But even this adamant opponent yields, after a prolonged resistance, to the persistent onslaughts of the invading waters. The base of

the rocky cliff is gradually undermined until the superincumbent part projects over, in the form of a menacing cantilever, and on the occurrence of a great storm is hurled down with a crash that is heard for miles around. At the same time its fall arrests for a while the further disintegration of the natural monolithic barrier. The *débris* deposited at the base on the foreshore acts as a natural breakwater, and allows the rolling wash of the tide to spend itself unavailingly upon its sloping profile. Ultimately, however, the same persevering cause attains the same end, and another

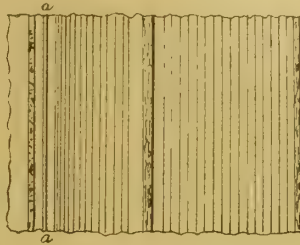


FIG. 2.

portion of the cliff is added to the many displaced and swept away. When, instead of a wall of stone, the natural defences take the form of sand-hills or sand-banks, the progress of demolition advances at a far more rapid rate. These fragile obstacles are either completely destroyed in a piecemeal manner, or, after many and prolonged attacks, are gradually attenuated until they are reduced to a mere narrow band or sandy ledge. This mere strip is utterly incapable of affording any further protection to the land and the people inhabiting it, which the original sand-dunes were intended to shelter, defend, and preserve. Under these conditions it becomes imperative to replace these useless and inefficient natural barriers by others of a constructive character, which will now be described more in detail.

Among the people the most interested in protecting their shores against the ravages of the ocean, the Dutch are, and have been from time immemorial, the most prominent. A large part of the Netherlands is well known to be below high-water mark, and it has been the threat alike of the invaders of that kingdom and the invaded to open the sluices and flood all the low-lying districts. To their credit, be it said, the Dutch made the sacrifice, and freed their country for ever from the occupation of it by the Spaniards. In Figs. 1, 2, and 3 are represented the general form of sea-wall, which may be accepted as the characteristic type of that particular example of construction adopted along the coasts of Holland. While there are certain general principles applicable to and, to a certain extent, governing the designs of all sea-walls, yet, as will be shown, the details are allowed a large amount of latitude. This diversity is inevitable, as must be admitted when the varying conditions attending each individual case are taken into consideration, and separately allowed for. An elevation of a part of the wall is shown in Fig. 1, a plan in Fig. 2, and a cross-section in Fig. 3. The chief factor in determining the principal dimensions to be assigned to a sea-wall is the rise and fall of the tide, or the difference between high and low water mark. As a rule, along the top of the wall there runs a road, a footpath, or a track of some description, and the height of these above the sea level exercises a very important influence upon the height of the structure itself. In addition, the configuration of the foreshore, its rate of declivity, the nature of the material, and the character of the immediate substratum are all physical features and conditions which demand careful attention, and the exercise of much skill, judgment, and discretion. On referring to the cross-section in Fig. 3, it will be seen that the wall might be regarded as consisting of two parts—namely, the shore and the sea parts, the former comprising the portion above high water, and the latter that below the same datum. Provision must also be made for the increased height of water due to the action of violent storms, termed the flood-water level, and there are numerous examples of sea-walls built of very different materials failing from the neglect of this precaution. It is by no means an easy matter to obtain authentic and reliable information respecting the highest tide which has occurred in any particular locality, whether due to the normal

rise and fall or to the effect of exceptionally violent gales. Very little dependence is to be put in the testimony of the "oldest inhabitant," who has often a great propensity for exaggeration; nor in the level of the numerous objects indicating the heights to which the tide is stated to have risen at different periods.

Another distinction might be made between the two parts of the wall in the example selected in Figs. 1, 2, and 3. The part extending from the parapet *a* to the inner row of piling *P*, may be considered as the wall proper, since it is in every sense a regular retaining wall. But the remaining portion situated between the two rows of piles *P*, and *P* has no retaining duty to perform. It acts in some measure as a base to the shore part of the wall, but it is in reality an "apron," which is an adjunct to weirs, sluices, and numerous other examples of hydraulic works. After the piling is finished, the excavation taken out, and the trenches and backing filled in with carefully and well-rammed concrete, the facing of stonework and the building of the parapet wall completes the undertaking. While almost any hard good average type of building stone may be used for the facing, it is very common in Holland to employ blocks of basalt or of trap roughly cut and dressed and set in cement and breaking joint, as shown in Fig. 3. Trap, greenstone, and basalt are all unstratified metamorphic rocks, and are composed of crystals of a granular character of hornblende or augite in combination with feldspar. The grains in trap are much smaller than in granite, and those in basalt are so minute that they are in some specimens hardly visible. If these two descriptions of stone were not as a rule almost destitute of cleavage, they would constitute excellent constructive materials, as they are hard, tough, strong, compact, and durable. But this defect renders them difficult to tool, and, as a matter of fact, they are practically unknown here for building purposes. Trap is readily broken into small sizes, and it is worth mentioning that it has been extensively employed in protecting the western shore of the Hudson River in the neighbourhood of New York. It is also much used for paving, and when reduced to suitable dimensions for "setts," it is sometimes termed "Belgian block." Basalt differs from trap inasmuch as it generally tends to assume a columnar form. Splendid examples of this type of formation are to be seen at the Giants' Causeway in the isle of Staffa in Ireland; in Fingal's Cave on the west

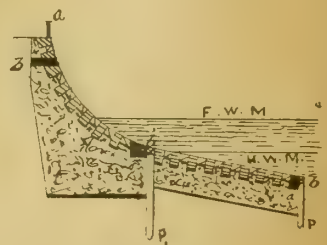


FIG. 3.

coast of Scotland; and in "Samson's Ribs" in the vicinity of Edinburgh.

Referring once more to Fig. 3, it will be seen that the profile of the upper part or wall proper is that of a true circle, being struck with a radius which varies with the height of the wall, and the amount of circular "batter" it is intended to give it. In the figure, *bbb* are granite courses, the uppermost one acting as a through or bond course and also a longitudinal string course as well. In our next and concluding article we shall describe and illustrate a few more examples of sea walls existing in different countries. It may perhaps be mentioned, *à propos* to our subject, that the records of recent gales in the United Kingdom have abundantly demonstrated the necessity and the importance of such protective works as river- and sea-walls.

T. C.

It was reported at the meeting, on Tuesday, of the ecclesiastical trustees of St. George's Church, Liverpool, that the Bishop of Liverpool, to whom had been referred the question whether the tower and spire should be removed with the body of the structure, had decided in favour of retaining the tower and spire. The bishop's decision was accepted, and the trustees proceeded to consider tenders for removing the body of the church.

\* See BUILDING NEWS, April 29, 1898.



## A MEDIEVAL WEATHERCOCK.

SO long ago as A.D. 1474 a certain ecclesiastic, of West-country family and birth, endowed probably with more than usual intelligence and suavity of address, was fortunate enough to be made private secretary to King Edward IV. This appointment proved the stepping-stone to success, for some two years later we find him Dean of Windsor. After adorning this office for little more than another year, Peter Courtenay—for such was his name—was appointed Bishop of Exeter, being the twenty-fourth in succession. Bishop Leofric (the Leuricus of Domesday), who died Feb. 10, 1072, was the first Bishop of Exeter. It is recorded that Courtenay ruled the diocese with great wisdom from A.D. 1478 to A.D. 1486. Some two years before his death he accomplished a long-desired ambition, and that was the "swapping" of some five Devonshire bells of moderate size for the big one at Llandaff Cathedral, which latter weighed no less than 60cwt, and is credibly affirmed to have been, at that time, the third heaviest in the kingdom. Thus he acquired "Peter," for by the familiar Christian name of its foster-father it has been known from that day to this. "There goes Peter!" is the common local expression when the hour is struck upon it (it is never rung!), or at eight o'clock in the evening, when the curfew will be tolled to-night upon it, just as it has been in this city every night since William the Conqueror's time.

In due course his prize was brought away, by road, to the Welsh Coast, then across the Channel to Clovelly, or Ilfracombe, and by land again to Devon's capital. Bishop Courtenay superintended its hoisting up on to the northern tower of the cathedral, one of the two Norman ones built by Warelwast, the third bishop (and the blind nephew of William I.), who was consecrated A.D. 1107, and died exactly thirty years later. This tower and its companion one upon the south side do sturdy duty as transepts to the 14th-century nave and choir. This arrangement of tower-transepts is, of course, a rare one. We find it locally copied in miniature at Ottery St. Mary in this county. There the church of St. Mary is practically a lesser fac-simile of our cathedral here. Its creation is ascribed to Grandison, seventeenth Bishop of Exeter (A.D. 1328-1366). I have seen the same sort of arrangement at St. Stephen's, Vienna, where the southern tower is capped by an exceptionally tall spire. It is 453ft. high—i.e., 49ft. higher than that of Salisbury, which measures 404ft. Both the Exeter towers were low as compared with the altitude of the roof-line of the cathedral itself, which is an unbroken one from stem to stern—or, rather, from east to west—of Exon's nave and choir (312ft. run). This grand stretch of roof line is in one place still finished by part of the original ornamental lead ridge cresting, the only example of lead cresting still existing upon any cathedral in the country. The big bell when hoisted was not hung within the actual line of the tower roof, but, probably to assist the sound, just above it. Further, to give more dignity to both towers, battlements of the then usual 15th-century character were added.

In this matter of parapets, Courtenay was undoubtedly acting according to Cocker. For, about the same date, were not the well-known Saxon western tower at All Saints, Earls Barton, in Northamptonshire; the circular Norman tower of St. Nicholas Church, at Little Saxham in Suffolk; the Early English one appertaining to All Saints at Middleton Stoney in Oxfordshire, and many others—space does not permit us to quote—treated in exactly the same manner? To protect the huge bell from the weather, a low spire of oak, covered, like the cathedral's roof itself, with lead, was erected around and over it. This steeplet terminated with a metal vane, surmounted by a weathercock of cast copper. The whole of this work—so the Fabric Rolls preserved in the Cathedral Library state—were satisfactorily completed in A.D. 1484. After this, as years flew, men came and men did go, but all went on the same with this particular tower and its bell-turret. At length, however, full 200 years later—to be exact, upon the 25th of November, 1703, Bishop Trelawney ruling the diocese at the time (less than four years later Queen Anne translated him to Winchester)—Devonshire was visited by a mighty storm—a perfect hurricane! One of the results of this tempest was the ripping up by the force of the wind of the lead covering this dwarf spire. Although duly repaired afterwards, the weakness then shown suggested so

much future instability, that during Bishop Levington's rule, and upon the 25th of April, 1752, the great bell was lowered many feet, so as to hang well beneath the level of the tower roof; then the spire above and its attributes were removed. So thoroughly were marks of its very identity eradicated that when, through the interest of the Society of Antiquaries, a superb volume upon Exeter Cathedral was written by C. Lyttelton and illustrated by John Carter, A.D. 1754—i.e., only two years later—not the slightest suggestion of any recently-existing spire can be gleaned from its pages. After this, for sixty years in all, the discarded vane, snugly stowed out of sight, but never once forgotten, rested from its labours within the precincts of the old Cathedral.

Without the city walls, within sight, and three minutes' walk (in those days) from the ancient East Gate, ruthlessly destroyed, alas, in A.D. 1784, by Exon's vandalistic citizens, stands—all that is left of it—the ancient parish church of St. Sidwell. Its patron saint, like the maidens who still, by their presence, brighten the parish, was a virgin fair to see, a daughter of a noble Briton named Banna, resident at Exeter. A jealous stepmother induced a degraded serving-man, during hay-harvest in A.D. 740, to cut off the ill-starred girl's head with his scythe. To do this wicked act the better, he caught her unawares from behind in the nape of the neck, whilst kneeling in the act of prayer by the side of a holy well not far removed from the top of what is at present my own orchard.

Soon after this murder a church was erected near the spot to mark and perpetually record the story of martyrdom. Of the earlier churches upon this site we unfortunately know little or nothing; but it is on record that the 15th-century tower was much injured and its upper part wholly destroyed by an explosion of some gunpowder stored therein during the Rebellion of A.D. 1549. It was at that time, too, its belfry was converted into a prison by the Royalists. Amongst the prisoners at one period in bond there was Walter Raleigh, father of the world-renowned Sir Walter Raleigh. The latter, most readers will recollect, was born (A.D. 1552) at Hayes Barton, a farmhouse in the parish of East Budleigh, a village situated some eleven miles south-east of Exeter. This tower and the exterior walls of the church were of red sandstone, quarried at Heavitree, an Exeter suburb. When the ruined parts of the dismantled tower were repaired in A.D. 1606, a brown-red coloured local brick was used. Some time later, probably when the present century was young, stone and brick alike were thickly stuccoed over with Portland cement.

This tower is seen to some advantage from my lawn, and when clerical friends from afar favour me by a visit, the structure generally forms one of the topics of conversation. Thus, some time ago, a venerable archdeacon resident in the largest city in England (the city of London, of course, is by no means the biggest) was my visitor. The fact had been mentioned that once upon a time in the old belfry, the father of Sir Walter Raleigh was confined, when turning suddenly, and with a bland look of intense interest, the grave old gentleman inquired drily: "Really!—may I ask, was it twins?"

Now it came to pass that in A.D. 1812 the general fabric of St. Sidwell's Church having fallen into grievous and irreparable decay, the edifice was, in the main, rebuilt, from the designs of the late Mr. William Burgess, architect, of Exeter. The north and south Early 15th-century arcades, each of five bays, cunningly wrought and carved in Beer stone, and the aforementioned tower alone were preserved. To the tower itself a spire was added—spires are unusual upon old West-country churches—rising to an altitude of 145ft. It was framed of deal, boarded and covered by sheet copper, which particular metal, a short time previously, had been removed from the bottom of one of Nelson's old men-of-war broken up in Devonport Dockyard, after doing brilliant service in the maintenance of England's prestige upon the high seas. Further, as luck had it, the Dean and Chapter of Exeter are the patrons of St. Sidwell's, and so, as a terminal for their new spire, the "Grecians"—as the parishioners of St. Sidwell have been called from time immemorial—received from the Chapter an acceptable gift in the form of the cathedral's ancient vane and its attendant chanticler. So, after a long rest, the good old weathercock once again appeared before

the eye of a critical and inquiring public, and for a second period of time became the most truthful indicator of which way the wind blew within or without the city. From that day—always doing its work well—it continued in position until the evening of Tuesday, the 2nd of the present month, when, its supporting spire being condemned as unsafe by Mr. E. H. Harbottle, the cathedral architect, history repeated itself, and it was again lowered and brought to mother earth.

The opportunity of securing the lines of so illustrious a bird was too good to be lost; so, upon the morning after it was taken down, a photograph was obtained of it by one of my sons (H. Turner Hems), of which we give a reproduction.

The bird is of copper, cast in two pieces; these are soldered together around the edges. The squat, ungainly-looking legs rest upon an inverted cup of brass. The latter, when *in situ*, revolved upon a circular-topped projection in the actual wrought-iron vane; the steadying spindle being carried up through the legs and into the body, exactly 12in. above the cup. The bird measures 2ft. 9in. from the point of the beak to the extreme outside curve of tail. Its height above the cup is 2ft. 6in., and its greatest thickness—it is hollow—is 3in. The hollow base at the feet of the bird is not original. At first all was, undoubtedly, one casting. But the copper cup ultimately proved too soft a material for the iron it revolved upon, and so, by the constant, we may say, perpetual friction, became greatly worn; so, probably at the refixing in 1812, a hard brass (turned) cup was substituted. This somewhat clumsily applied addition possibly accounts for the present shortness of leg exhibited by our *rara avis*. First erected upon the cathedral spire A.D. 1484, this old weathercock did continuous service there for 263 years. Afterwards it did duty at St. Sidwell's for 87 years, giving a total of 355 years' actual service. Adding to this the time it remained idle, it is now, we see, 415 years old.

When the contemplated renovations to the tower are completed, it will, with the equally ancient iron vane,\* be once again re-hoisted to the top of the tower. Then it will be every whit in as sound a condition as it was in that far-away day when the 15th-century metal-smith first looked upon his own finished creation, and pronounced it to be good.

This record would be distinctly incomplete if unaccompanied by a few particulars relative to the removal of the actual spire itself. The work was smartly effected without the aid of any scaffolding by Charles Frederick and Edwin Reynolds, assisted by a couple of handy labourers, all four being residents in the parish of St. Sidwell's. The task was begun and finished in the comparatively short space of seven days. The Reynolds' are a family of local builders; their father, David Reynolds, and his father before him, old Richard Reynolds, have successively followed the same avocation within the shadow of the spire, and all three generations in succession have, from time to time, done necessary work at the church with commendable care and despatch. The accompanying series of litho-photos will best show the progress of demolition. They were all taken from precisely the same point of view by my son. Fig. 1 shows the untouched spire as it unconsciously stood upon the morning of the 2nd inst.; Fig. 2, the 4th inst., the work in hand; Fig. 3, as it appeared on the morning of the 8th inst.; Fig. 4, the 9th inst., nearly all down; and Fig. 5, Wednesday, the 10th inst., the task completed.

And now, good reader, my own task is completed too. I may, however, add, the rough-cast that has for so long covered and disfigured the tower has all been removed.

Exeter, May 18, 1899.

HARRY HEMS.

Lord Welby, Chairman of the London County Council, opened last week the annual free exhibition of pictures at Bermondsey Settlement. In all there are 175 pictures on the walls, among the more important being "Love Triumphant," by G. F. Watts, R.A.; "Cattle at Dawn," by Sidney Cooper; "Solitude," by Lord Leighton; "A Devonshire Orchard," by John Collier; "The Wide, Wide World," by Frank Holl, R.A.; "Naworth Castle, Cumberland," by the Earl of Carlisle; "A South Wind," by Sir E. Burne-Jones; and "Waiting," by V. C. Prinsep, R.A.

\* A sketch of this vane (carried up some 8ft. above the apex of the spire) we hope to give in an early number.





The Weathercock on St. Sidwell's Spire. Made A.D. 1484.  
Lowered May 2, 1899.



FIG. 3.—As seen May 8, 1899.



FIG. 1.—May 2, 1899.



FIG. 4.—As seen May 9, 1899.



FIG. 2.—Demolition of the Spire, May 4, 1899.



FIG. 5.—May 10, 1899.



## THE SURVEYORS' INSTITUTION.

At the ordinary general meeting of the above Institution, held at their temporary premises in Savory-street on Monday, an interesting paper was read on the system of "Land Purchase in Ireland," which, coming from a member so well qualified to speak on the subject as Mr. R. M. D. Sanders, of Charleville, was of especial value as showing the effects of recent land legislation on the prosperity of agriculture in Ireland, and the difference which existed between the Irish and English systems of tenure of land. The present system, inaugurated by Mr. Gladstone in 1881, had, the author said, few friends, but was condemned by landlords and tenants alike. The economic loss was great, for every fifteen years a number of lawsuits arose on the question of rent revision, which, although giving employment to a large number of solicitors and valuers, impoverished the litigants; and, beyond this, lands were designedly ill-cultivated for several years before the periodical rent-fixings, in order to secure low rents. There was thus created a feeling of unrest and uncertainty, and a complication of the relations between the two great classes interested in the land. It surpassed, the author believed, the wit of man to say what was really a "fair rent" in Ireland within the meaning of the Land Acts. The administration of Mr. Balfour's Land Act of 1896, which, on the whole, discouraged tenants from adopting land purchase as a settlement of the question, necessitated the appointment of Sir Edward Fry's Commission, of which the President of the Institution was a member. This commission issued a valuable report, and it was to be regretted that its recommendations had not been adopted by the Government. The author argued that all compulsory purchase was not only unnecessary but undesirable, for what was wanted was a return to the true principles of free contract as the only basis of a voluntary system of purchase. Compulsory purchase or sale must be founded on an official valuation which would not satisfy all parties. Present methods should be improved rather than new experiments made, for tenants were quite willing to buy and landlords to sell, while the Land Commission had plenty of money to lend; but the process was expensive, slow, and uncertain. The author proceeded to give details of the gradual development of the system of land purchase, from its origin in the Bright clauses of the Act of 1870. The total rental of agricultural land was about ten millions per annum, paid by about half a million occupiers, three-fourths of whom paid less than £15 per annum. Up to the end of the last financial year some 3½ millions of land stock had been issued, and nearly 10,000 occupiers, paying a rental of £190,000, converted into owners. The advantages of the system to both landlord and tenant were great, the tenant becoming fee-simple owner, subject to a Government terminable annuity very much less than his rent, even when he agrees to pay his landlord a liberal price, and reducible every ten years, in proportion to the amount of principal paid off. Interest was payable at the rate of 3 per cent. per annum until the next "gate-day," and afterwards at the rate of 4 per cent. in half-yearly instalments in November and May, £2 15s being used to pay dividends on the land stock, and £1 5s. treated as capital repaid, to be accumulated at compound interest as a sinking fund, the amount of interest payable being recalculated every ten years on the amount of the advance still outstanding. Mr. Sanders gave interesting tables showing how this procedure worked, and warmly advocated some system of registration of title by which the transfer of land could be more easily effected.

A discussion followed, in which Mr. Watney, who much doubted whether the system of land purchase, however good for the individual, was good for the country at large. Mr. J. H. Sabin and the President took part, the latter speaking from his experience as a member of Sir Edward Fry's Commission, expressing a doubt whether the valuers who were appointed to fix the basis of fair rents were always competent to do this business, and giving it as his opinion that the interference with freedom of contract which underlay all these land Acts had ruined Irish agricultural property, and if introduced into England—and there were signs of its being attempted—would work equal havoc here.

New schools are being erected at Nuneaton, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

## Building Intelligence.

**BRADFORD.**—Lady Powell laid, on Monday, the foundation-stone of a new church in Grange-road, Bradford, to be known as the Church of St. Columba. The style is Early English, and the nave will be 79ft. long and 24ft. wide, with aisles on each side 11ft. 6in. wide, from which there will be projecting transepts. At the west end there will be a vestibule about 8ft. deep with a similar width to that of the nave. On the north side of the chancel will be a chapel 35ft. by 17ft. On the south side is the organ chamber. A staircase will lead to the basement, which will be furnished as parish rooms. The church will be built of local stone, with a roof of Westmoreland slate, and will have a turret which will be 65ft. high. The architects are Messrs. T. H. and F. Healey, of Bradford.

**BRISTOL.**—The plans prepared by Messrs. Jones and Cummings, whose designs for the rebuilding of the recently burnt Colston Hall were selected in competition, have been approved of by the Seating Committee. The site has been lengthened nearly a third, from 112ft. to 168ft., by the purchase of adjoining property, and the exits and entrances will be greatly improved, while the floor space will be unobstructed by columns, the gallery girders being carried on the cantilever principle. The seating accommodation of the new hall in round figures will be 4,000. On the ground-floor will be room for 1,614, in the grand tier for between 600 and 700, in the gallery for 1,000, and on the orchestra for between 676 and 700. The former Colston Hall accommodated, in the ordinary way, about 2,600 persons.

**HAWARDEN.**—The County School was formally opened on Friday by Miss Helen Gladstone. The building contract was £2,450, exclusive of extras. The red brick buildings, on the main road through Hawarden, consist of two central classrooms. To the west of this block is the boys' wing, consisting of the headmaster's room, classrooms, and laboratory, with the coat-room, lavatory, and boys' porch. To the east of the centre is the girls' department, while to the south of the central block is a luncheon-room and kitchen. Externally the walls are of red Ruabon bricks, with dressings and mullioned windows of red terracotta, from Mr. J. C. Edwards's works, and the roofs are of red Ruabon tiles. The schools accommodate 54 boys and 44 girls. The architects are Messrs. Grayson and Ould, of Liverpool, and the contractors Messrs. W. and T. Bailey, of Hawarden.

**KEIGHLEY.**—The Queen's Theatre and Opera House is being entirely reconstructed from the plans of Mr. F. Matcham. The elevation in Queen-street will have a frontage of 83ft. The auditorium will be 56ft. by 60ft., and the whole interior, circles and all, will be constructed of fire-resisting material. The cantilever principle has been adopted. The stage dimensions are 65ft. wide and 45ft. deep. The stage itself will be on a level with Adelaide-street. From floor to grid the height will be 60ft. The style adopted will be the French Renaissance. Electricity will be employed for lighting purposes, but gas will be laid on as a reserve. The building will be heated on the low-pressure hot-water system. The contracts have been let to Messrs. Greenhow and Murgatroyd, builders, of Keighley.

**MANCHESTER.**—New St. Mary's Hospital for women and children is now in course of erection in Oxford-street and Gloucester-street, from designs by Messrs. Alfred Waterhouse and Son, of London. The main front of the hospital, 280ft. in length, which is broken into by a deep courtyard, faces south to Gloucester-street. The Oxford-street frontage is only 25ft. in width. Accommodation is arranged for out-patients upon the ground floor, in waiting-rooms and examination-rooms placed near the dispensary. The general entrance to the hospital will be in the centre of the south courtyard. The accommodation is divided throughout the building into two portions; each portion is distinct, and will be furnished with separate entrances, staircases, and lifts. On the ground floor are the out-patients' rooms, lecture theatre, chapel, mortuary, museum, and residential rooms. The wards commence upon the first floor, although the circular pavilion, utilised for ward purposes on the second floor above, there will be accommodation for twelve beds, in a perfectly circular room, with a diameter of 43ft. This room will be surrounded on all

sides by windows, interrupted only by the entrance and the bridgeway to the sanitary tower. There will be another precisely similar ward upon the third floor, but on the first floor the space is apportioned for dormitories for nurses. On the east side of the hospital there will be on the first floor a rectangular ward for twelve beds and three or four separate wards for one or more beds. On the same floor will be the boardroom and the library, which will extend to the second floor. The fourth floor will contain the servants' rooms, kitchen, scullery, bakery, larders, and stores. The main walls are to be faced with Accrington red bricks, relieved by terracotta and by moulded strings and cornices. The new hospital will be fitted for 125 patients. The contractor is Mr. Vickers, of Nottingham.

**NEWPORT, I.W.**—A public meeting was held at the Guildhall, Newport, Isle of Wight, to consider what steps could be taken for the restoration of the external fabric of St. Thomas's parish church. A report on the condition of the church, prepared by Mr. J. B. Colson, of Messrs. Colson, Farrow, and Nisbet, of Jewry-street, Winchester, and New Court, Carey-street, W.C., was read, stating that parts of the wall at present of Caen stone ought to be repaired with harder material, preferably with that from the Chilmark quarries. The cost of the necessary repairs was set down at £3,000. It was decided to proceed with the work as indicated in Mr. Colson's report. A restoration committee was appointed, and liberal donations were offered in the room.

**PETERBOROUGH.**—The foundation-stone of the new church of St. Barnabas, at Sexton Barnes, at the northern end of the city, was laid a few days since. It is proposed to build a church to accommodate 500, and the present contract with Messrs. John Thompson and Co., Peterborough, is for £3,500, which will provide the chancel, vestries, organ-chamber, transepts, and three bays of the nave. The plans have been prepared by Mr. W. Boyer, architect, of Peterborough. The church will consist of sanctuary, chancel, choir and clergy vestries, with organ-chamber over, north and south transepts, nave of five bays, and at the western end a baptistery, whilst a tower will ultimately complete the work. The church is designed in the Late Decorated style.

**REDRUTH.**—Mr. J. Passmore Edwards opened, on Thursday in last week, the Children's Jubilee Memorial Wing, which has just been added to the West Cornwall Women's Hospital. The wing has a south-west aspect, with an extensive view. The large ward upstairs, which is furnished with six beds, is lit by four windows. A room for a nurse adjoins, and on this floor are also bathroom, lavatory, &c. On the ground floor are the children's day-room for young convalescents, a room for wardmaid, and a ward for special cases. Mr. Sampson Hill is the architect of the new wing, and the contract has been carried out by Messrs. T. Opie and W. C. Hodge.

Colonel J. T. Marsh, R.E., held an inquiry in the National Schoolroom at Shadwell on Friday into an application by the Wetherby Rural Council to borrow £2,000 for sewerage and sewage disposal.

A new turret striking clock, showing the time upon three external dials, was set going on Wednesday, at St. Clement's Pariah Church, Bradford. The clock was made and fixed by Messrs. W. Potts and Sons, clock manufacturers, Guildford-street, Leeds, and Newcastle-on-Tyne, and the builders work by Mr. Newell, Bradford.

An addition to the Montrose Lunatic Asylum, Carnegie House, erected for the reception of forty private patients, was opened on Monday. It consists of a central block, containing public hall, dining-room, and administrative room, and two wings of two floors each, and has cost £20,000. Mr. William Kelly, of Aberdeen, is the architect.

A memorial was unveiled on Tuesday in the village of Llansannan, of five famous Welshmen, natives of the parish: Tudor Aled, born 1470, a Franciscan monk and poet; William Salesbury, born 1514, who achieved distinction as the translator of the New Testament into the Welsh language; Henry Rees, born 1797, an eloquent preacher in the Welsh Calvinistic Methodist Denomination; William Rees, his brother, politician and literateur; and Edward Roberts, a Methodist minister and writer of Welsh poetry. The memorial consists of a bronze figure of a little girl, seated at the foot of a granite obelisk, dressed in a Welsh costume; she is weaving a garland. It is the work of Mr. W. Goscombe John, A.R.A.



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## ILLUSTRATIONS.

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## Our Illustrations.

"WOODSIDE," CHILWELL, NOTTINGHAM.

I HAVE recently built this house for myself at Chilwell, near Nottingham. The site is on a hillside, with a range of view of 30 miles of the beautiful Trent Valley. The drawing and dining rooms and hall face the south. The former is adapted for a music-room. The walls are panelled in American walnut, and the floors are of oak and teak blocks. All the door furniture and plates are of beaten aluminium specially designed. The fireplaces are of the "well" type, with green glazed bricks and glass mosaic hearths. The dining-room and hall are panelled in oak, and the floors are also of oak and teak. All are lighted by electricity supplied from my own plant. Stuart's granolithic lattice floors form the foundation for the oak blocks, and I find them very satisfactory in every way.

ARTHUR MARSHALL.

FRESCOES FOR GRAHAMSTOWN CATHEDRAL, SOUTH AFRICA.

A SERIES of ten frescoes have recently been affixed to the chancel walls of St. George's Cathedral, Grahamstown, South Africa. They have been painted by Mr. Oswald Fleuss, of 17, Cantlowes-road, Camden-square, London, N.W. We give two of the frescoes illustrating "The Resurrection" and "The Journey to Emmaus." The others represent: "The Baptism of the Eunuch," "Christ and the Seven Lampstands," "Appearance to the Apostles," "Feed My Lambs," "The Appearance in the Garden to St. Mary Magdalene," "Confirmation in Samaria," "The Day of Pentecost," and "The Ascension."

AN AMERICAN ARCHITECT'S MEMORIAL, NEW YORK.

THE late Mr. Richard Morris Hunt, R.I.B.A., Gold Medallist in 1893, the architect of the Administration Building of the Chicago World's Fair, was one of the most popular architects in the United States. He designed the Vanderbilt mansions at New York and Baltimore, and a similar house for Mr. Jacob Astor, not to name others of a like kind also erected at an almost unlimited cost. His municipal and public buildings are too numerous to name here, and his Polægic-like monument, the Delano Tomb, New Bedford, Mass., may be quoted as an instance of plain and broadly-treated memorial architecture from his facile pencil. He was president of the American League of Architects, and the monument which has just been erected to his memory in the Fifth-avenue, New York, shows how highly his personality as a citizen and reputation as an architect are esteemed by his contemporaries. The design is by Mr. Bruce Pryce, and Mr. Daniel C. French, of New York, is the sculptor.

The composition is an exceedingly dignified and handsome piece of work, very reserved in design and severe in style. The bust portrait is a remarkably good one, as our readers may see by referring to the BUILDING NEWS for June 16, 1893, when we gave Mr. Hunt's photograph, with an account of his career. For the photographic view reproduced to-day we are indebted to the *American Architect*.

## "CHARITY."

MR. FRAMPTON'S work "Charity" is a posthumous portrait of a lady. The tablet itself is composed of white marble, with coat of arms slightly coloured. The frame is very rich, and made of different marble, surmounted at the corners by two white metal figures of young boys. The work was executed for and is placed in a church. Our photograph was taken by the Bolt Court Art School, Fleet-street.

## KILBURN PALACE OF VARIETIES.

THIS plate illustrates the design of a proposed new Palace of Varieties, which is about to be commenced, with some slight modification in the elevation, on the site of the existing Theatre Royal, which is fully licensed as a theatre and music-hall, and which will also absorb the adjoining property known as Barnes' Depository. The property will have a frontage to Belsize-road (facing Kilburn station, L. and N. W. Ry.) of 82ft., and to Kilburn Priory of 89ft. The interior will be constructed on the cantilever system without columns, proscenium opening 30ft., width of stage 64ft., and depth 31ft. The latest fire appliances will be used, and the building will be lighted by electricity. Messrs. Palgrave and Co., of Victoria-street, S.W., are the architects.

"BUILDING NEWS" DESIGNING CLUB: STABLES FOR A SUBURBAN HOUSE.

(FOR description and awards see p. 704.)

## CHIPS.

THE Prince of Wales will lay the foundation-stone of the new buildings of the Royal School of Art Needlework, at the corner of the Imperial Institute-road, South Kensington, on Friday, June 23, at four o'clock.

THE Prince of Wales has also intimated his intention of laying the foundation-stone of the new Post Office Savings Bank buildings, to be erected on the Olympia annexe, in the parish of Hammersmith.

MR. W. E. H. Newham, who has for upwards of twenty years represented the Midland Railway Company in the estate department for the Manchester and Liverpool districts, has been appointed to the London agency in succession to the late Mr. Buxton.

FOR the New York Custom House, which is to be one of the most important buildings ever erected by the United States Government outside of Washington, competitive designs have been invited from a limited number of architects from New York, Boston, Philadelphia, and Chicago. The number of invited competitors is twenty, and the building is to cost about £800,000 sterling, or four million dollars.

THE Primate will officiate to-morrow (Saturday) at the laying of the foundation-stone of the new Archiepiscopal Palace adjoining Canterbury Cathedral.

THE Duke and Duchess of Connaught will open the hospital erected at Woodford, Essex, to commemorate the Diamond Jubilee, on June 1. The Lord Mayor of London and Sheriffs will also be present. An Endowment Fund has been generously subscribed for by the inhabitants of the neighbourhood, and Mr. J. R. Roberts, of Woodford, kindly presented the land, hospital, and all internal fittings. The architects are Messrs. J. Kingwell Cole and Kenneth Wood, A.R.I.B.A.

THE parish church of Eyke, East Suffolk, was reopened last week after restoration, including underpinning the chancel walls, reflooring the nave, retiling the Communion space, and the erection of vestry on the north side of the nave. Mr. A. E. Kersey, of Great Bealings, was the builder.

A Local Government Board inquiry was held at Liverpool on Wednesday at the municipal offices as to borrowing £50,000 for the purposes of the Liverpool Sanitary Amendment Act, 1864, and £13,500 for the provision of dwellings for persons of the working class, &c.

THE Duke of Portland on Tuesday opened a new school for 350 children at Cresswell, a village within two miles of Welbeck Abbey. Subsequently he laid the memorial-stone of a new church, now in course of erection in the same village, at an estimated cost of £5,000.

## THE DISPUTE IN THE BUILDING TRADE.

THE representative meeting last week at Birmingham decided, as we stated it would in our last issue, to meet the plasterers in conference. The decision was arrived at in spite of considerable opposition on the part of some of the Yorkshire employers, who appear hardly to grasp the situation. The London employers seem to us, with one or two exceptions, to have very admirably hit the happy mean between obstinacy and timidity. To Mr. Greenwood especially, of the well-known firm of Holliday and Greenwood, both masters and men will be greatly indebted for a happy issue which has taxed an exercise of tact and firmness as uncommon as it has proved beneficial.

THE improved conditions generally, which we are sanguine enough to hope for from the results of next week's conference which will be held in London on Tuesday next, will reflect honour on all concerned. We shall have more to say about these next week, and shall not omit to pay a well-deserved tribute to the able and well-intentioned intervention which has avoided a rupture. We must say, however, that no intervention of the sort could have been possibly effectual if the employers represented at the Birmingham meeting had not faced matters generally with such statesmanlike comprehension.

WE need not here repeat the lines on which the dispute will be settled. We indicated them last week, and need only say now that the very difficult point about foreign "blackleg" labour has been solved in a fashion as just as it is diplomatic. The other matters at issue will be settled as we foreshadowed in our last issue.

## COMPETITIONS.

COATDYKE, AIRDRIE, N.B.—The result of the adjudication upon the competitive plans for the new elementary school at Coatdyke, to be erected by the Airdrie School Board to meet the demands of the rapidly growing population, is that the plan by Mr. James Shaw, architect, Coatbridge, has been chosen, that of Mr. William Shanks, Airdrie and Glasgow, being awarded the second place and premium of £10.

YARLEY.—At Tuesday's meeting of the Yarley Rural District Council, the general purposes committee recommended that Mr. Arthur Harrison's plans and amended estimate for the proposed new depot, public offices, fire-station, and mortuary at Sparkhill should be finally approved, except that portion relating to the tower, which should be dispensed with. Mr. Griffin expressed surprise that such a recommendation should come from the general purposes committee after the board had instructed them to reopen the matter and to ask the architects who had entered into competition to again send in their plans. He complained that they were spending £3,000 or £4,000 more than was necessary, and simply on "outside show." Mr. Griffin moved that the matter should be referred back to the committee for reconsideration. The architect's revised estimate for the work, he said, was £9,750, to which had to be added about £700 or £800 for architect's commission. They had not taken into consideration the heating of the building, and altogether they were going to spend £11,000 or £12,000. He considered that it was most unfair to the architects. The committee had allowed one architect to send in a revised estimate of nearly £2,000 extra without giving the others any chance. Mr. Plater moved as a further amendment that the plans should be accepted in their entirety. After further discussion, the recommendation of the general purposes committee was adopted, and it was decided to appeal to the Local Government Board for sanction to borrow £11,000 for the erection of the new buildings.

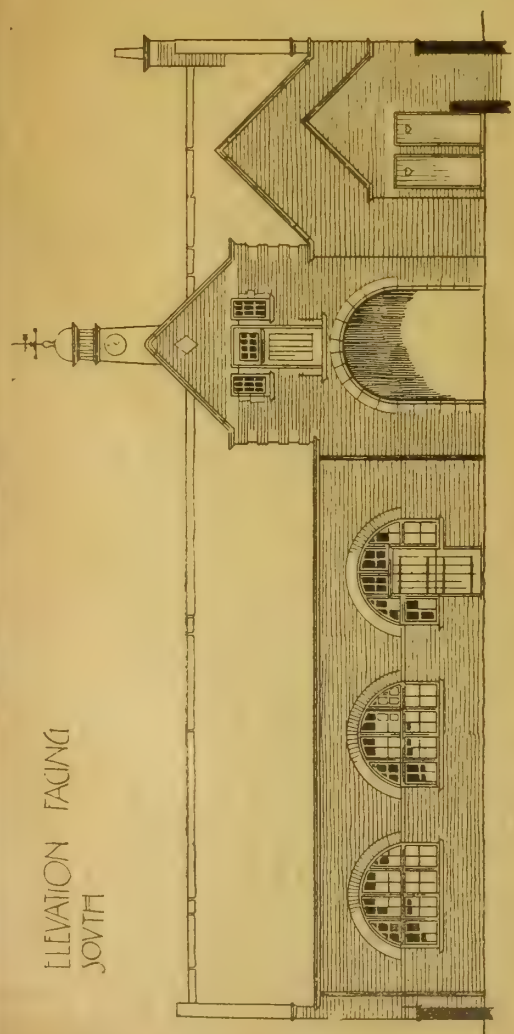
THE foundation-stone of a public hall was laid at Pitlochry, N.B., on the 18th inst. It will be Scottish Renaissance in style, and will contain a concert-room 60ft. by 33ft. 6in., seated for 500 persons, while 90 other seats are provided in a gallery. Mr. J. R. D. Swan, of Blair Atholl, is the architect.

MR. J. Passmore Edwards opened on Thursday, the 18th inst., the Helston Science and Art School, to which he has been a liberal donor. Mr. Edwards gave the building, at a cost of about £1,600, and the furnishing was carried out with local subscriptions and a grant from the County Technical Instruction Committee.

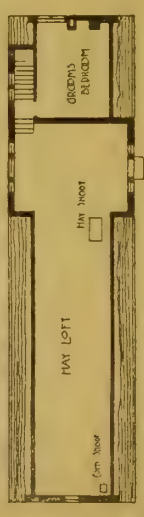


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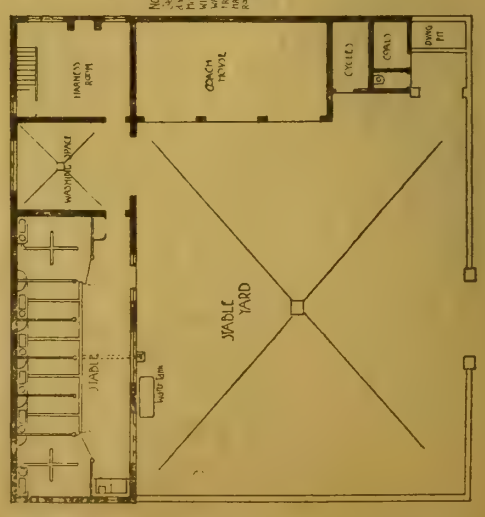
ELEVATION FACING SOUTH



SCALE FOR ELEVATIONS AND SECTION



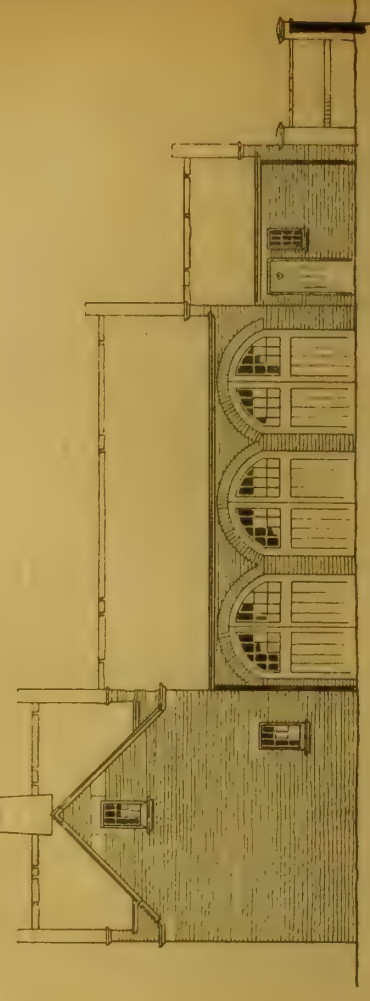
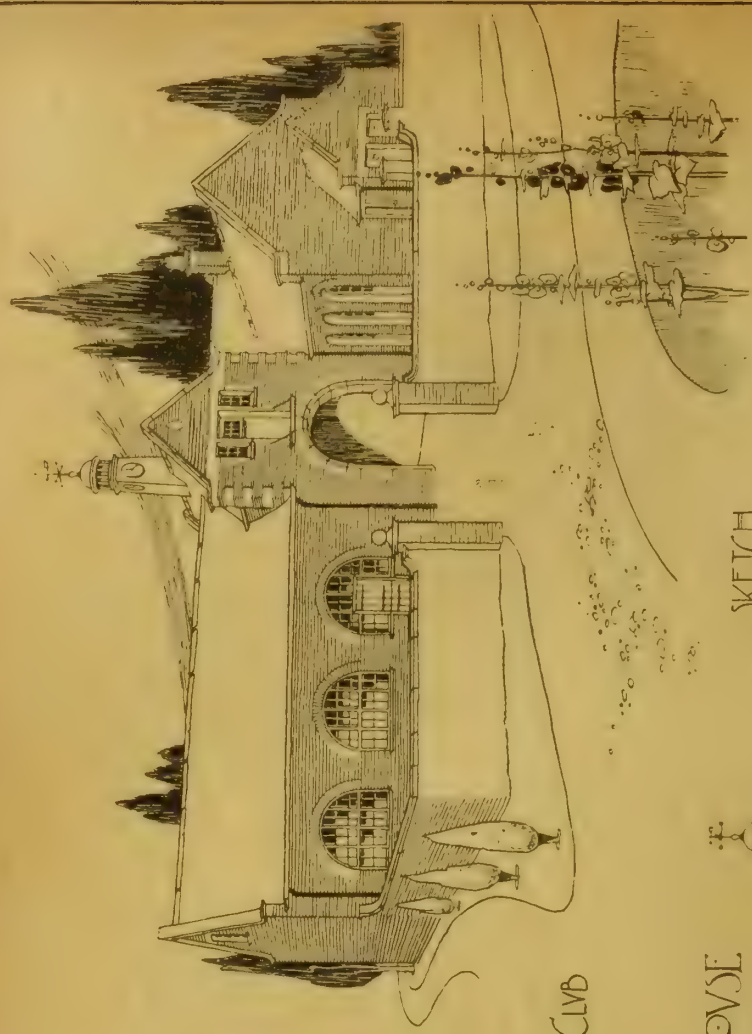
PLANS



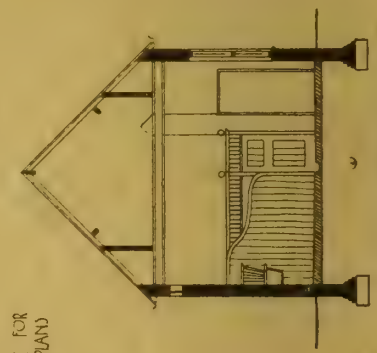
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"BUILDING NEWS" DESIGNING CLUB  
A STABLE FOR  
A SUBURBAN HOUSE  
MC GILLIGAN

SKETCH



ELEVATION FACING WEST



SECTION THROUGH STABLE































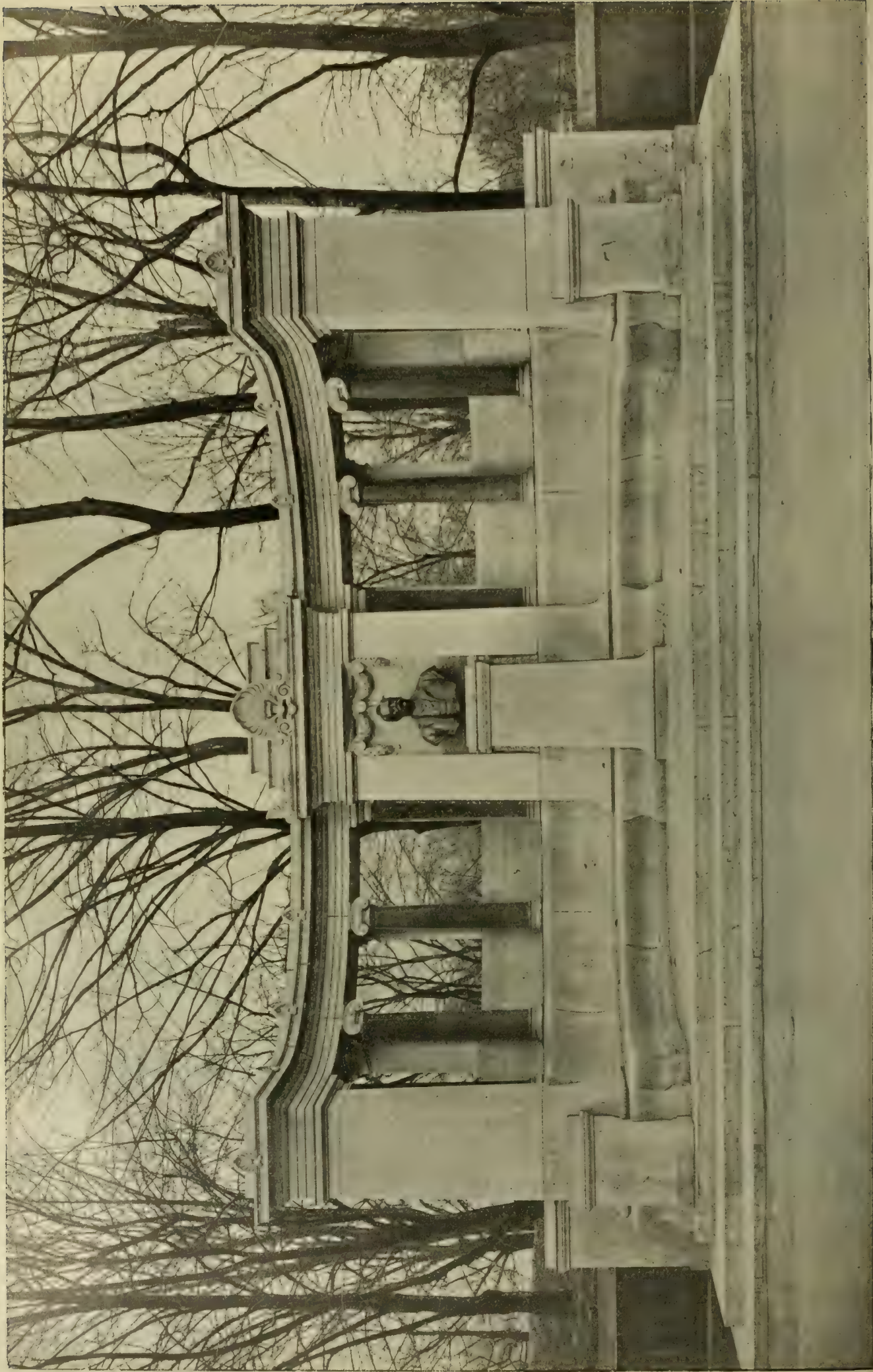
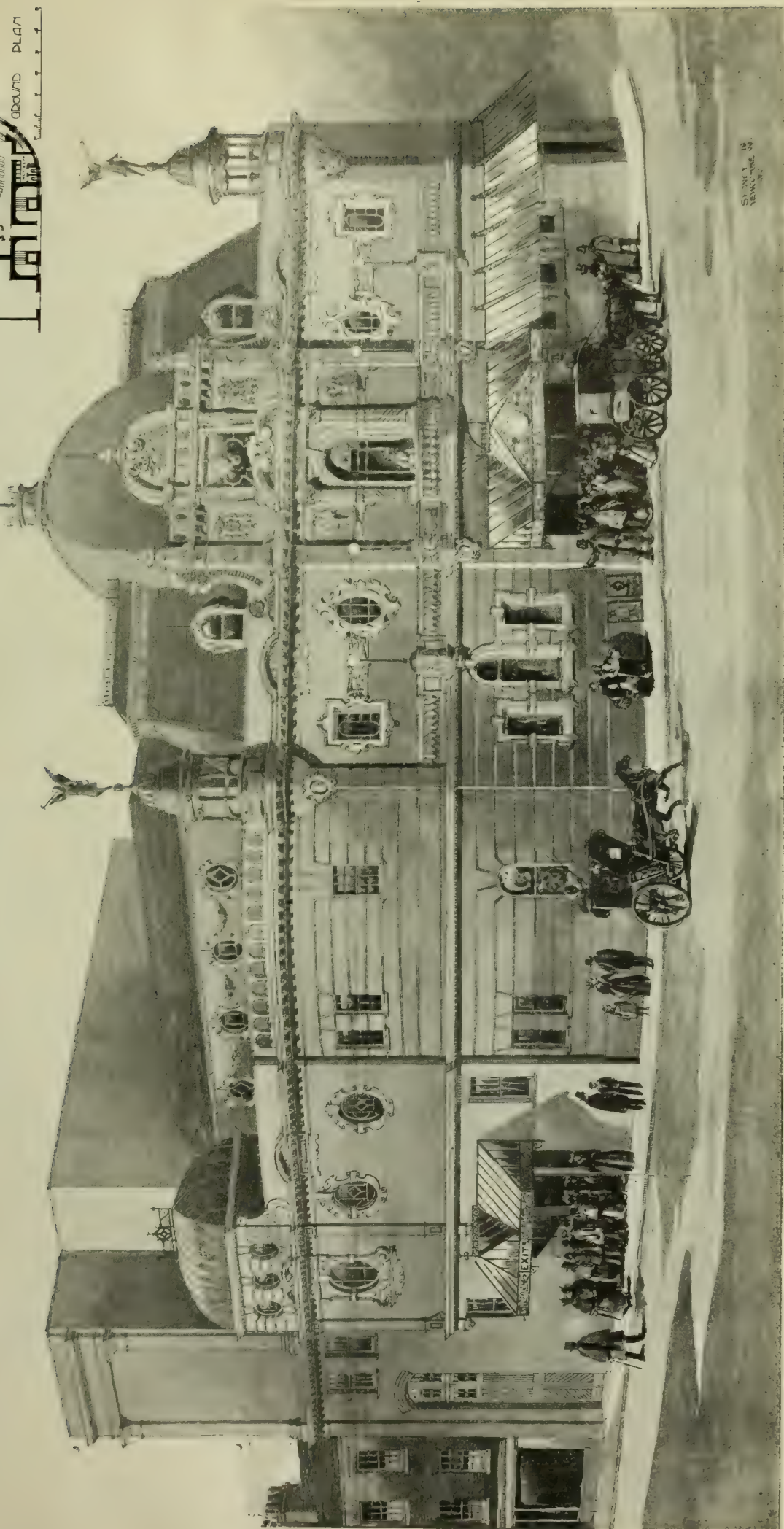
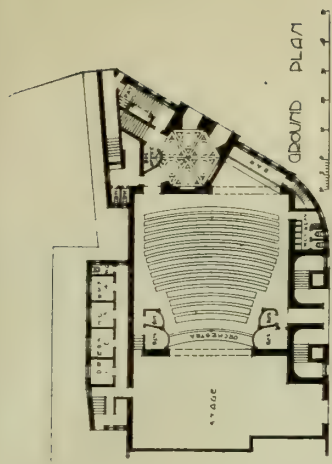


PHOTO FRANKS BROS. & CO. NEW YORK

AN AMERICAN ARCHITECT'S MEMORIAL. RICHARD MORRIS HUNT, NEW YORK, U.S.A.



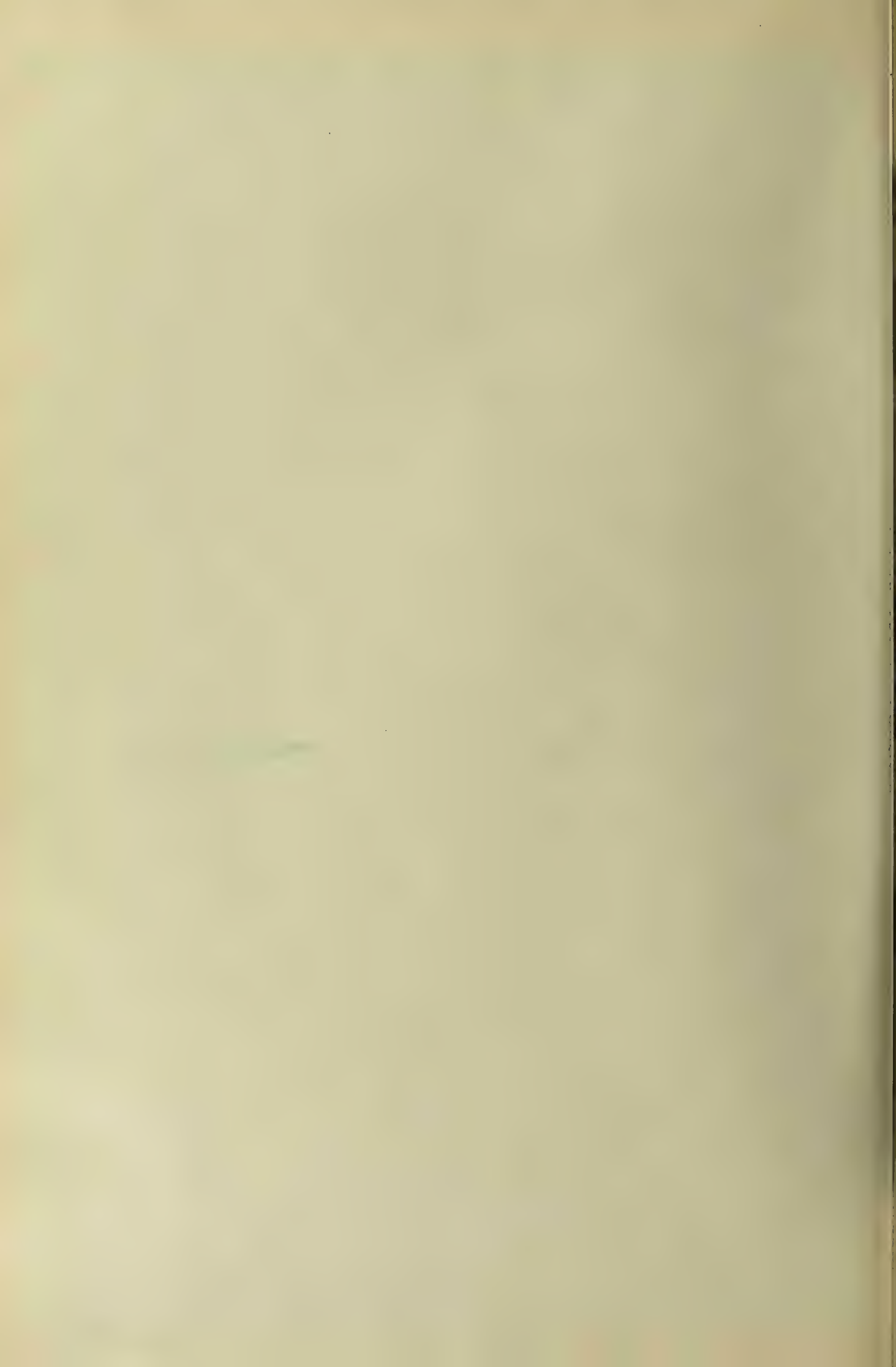


27  
STREET  
NEWSPAPER

PHOTO PROCESS BLOCK BY J. A. MARSHALL & CO. LONDON

PROPOSED PALACE OF VARIETIES, KILBURN.







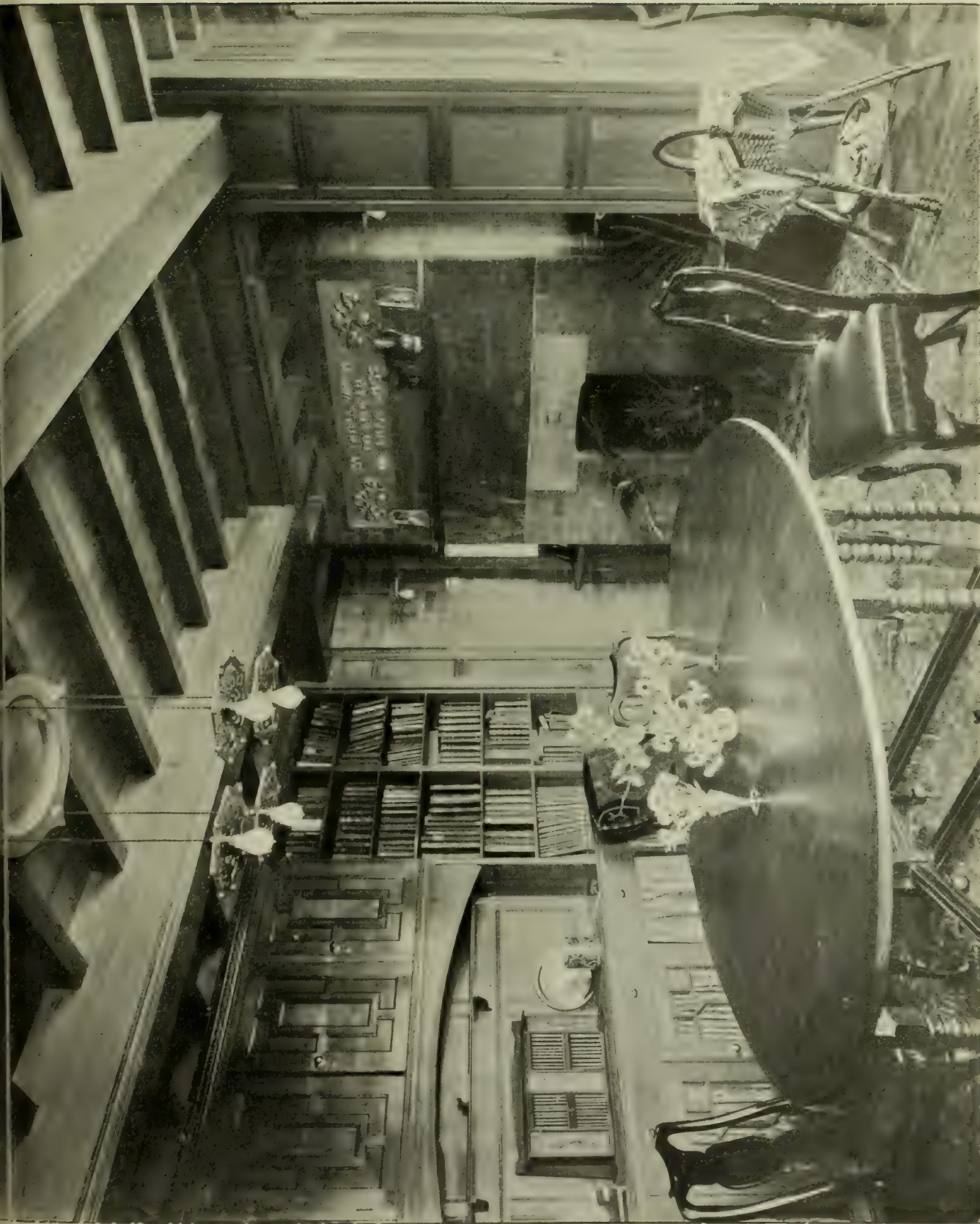


PHOTO PROCESSED BLOCK BY J. A. MARSHALL & CO. EVANSTON

FOUR INTERIORS FROM AN ARCHITECT'S HOUSE AT NOTTINGHAM.

ARTHUR MARSHALL, ARCHITECT.







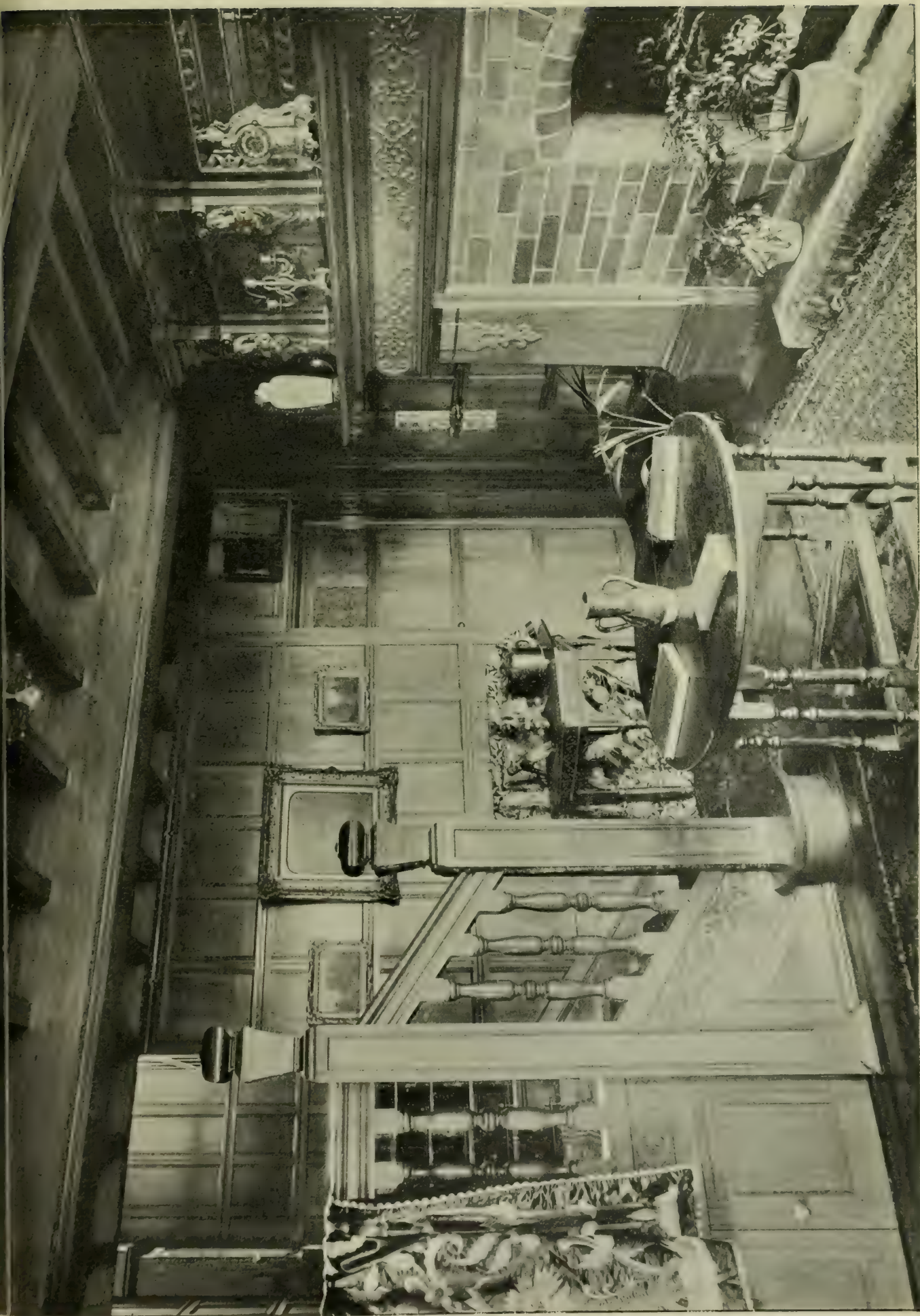


PHOTO. PROCESS. BLOCK. BY J. A. MARSHALL & CO. BOSTON.

FOUR INTERIORS FROM AN ARCHITECT'S HOUSE AT NOTTINGHAM.

ARTHUR MARSHALL, ARCHITECT.



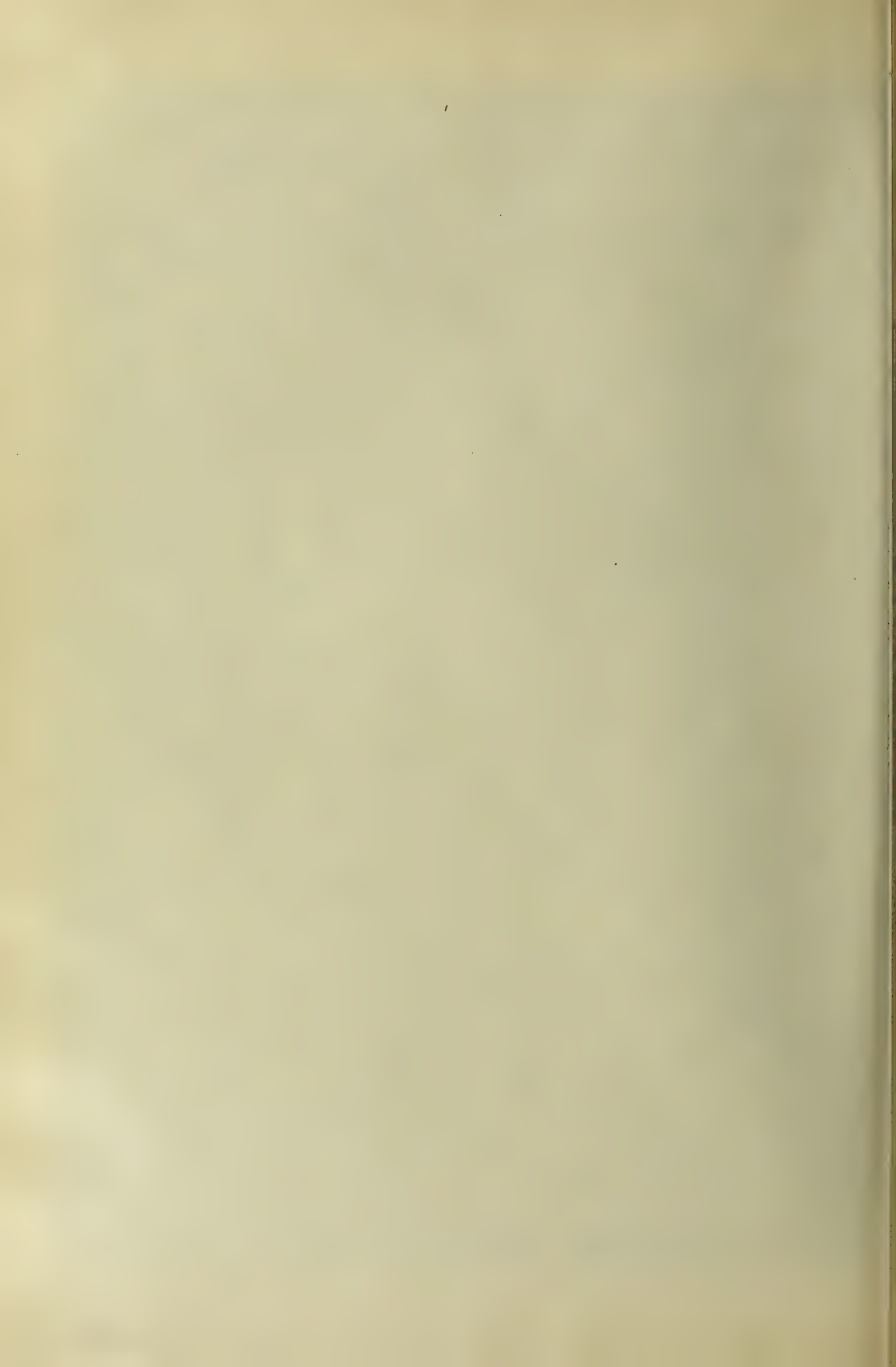






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THE RESURRECTION.

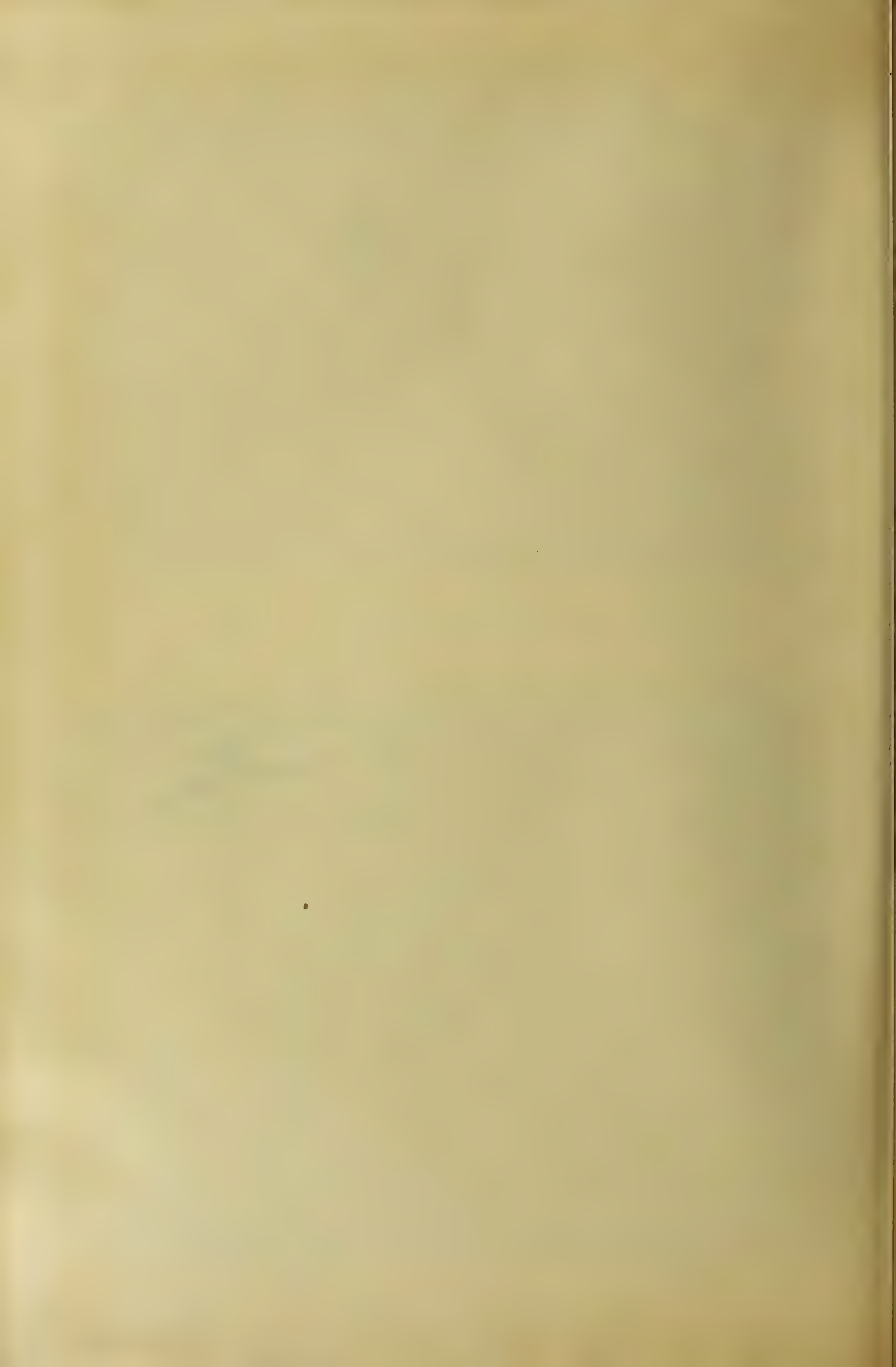


PHOTO PROCESS BLOCK BY J. A. MARSHALL & CO., STODENHAM

THE JOURNEY TO EMMAUS.  
FRESCOES FOR GRAHAMSTOWN CATHEDRAL, SOUTH AFRICA.

BY OSWALD FLEUSS.

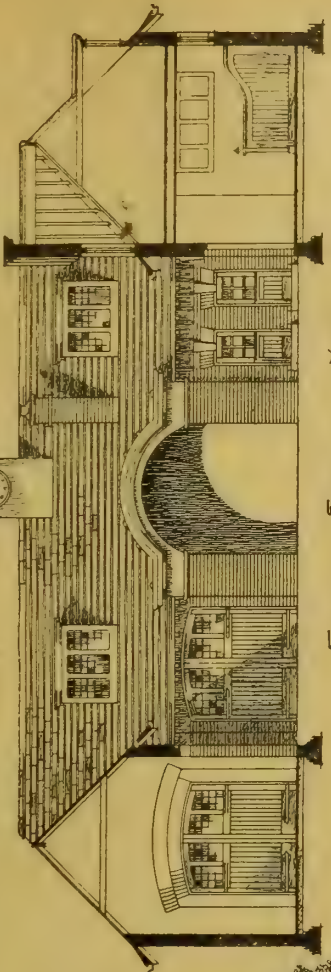




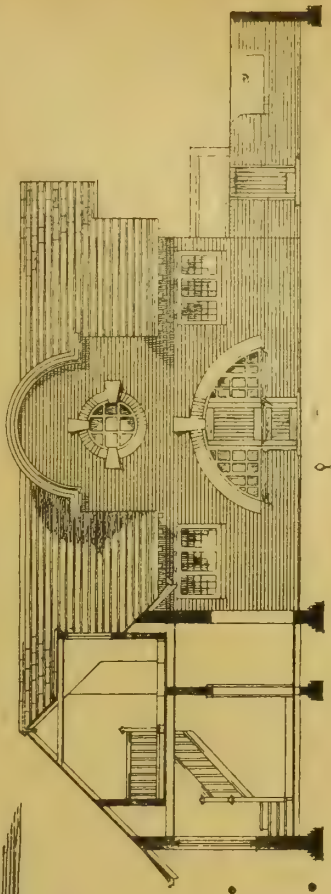


SCALE OF FEET FOR ELEVATIONS

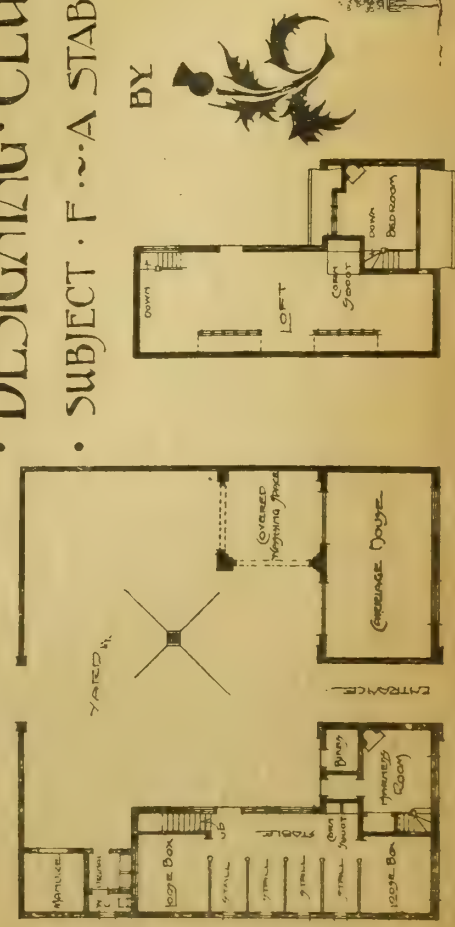
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ENTRANCE ELEVATION TO YARD



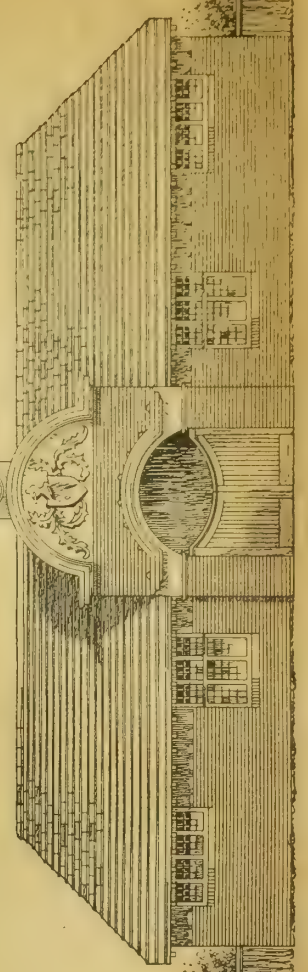
ELEVATION TO STABLE



SECTION



BY



ENTRANCE ELEVATION

• BUILDING • NEWS •  
• DESIGNING • CLUB •  
• SUBJECT • F • A STABLE •

GROUND FLOOR PLAN.

• UPPER FLOOR PLAN •



## OBITUARY.

WE regret to announce the death of Mr. CHARLES BELL, F.R.I.B.A., of 3, Salters' Hall-court, Cannon-street, E.C. Mr. Bell, who died on Monday at his residence, 3, Campden Hill-square, W., had had for many years an extensive chapel and school practice, especially among the Wesleyans, in which denomination he was a prominent layman. A native of Grantham, he was educated at the grammar school of that town, and having gained some experience in the office of his brother, a builder and contractor, he was articled to Mr. John Giles, of Craven-street, W.C. Soon after commencing practice on his own account he came to the front by winning many competitions. His work was of a varied character, including workhouses, infirmaries, cemetery chapels, board schools, mansions, houses, warehouses, markets, corn exchanges, and almshouses. Among recent large works were the Northern Polytechnic, Holloway-road, gained in competition, and the Passmore Edwards Holiday Home for Children, Clacton, illustrated in the BUILDING NEWS of May 20, 1898. Mr. Bell joined the Royal Institute of British Architects as an Associate in 1870, becoming a Fellow ten years later. We gave his portrait and biography in our issue of March 6, 1891.

## CHIPS.

The offices of the Surveyors' Institution have been removed this week from the temporary premises in Savoy-street, Strand, to the spacious new buildings erected for the Institution from the designs of Mr. Alfred Waterhouse, R.A., at 9, Great George-street, Westminster.

The Bishop of Durham opened the new premises of the Clergy Training School, Cambridge, on Thursday afternoon in last week. The site of the new building is opposite Jesus College. It is of red brick and stone, and is built from the designs of Mr. Ould, the architect who was responsible for the new buildings of Trinity Hall. The total cost is estimated at £7,600.

The town council of Huddersfield have raised the salary of their borough engineer, Mr. Campbell, from £500 to £600, with further increments of £50 a year to £700.

At Wortham, Norfolk, a new Wesleyan Chapel and schoolroom were opened last week. Mr. Isaac Osborne, of Diss, was the builder.

The Ealing Urban District Council have unanimously adopted a scheme for the erection of 120 municipal workmen's dwellings, and decided to purchase 6½ acres of land, at a cost of £5,200, for the purpose.

The foundation-stone of a Boys' Brigade hall was laid with Masonic honours on a site in front of the Madras College, St. Andrew's, on Thursday in last week. Mr. James Gillespie is the architect.

Mr. W. O. E. Meade King, M.I.C.E., has held an inquiry into the application of the urban district council to borrow £6,000 for a new water supply for East and West Loos.

At the annual meeting of the Llandudno Victoria Pier Company, Limited, last week, a contract with Messrs. Heenan and Froude was approved and sealed for the construction of a pier at Llandudno at a cost of £90,000. The pier will be 40ft. wide, and will be carried seawards from the centre of the bay, a distance of 350 yds.

The Three Towns Branch of the Devon and Exeter Architectural Society have elected the following officers for the current year:—President, Mr. H. G. Luff, A.R.I.B.A.; committee, Messrs. M. A. Bazeley, C.C., J. H. Dwyer, Charles King, A. S. Parker, A.R.I.B.A., and W. N. Richards; hon. secretary and treasurer, Mr. B. Priestley Shires, A.R.I.B.A.

The new Marine Palace and Pier, which has been erected opposite the Aquarium, Brighton, close to the site of the old Chain Pier, was opened to the public on Saturday by the Mayoress of Brighton. The new pier is not yet completed, the pavilion having still to be built, but the portion opened to the public extends some 1,500ft. from the beach, and several smaller pavilions have been put up. Reading-rooms and dining-rooms are provided, also ornamental arches for electrical illumination purposes, and an electric tram runs up the centre of the pier. There are to be landing stages at the head of the pier with never less than 12ft. of water. The entire structure covers an area of two and a half acres, and 85 miles of planking and decking have been employed in its construction. The work is being carried out under the superintendence of Mr. John Howard, A.I.C.E., London, and Mr. R. St. George Moore, M.I.C.E. The ornamental ironwork has been executed by Messrs. Hart, Son, Peard, and Co.

## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

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## SITUATIONS.

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RECEIVED.—N. D.—S. L. F.—G. G. and Son.—P. J. M.—K. W. (Liverpool)—B. T. D. and Co.—A. O. G.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Sphylark."

## Correspondence.

## THE PURIFICATION OF THE PROFESSION.

To the Editor of the BUILDING NEWS.

SIR,—Surely no better way can be found for the purification of the profession—referred to by your correspondent in the issue of last week—than that of electing to the premier architectural body men of such good standing and unquestioned probity as the candidate who has circularised us. His opinion on the admission of females to membership is one with which a large number of members agree, and I, for one, will give him my vote with the greatest of pleasure. But, Sir, the question of female members is only one of many others. We want new men who will awaken the older members of the Council from their slumbrous apathy and remind them of their duties to the Institute and the profession generally.

I think it is to be regretted that other candidates for election abstain from adopting means similar to this gentleman's circular for letting the electors know their opinions on current subjects.—I am, &c., J. H. C.

## VAUXHALL BRIDGE AT THE INSTITUTE.

SIR,—In your report of last week it is stated that, in answer to my request that Messrs. Mountford and Statham's design for Vauxhall Bridge voussoir lines should be published in the Institute Journal, Mr. Statham replied, "No,

he did not prepare designs for Mr. Woodward to criticise, and wrote his paper for quite a different class of person."

I am happy to say that Mr. Statham has relented, because he has published his design in the Journal. I say "his design" because I have too much respect for Mr. Mountford's power of design to think that he did more than "pass" this unique effort.

I could not, at the time, understand the savage manner in which Mr. Statham replied to my request; but I may now take the opportunity to explain that it was not for myself that I wished the design published—I had been gazing at it for an hour; but it seemed to me a pity that the world should lose so very fine an example of voussoir design—hence my anxiety that it should be placed on permanent record, and distributed over the four quarters of the globe.

I understand that a large and influential deputation will shortly wait upon Mr. Statham, and ask him to allow his design to be carried into execution, and had it not been that the illustrations in the Journal are copyright, I would have asked you, Sir, to permit its reproduction in the BUILDING NEWS. I may, however, briefly describe it for the benefit of those who do not see the Journal.

Mr. Statham's design is simplicity itself. He starts at the soffit line of the arch, and having spaced out the voussoirs, carries them right up without a single horizontal break to the "plinth line of the balustrade," because, as Mr. Statham explains in the Journal, "it would be a pity to lose the open balustrade." So it would, Sir, and I am one of the first to acknowledge it. The designer of the Waterloo Bridge voussoirs seems to have thought that the interposition of horizontal voussoir lines intersecting the arch voussoir lines gives strength and beauty to the bridge, and yet he doesn't lose the balustrade. How very curious! But then he was only a wretched engineer, and not a Member of Council of the Royal Institute of British Architects. Another charming feature of Mr. Statham's design is that his uninterrupted voussoir lines die into the vertical lines of his piers, producing that beautiful "flat appearance" which Mr. Statham says was his object. The effect, to me, is that the arch, at its haunches, is quietly slipping away from the piers; but then Mr. Statham "does not prepare designs" for the likes of me to criticise!

I do sincerely trust that the deputation referred to will prevail upon Mr. Statham to allow the embodiment of this unique voussoir design into the executed work. It will save the credit of the London County Council, it will enhance the value of No. 9, Conduit-street, and it will excite the envy of foreigners to such an extent that they will attempt to secretly blow up the bridge with dynamite.—I am, &c., WM. WOODWARD.

13, Southampton-street, Strand, May 23.

## ARCHITECTS AND LOCAL AUTHORITIES.

SIR,—It would be a good thing, I think, if the discussion on the experience of architects in their relation to local authorities could be brought to some practical issue. Just now the local authorities of the town in which I live are particularly officious in the exercise of their power to disapprove of plans which they consider are an infringement of the by-laws. The latest move is to reject plans which show bay windows constructed of timber framing. They say it has recently been decided in a court of justice that a bay window is part of the outside wall of a building, and, therefore, the by-laws relating to the construction of external walls must be applied to bay windows. They require these for the future to be built of brickwork or stone or some other incombustible material. This appears to me very unreasonable, and I should like to know how other architects look upon such an interpretation. I am told by a barrister-at-law that a town council or railway company's by-law is bad! unreasonable. But what can be done in a case like this? If such an interpretation of the by-laws can be upheld, many architects, I am sure, will feel a keen regret in having to give up such a pleasing feature as a wood-framed bay so often is.—I am, &c., W. H. B.

A Presbyterian church is about to be built at Felixstowe, at a cost of £3,000, from designs by Mr. G. W. Loughton, of Ipswich. It will be of open area type, with transepts having single-span roofs of open timber construction. The walling will be of Kentish rag.



## Intercommunication.

### QUESTIONS.

[12241].—**Rectory**.—A rectory is properly a spiritual living endowed with tithes; its secondary meaning is the parochial dwelling endowed with the living. Was the priest's house in pre-Reformation times usually called a "rectory" when the priest was in perception of the tithes in his own right? One or two authorities would greatly oblige.—L. V.

[12242].—**Reservation of the Communion**.—In Anglican churches which are "high," and the consecrated elements reserved (presumably until immediately before the next consecration), where are they placed to secure them from profanation? I assume that there is no tabernacle as in Romish churches. Are they simply placed on the altar, or in a niche in the wall, and covered with a napkin, or taken away and locked up?—R. W. M.

[12243].—**Casements**.—Which are the most weather-tight to use, wood or metal? If the latter, how can they be fixed to wood mullions? Is there not some way of rendering the meeting stiles of wooden casements water-tight by grooving the joint and frame, and how should the lower rail be formed to fit over the sill? Information will oblige.—A. D. I.

[12244].—**Outlet of Closet**.—How should the short arm or outlet from closet through outer wall be formed and connected to soilpipe? What are the requirements of the L.C.C. as to making the connection and weight of pipe, &c.? I should esteem it a favour if anyone will reply.—BUILDER.

### REPLIES.

[12233].—**Damp Basement**.—I should be inclined to use Callender's pure bitumen sheeting, applied either externally or internally. Send for particulars to Callender and Co., 11, Victoria-street, Westminster.—G.

[12238].—**Quantities**.—Assuming that the houses are very similar in plan, "Peverill" should charge 2½ per cent. on the block of five. He can hardly charge on four blocks for taking off one; but for superintendence he can charge 2½ per cent. on the £2,000. About £75 would be a fair charge for drawings, specifications, superintendence and quantities.—H. LOVEGROVE.

[12238].—**Quantities**.—Five per cent. for plans, specifications, and superintendence on £2,000, and an extra 1½ per cent. for quantities.—ROBT. H. M. ELM, E.E.

[12238].—**Quantities**.—It would have been better if "Peverill" had arranged as to his commission. As the quantities are for houses of the same plan and construction, those taken for one block would apply to all the other blocks, with few exceptions as to foundations, &c. I should say a commission of 2½ per cent. on one block of five would be fair, or a reduction of 1 per cent. on the whole.—FAIR.

[12239].—**Pitches of Roofs**.—In such books as Newland's "Carpenter's and Joiner's Assistant," the roofs given were in use at a time when it was necessary to make a roof very flat, so that it should not be seen above a more or less ugly parapet, and modern books have in many instances copied the old details. If "Escalibur" will take advice, his roofs will be made steep; nothing looks better, or is more suitable for use in this climate.—H. L.

[12240].—**Modern Hotels**.—There are no books on the subject, which presents few difficulties, as it is easy to visit a few good buildings and note details of planning.—H. L.

[12240].—**Modern Hotels**.—I do not think "Utility" will find any work dealing with hotel planning. As they vary so much in size and accommodation, any work on the subject would be misleading. It is the model plan that is wanted. Only an expert in hotel building is able to treat such a subject. The best plan is to visit a few well-appointed hotels here and abroad.—POSTULATA.

## WATER SUPPLY AND SANITARY MATTERS.

SHADWELL.—An inquiry was held on Wednesday, May 17, by Colonel J. T. Marsh, R.E., Local Government Board inspector, with reference to an application for sanction to borrow the sum of £2,000, by the Wetherby District Council, for the purpose of sewerage of the parish of Shadwell. Mr. E. H. Coates, clerk to the district council, opened the case for the council, and called the engineer, Mr. E. J. Silcock, C.E., of Leeds, who explained the scheme. The works of sewerage consist of pipe-sewers to collect the sewage of the more thickly-populated portions of the parish and convey it to the disposal works, which are proposed to be situated on about 1½ acre of land. The method of purification proposed is a septic tank and four bacteria filters, and the effluent is to be applied to land. The tank and filter-beds will be constructed of concrete, the tank having a capacity of one day's dry weather flow of sewage, and a working set of three filters being worked at the rate of 186 gallons per square yard per 24 hours. Dr. Hargreaves, the medical officer of health, and the nuisance inspector, also gave evidence as to the sanitary state of the parish. Mr. Ramsden (of Messrs. Carter, Ramsden, and Co., solicitors, Leeds) appeared on behalf of the principal inhabitants to oppose the application, on the ground that if the district council carried out their duties of scavenging, &c., it would not be necessary to have a sewage scheme at all. After hearing the evidence the inspector visited the district and inspected the site of the proposed purification works.

## Our Office Table.

IN connection with the formation of the proposed new street from Holborn to the Strand, the London County Council will be under an obligation to rehouse about 3,030 persons of the labouring classes who will be thereby displaced. By the Council's Clare-market scheme another 2,250 persons will have to be rehoused. For the two schemes, therefore, accommodation must be provided for 5,280 persons. Of these, about 2,000 are to be rehoused on the Millbank site, and the remainder upon sites in the vicinity of the new street. When the Council reassembles a proposal will be laid before them by the Improvements Committee for the purchase for £200,000 of a large portion of the site of Reid's brewery, between Gray's Inn-road, Clerkenwell-road, and Hatton-garden. Upon this site about 2,070 persons could be housed, and negotiations are taking place for the purchase by the Council, by agreement, of the whole of the site between Gray's Inn-road and Hatton-garden. On the complete site, which is within half a mile of the new street, it will be possible to accommodate 3,000 persons. If this scheme is carried out the two sites on the western side of Drury-lane, already acquired by the Council, will be exclusively set apart for accommodating workers in Covent Garden Market and for those whose hours are such as to necessitate residence in the immediate vicinity of the new street. If this is done, the site on the eastern side of Drury-lane south of Kemble-street can be dealt with for commercial purposes, and thus the Council will be enabled to acquire the Reid brewery site with out exceeding the amount estimated for rehousing purposes under the two improvement schemes.

OWING to the success which attended the engineering conference organised by the council of the Institution of Civil Engineers two years since, a further conference will be held on Wednesday, Thursday, and Friday week, June 7, 8, and 9, in Westminster. The proceedings will be opened with an address by the president of the institute, Mr. W. H. Preece, C.B., F.R.S., in the theatre of the institution. The subjects for consideration will be divided into seven groups or sections, and will be discussed at three different meeting places which have been placed at the disposal of the council—namely, the Institution of Mechanical Engineers, the just-completed Surveyors' Institution, and the Guildhall, Westminster. The subjects for discussion range over the whole field of engineering service and practice, and include railways, harbours, docks, canals, machinery, shipbuilding, mining and metallurgy, waterworks, gasworks, sewerage, and electricity. Each subject will be introduced by a short paper, which will be read by the author and discussed by the meeting. A number of visits to works of professional interest have been arranged for each day.

A SYNDICATE has been formed at Ripon for the purpose of carrying out extensive building operations, and to meet the increasing demand for villa residences, hotels, and hydros. Lord Ripon has sold two sites on the west of the city, the one being on the high ground overlooking the cricket-field on the Studley-road, and having a prospect in the direction of Studley Park. Here it is proposed to erect a large residential hotel, which will stand in its own ground of five or six acres, and where, if the corporation are successful in securing the Aldfield Spa, it is hoped sulphur water may be laid on to provide baths for visitors. The twenty-four acres of land purchased from Lord Ripon to the south of the cricket-field is to be laid out for villa residences, and eventually a new road in the direction of Studley may be opened between Skelbank and Bishopthorpe, which would be an alternative route to Fountains Abbey for visitors from Harrogate. The numerous houses being erected in other parts of the city tend to prove that Ripon is steadily growing.

The preliminary contract has been signed for the Tientsin Chin Kiang Railway. The sum named in the agreement is £7,400,000, but it is liable to variation on the report of the surveyors.

At a meeting held on Friday night of the Belfast Cathedral Guild, in connection with the scheme for the proposed cathedral in that city, the Rev. Canon O'Hara stated that £16,000 had been already subscribed, that another £7,000 was needed, and that the foundation-stone would probably be laid in September.

## MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Surveyors' Institution. Annual Meeting at the New Building, 12, Great George-street, Westminster. 8 p.m.  
Royal Institute of British Architects. "Planning and Construction of Board Schools," by T. J. Bailey. 8 p.m.  
TUESDAY.—Society of Arts. "The Revival of Tradesmen's Signs," by J. Starkie Gardner. 8 p.m.  
WEDNESDAY.—Institution of Civil Engineers. Engineering Conference. Address by W. H. Preece, C.B. 10.15 a.m.  
Architectural Association Dinner, Holborn Restaurant. 7 for 7.30 p.m.  
THURSDAY.—Society of Arts. "The Port of Calcutta," by Sir C. Cecil Stevens, K.C.S.I. 4.30 p.m.  
Carpenters' Hall Free Lectures. "Decay and Preservation of Timbers," by Professor T. Roger Smith, F.R.I.B.A. 8 p.m.  
SATURDAY.—Northern Architectural Association. Excursion to Chester-le-Street and Lumley. Edinburgh Architectural Association. Excursion to Arbroath Abbey.

## THE ARCHITECTURAL ASSOCIATION.

JUNE 3rd.—VISIT TO COBHAM HALL, KENT. Train leaves Victoria for Sole-street at 11.45 a.m. Holborn Viaduct, 11.40, or St. Paul's, 11.42. P.O. for 5s. 6d. (includes rail and lunch), to be sent by May 31st to G. A. LANDSOWN, 9, Regent-street, S.W.  
E. HOWLEY SIM } Hon. Secs.  
G. B. CARVILL }

## Trade News.

### WAGES MOVEMENTS.

ABERDEEN.—The operative cabinetmakers have received an advance of a farthing per hour in their wages. Their demand was that those in receipt of 7½d. per hour and under should get a halfpenny of an increase, and those in receipt of 8d. a farthing of an increase.

BOLTON.—A conference took place on Tuesday night between the master stonemasons and operatives' representatives to consider the demand made by the latter for an advance in wages of a penny per hour and certain alterations in the working rules, which would mean increased cost of production to employers. In order to avoid a strike the masters offered a halfpenny per hour increase, making the men's remuneration 9½d. This was refused by the operatives, who insisted on having all that was asked for, and they will consequently strike work next Wednesday. The employers have withdrawn their offer, and are determined to resist the men's demands.

EDINBURGH AND LEITH.—At a mass meeting of joiners, held in the Opretta House, on Monday, it was reported that four additional employers (including Messrs. Mackenzie and Moncur, who employ 220 men) had signed the by-laws granting the workmen's demands. The total number of conceding employers is thus twenty-two, who are employing about 350 workmen. Over 350 workmen have been sent to work at other centres since the strike began. The total number removed from the strike roll is 860, leaving 757. At a mass meeting of plumbers held on the same day in Marshall-street Hall, it was reported that three additional employers had granted the advance of wages, making the total number of conceding employers 33.

GLASGOW.—At a full meeting of master wrights held in the Building Trades' Exchange, Glasgow, on Monday, to discuss the position of the trade in view of the joiners' strike, it was decided after about an hour's discussion that the by-laws should be signed. The men therefore resumed work on Wednesday.

The opening of the new Post-Office at Greenock was performed by Sir Thomas Sutherland, M.P., on Monday. The new Post-office, plans for which were prepared by Mr. W. W. Robertson, her Majesty's Office of Works, Edinburgh, is Renaissance in style, is situated in Cathcart-street, near the Central Station, and has been erected at a cost, including site, of about £20,000.

The will of the late Mr. William Tanner Neve, of Osborne Lodge, Cranbrook, formerly a surveyor, who died on March 8, aged 84, has been proved at £169,334 gross and £157,662 net.

Colonel C. H. Luard attended at Settle, on Friday, relative to an application by the rural district council for permission to borrow £4,870 for the purchase of new buildings for offices and other purposes. There was virtually no opposition to the scheme, which provides for the acquisition of the block of buildings known as the Town Hall, situate in the Market-place, Settle.

The opening of the new park in Plantation district of the burgh of Govan took place on Saturday. The new park, which covers seven acres, and cost (ground included) about £20,000, is situated to the south of Paisley-road West.



## LIST OF COMPETITIONS OPEN.

Leeds—Market Hall and Shops, Kirkgate Market .....	£150, £100, £50.....	The City Engineer, Municipal Buildings, Leeds .....	June 1
Okehampton—Workhouse and Infirmary (11 inmates) .....	£50, £25 .....	Geo. L. Fulford, Solicitor and Clerk, Union Office, Okehampton .....	1
Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks .....	£31 (merged), £20, £10 .....	The Borough Engineer, Salford .....	6
Wakefield—Central Premises .....	£50, £30, and £20 .....	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	30
Buckie—Bridge over Buckie Burn (£1,600 limit) .....	25gs. .....	J. L. Naughton, Clerk to Commissioners, Buckie, N.B. ....	30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75.....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate.....	July 3
Lichfield—Grammar School .....	£20 .....	H. H. Brown, Clerk to Grammar School Governors, Lichfield.....	3
Plumstead—Municipal Buildings and Public Library, Glossop- road (cost £10,000; E. W. Mountford, F.R.I.B.A., Assessor) .....	£100, £75, £50 .....	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead.....	27
Edinburgh—Middlethian County Buildings, Parliament-square..	£100, £75, £50 .....	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh .....	—
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.) .....	£75, £50, £25 .....	G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea.....	—
Totnes—Cottage Hospital .....	£30 (merged), £10 .....	The Chairman, Cottage Hospital Committee, Totnes .....	—
Aldershot—Masonic Hall (£2,500 limit) .....	£30 (merged), £10 .....	John Youd, Secretary, The Triangle, Aldershot .....	—
Hawick—Houses and Cottages .....	£30 (merged), £10 .....	W. Haddon, Solicitor, Sec. Building Co., Hawick .....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Croydon—Schools, Ecclesbourne-road, Thornton Heath .....	School Board .....	H. Carter Pegg, Architect, 6, Sudbury-road, Thornton Heath .....	May 27
Brydekirk—Library Hall .....	Brydekirk Building Club .....	William Thorburn, Secretary, Schoolhouse, Brydekirk .....	27
Merthyr Vale—Fifty-Two Cottages .....	Merthyr Building Club .....	William Dowdell, Architect, Trebarris .....	27
York—Four Houses .....	Parochial Charities Trustees .....	T. Robinson, Fox Inn, Holgate .....	27
Hampton—Alterations to Volunteer Drill-Hall .....	Managers .....	Fredk. G. Hughes, Surveyor, Hampton-on-Thames .....	27
Stonehaven—Cottages, High-street .....	N. Bird .....	D. and J. R. McMillan, Architects, 211, Union-street, Aberdeen .....	27
Warwick—Repair of House at Middle School .....	Madame de las Casas .....	R. C. Heath, Clerk, 1, New-street, Warwick .....	27
Diptford—Stable, &c., Moorcroft Farm .....	Henry Polkinghorn .....	Bourne and Son, Land Agents, Totnes .....	27
Workington—Two Cottages and Stable .....	Mrs. A. M. Anthony .....	W. G. Scott and Co., Architects, Victoria Buildings, Workington .....	27
Bedale—Manse and Two Cottages .....	South Stoneham Union Guardians .....	W. Feachey, Architect, 3, Amber-street, Saltburn .....	27
Washfield—Dwelling House at Middle Hill .....	Cork Electric Tramways Co., Ltd. ....	Wm. Barrons, Deepway, Tiverton .....	27
Wrexham—Alterations to Kitchens at Infirmary .....	Highways Committee .....	H. Croom Johnson, Egerton-street, Wrexham .....	29
Portreath—Four Houses .....	Parks Committee .....	Sampson Hill, Architect, Green-lane, Redruth .....	29
Holyhead—Catholic Schools .....	Joint Stations Committee .....	Brodrick, Lowther, and Walker, Architects, York Chambers, Hull .....	29
Lelant—Residence .....	Gt. Horton Industrial Society, Ltd. ....	Sampson Hill, Architect, Green-lane, Redruth .....	29
Ystrad Mynach—Two Cottages .....	Committee .....	Evan Davies, Fair Grove Cottage, Maesycwmmwr .....	29
Westend—Cook's Room at Workhouse .....	Corporation .....	Mitchell, Son, and Gutteridge, 9, Portland-street, Southampton .....	29
Birtley—Literary Institute .....	W. and H. Smith .....	Liddle and Browne, Architects, Prudential Buildings, Newcastle .....	29
Queenstown—Electric Station Buildings at Inmans Quay .....	Committee of Carmel C.M. Chapel .....	Robert Walker and Son, Architects, 17, South Mall, Cork .....	29
Kirkbride—Restoring Nave of St. Bride's Church .....	Urban District Council .....	Oliver and Dogdshun, Architects, Carlisle .....	29
Rotherham—Excavating for Gas-Mains (766 yards) .....	W. R. Harding and Co. .....	The Borough Surveyor, Council Hall, Rotherham .....	29
Siladeen—Conservative Club .....	Union Guardians .....	J. W. Broughton, Architect, 19, High-street, Skipton .....	29
Middlesbrough—Greenhouse, Potting Shed, &c., at Albert Park .....	Health Committee .....	Frank Baker, C.E., Engineer, Municipal Buildings, Middlesbrough .....	29
Holyhead—Catholic Schools .....	F. G. Purdon .....	Brodrick, Lowther, and Walker, Architects, York Chambers, Hull .....	29
Methlick—New Steading at Longhill .....	Trustees .....	Haddo House Estate Office, Aberdeen .....	30
Wakefield—Roofing, Loading Stage, and Office .....	Corporation .....	The Engineer's Office, Hunt's Bank, Manchester .....	30
Methlick—New Byres at Belnagoak .....	Blackburn Brewery Co., Ltd. ....	Haddo House Estate Office, Aberdeen .....	30
Boston Spa—Residence, &c. ....	County Council .....	W. H. and A. Sugden, Architects, Keighley .....	30
Great Horton—Branch Stores, &c., Lidgate Green .....	North British Railway Co. ....	John Drake and Sons, Architects, Queensbury .....	30
Cheltenham—Reconstruction of Montpelier Baths .....	Rural District Council .....	J. Hall, A.M.I.C.E., Boro' Surveyor, Municipal Offices, Cheltenham .....	30
Tarves—New Byres and Stables at Ironbrae .....	Gt. Northern (Ireland) Railway Co. ....	Haddo House Estate Office, Aberdeen .....	30
Talgarth—Asylum .....	Rev. W. Oliver Williams .....	Giles, Gough, & Trollope, Archts., 23, Craven-st., Charing Cross, W.C. ....	30
Cardiff—Renovation of Bethel Chapel .....	Great Western Railway Co. ....	H. Morgan, Secretary, 84, Paget-street, Grange, Cardiff .....	30
Tarves—New Byres at Cairdseat .....	Gt. Northern (Ireland) Railway Co. ....	Haddo House Estate Office, Aberdeen .....	30
Bootle—Lodge, Derby Park .....	Urban District Council .....	Thos. Cox, Architect, 11, Dale-street, Liverpool .....	31
Abercraze—Schoolroom .....	Guardians of St. Pancras .....	R. J. Lewis, Llwyn-Neuadd, Abercraze .....	31
Evesham—New Shop and Residences, Bridge-street .....	Town Council .....	G. H. Hunt, Architect, Evesham .....	31
Carnborne—Post-Office .....	H.M. Commissioners of Works .....	Oliver Caldwell, F.R.I.B.A., Architect, Penzance .....	31
Groeslon—Minister's House .....	Admiralty .....	J. Elias Jones, Carmel .....	31
Sutton, Surrey—Offices and Fire-Station .....	Great Yarmouth Town Council .....	C. Chambers Smith, Surveyor, Public Offices, Sutton .....	31
Killalee—Rebuilding Tower of Cathedral .....	H. Spencer and Co., Ltd. ....	J. F. Fuller, F.S.A., Architect, Brunswick Chambers, Dublin .....	31
Bradford-on-Avon—Additions to King's Arms Brewery .....	N.E. Holland U.D. Fen School Board .....	W. H. Stanley, A.M.I.C.E., Market House Chambers, Trowbridge .....	31
Sunderland—Administrative Block, Hylton-road .....	Newbury Brewery Co. ....	W. and T. R. Milburn, Architects, 23, Fawcett-street, Sunderland .....	June 1
Elgin—Alterations to the Rising Sun Inn, Bishopmill .....	Urban District Council .....	Sutherland and Jamieson, Architects, 51, High-street, Elgin .....	1
Gateshead—Isolation Hospital, &c., Sheriff Hill .....	Guardians of Blean .....	J. C. Bower, C.E., Borough Engineer, Town Hall, Gateshead .....	1
Bridlington Quay—Pair of Villas, Spring-street .....	Town Council .....	John Kirk and Sons, Architects, Dewsbury .....	1
Dewsbury—Two Semi-Detached Houses, Northfield-road .....	Urban District Council .....	W. S. James, Sec., 77, High-street, Blairstown, Mon. ....	1
Blairstown, Mon.—New Schoolroom, &c., and Heating Chapel .....	Urban District Council .....	P. H. Palmer, M.I.C.E., Borough Engineer, Town Hall, Hastings .....	1
Hastings—Kiosk in Alexandra Park .....	Urban District Council .....	Jas. Bertwistle, Architect, Tackett's-street, Blackburn .....	2
Blackburn—Wine and Spirit Stores .....	Urban District Council .....	W. Probert, 11, 11, New Castle-street, Merthyr Tydfil .....	2
Merthyr Tydfil—Altering & Renovating High-st. Baptist Chapel .....	Urban District Council .....	The County Surveyor, Worcester Chambers, Pierpoint-st., Worcester .....	2
Worcester—Repairs to County Hall Buildings .....	Urban District Council .....	Young and Mackenzie, Architects, 7, Donegall-square, Belfast .....	2
Bangor—Two Villas, Crawfordburn-road .....	Urban District Council .....	Blyth and Westland, Civil Engineers, 135, George-street, Edinburgh .....	2
Leith—Roof, &c., at New Central Station .....	Urban District Council .....	Fenton Geo. Harris, Agent for Managers, U.K. Mon. ....	2
U.K.—Extensions to Higher Grade School .....	Urban District Council .....	A. O. Evans, Architect, Post Office Chambers, Pontypridd .....	2
Lisnaskea—Twelve Labourers' Cottages .....	Urban District Council .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	2
Pontypridd—Additions to County School .....	Urban District Council .....	H. C. M. Hirst, A.R.I.B.A., 30, Broad-street, Bristol .....	2
Dublin—Four Cottages, Victoria Bridge Station .....	Urban District Council .....	J. W. Jones, Architect, Brooklea, Acrefair, Ruabon .....	2
Bristol—School at Luckwell-lane .....	Urban District Council .....	J. S. Moffat, M.S.A., Architect, 53, Church-street, Whitehaven .....	2
Cefn Mawr—Additions to Ebenezer English Baptist Chapel .....	Urban District Council .....	T. A. Buttery and S. B. Birds, Architects, Queen-street, Morley .....	2
Whitehaven—Building and Enlarging Schools .....	Urban District Council .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	2
Morley—Schools, Victoria-road .....	Urban District Council .....	C. J. Dawson, F.R.I.B.A., Public Offices, Barking .....	2
Dublin—Station Building (Timber) Laytown Station .....	Urban District Council .....	John Mackay, Kingswood, Bristol .....	2
Barking—Eighty-Three Cottages, Creeksmouth-lane .....	Urban District Council .....	W. and J. B. Bailey, Architects, 9, Bradford-street, Bradford .....	2
Bristol—School at Moorfields, St. George .....	Urban District Council .....	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N. ....	2
Keighley—Board Schools, &c. ....	Urban District Council .....	Francis Newman and Cox, Surveyors, 5, St. Thomas's-st., Ryde, I.W. ....	2
Highgate, N.—Forty-Eight Houses at North Hill .....	Urban District Council .....	H. Dare Bryan, 38, College Green, Bristol .....	2
Yarmouth, I.W.—Tollhouse on Yar Bridge .....	Urban District Council .....	Raymond Berry, Archt., Arcade Chambers, Commercial-st., Halifax .....	2
Bristol—School at Wells-road, Knowle .....	Urban District Council .....	The Engineer's Office, Paddington Station, London .....	2
Lightcliffe—Five Houses and Shop .....	Urban District Council .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	2
Action, Middlesex—Station .....	Urban District Council .....	The Resident Engineer's Office, Theatre Royal Chambers, Cardiff .....	2
Portadown—Alterations to Iron Roof at Portadown Station .....	Urban District Council .....	F. Whitmore, Architect, Chelmsford .....	2
Cardiff—Carriage Shed at Canton .....	Urban District Council .....	The Office of the Engineer, Reading Station .....	2
Tending—Infirmary Wards (91 beds), at Union House .....	Urban District Council .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	2
Shrivensham—House at Station .....	Urban District Council .....	Browett and Taylor, Surveyors, 9, Warwick-court, Holborn, W.C. ....	2
Winchester—Police Cottage, Morn Hill .....	Urban District Council .....	J. W. Cockrill, Borough Surveyor, Municipal Bldgs., Gt. Yarmouth .....	2
Highgate, N.—Repairs, &c., at Infirmary, Dartmouth Park Hill .....	Urban District Council .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate .....	2
Great Yarmouth—Destructor Buildings and Chimney Shaft .....	Urban District Council .....	The Director of Works Dept., 21, Northumberland-avenue, London .....	2
Balham, S.W.—Branch Post Office .....	Urban District Council .....	J. W. Cockrill, Borough Surveyor, Municipal Bldgs., Gt. Yarmouth .....	2
Porthwstock—Coastguard Buildings .....	Urban District Council .....	D. N. Pape, Surveyor, Lake-road, Keswick .....	2
Corlestone—Shelter Hall, Refreshment Rooms, &c. ....	Urban District Council .....	J. H. Tooley, Clerk, 6, Bridge-street, Boston .....	2
Packington—Farm Buildings .....	Urban District Council .....	J. H. Money, Architect, Newbury .....	2
Keswick—Rebuilding the Woolpack Inn, Main-street .....	Urban District Council .....	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry .....	2
Brothcroft—Enlargement of Barley Sheaf School .....	Urban District Council .....	The Master, Workhouse, Herne Common .....	2
Newbury—Rebuilding the Cock Inn, Shaw .....	Urban District Council .....	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry .....	2
Barry—Refuse Destructor Buildings .....	Urban District Council .....	Arthur Coomber, Borough Surveyor, Town Hall, Kidderminster .....	2
Herne Common—Alterations at Union Workhouse .....	Urban District Council .....	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-st., Westminster .....	2
Barry—Chimney Stack for Refuse Destructor .....	Urban District Council .....	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester .....	2
Kidderminster—Lodge near Infectious Hospital .....	Urban District Council .....	R. B. Dick, Architect, 55, Northumberland-st., Newcastle-on-Tyne .....	2
Wells—House on Asylum Estate .....	Urban District Council .....	J. A. Angell, Surveyor, Council Offices, Beckenham .....	2
Shotley Bridge—Excavating for a Steel Gasholder Tank .....	Urban District Council .....	G. T. Hine, F.R.I.B.A., Archt., 35, Parliament-st., Westminster .....	2
Warrington—Police Buildings, &c. ....	Urban District Council .....	Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton .....	July 27
Beckenham—Technical Institute and Swimming-Baths .....	Urban District Council .....	Ogilvie Duthie, Clerk, School Board Offices, Chapel-street, Salford .....	—
St. Alban's—Isolation Hospital, &c., Hill End .....	Urban District Council .....	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff .....	—
Brighton—Alterations and Additions to Public Library, Museum, and Art Gallery .....	Urban District Council .....		
Salford—School in London-street .....	School Board .....		
Merthyr—Rebuilding New Inn Hotel .....	School Board .....		



## BUILDINGS—continued.

Sheffield—Eight Houses, Goddard Hall-road	Walter Oxley	Hall and Fenton, Architects, 14, St. James's-row, Sheffield	—
East Cottingham—Classroom at Board School	John Thomas Slight, Clerk, East Cottingham	—	—
Morecambe—Alteration of House, Regent-road	Marshall Bros., Architects, Back Crescent, Morecambe	—	—
Rawtenstall—Conversion of Two Cottages into Shops	S. Whittaker and Son, Orchard Jam Works, Waterfoot	—	—
Irthingborough—Three Houses	M. R. Thompson, Architect, Wellingborough	—	—
Seven Sisters-road, N.—Repair and Bedecoration of Woodbury Down Chapel	W. Bradbear and Co., Architects, Canonbury Station, N.	—	—
Morecambe—Alterations of House at Corner of Regent-road	Marshall Bros., Architects, Back Crescent, Morecambe	—	—
Udals—Repairs to Tower and Steeple of Church	Rev. G. F. Maynard, Udale Rectory, Carlisle	—	—
Stalybridge—Clubhouse	Eaton, Sons, and Cantrell, Architects, Ashton-under-Lyne	—	—
Pickering—Alterations, Black Swan Hotel	A. D. Kaye, Architect, 71, Albion-street, Leeds	—	—
London—Proposed Hotel (£20,000)	As Advt.: A. W. Box 465, Willing's, 125, Strand, W.C.	—	—
Tankersley—Chimney (100ft. high)	The Manager, Lidgett Colliery Co., Ltd., Tankersley, Barnsley	—	—
Sheffield—House and Stores at Brewery	Hall and Fenton, Architects, 14, St. James's-row, Sheffield	—	—
Poole—Alterations to Premises	A. and W. Longdon, Waterloo Ironworks, Poole, Dorset	—	—
Barrow-in-Furness—House	E. M. Young, Architect, 90, Duke-street, Barrow	—	—
South Kirby—Five Houses and Shop	Walter E. Richardson, Architect, 28, Bond-street, Leeds	—	—
Arundel—Re-erection of Offices	F. Wheeler and Lodge, Architects, Bank Chambers, Horsham	—	—
Pentraeth—Farmhouse	I. Taylor, Estate Office, Colehill, Holywell	—	—
Nottingham—Improvements to Schools	A. N. Bromley, Prudential Buildings, Queen-street, Nottingham	—	—
Peebles—Volunteer Drill Hall	R. S. Anderson, C.E., County Buildings, Peebles	—	—
Manningham—Twenty-two Terrace Houses	Fairbank and Wall, Architects, Craven Bank Chambers, Bradford	—	—
Bradford—House and Workshop off Manningham-lane	James Young and Co., Architects, 62, Market-street, Bradford	—	—
Gedling—House	John Kirkland, A.R.I.B.A., 19, Caldervale-road, Clapham, S.W.	—	—
London, N.—Alterations to Premises, Caledonian-road	Mallett, Porter, and Dowd, 465, Caledonian-road, N.	—	—
High Wycombe—Business Premises and Residence	Thos. Thurlow, Architect, High Wycombe	—	—
Blackburn—Extension of St. John's Church	T. H. Duerden, Architect, 32, Richmond-terrace, Blackburn	—	—
Cardiff—Alterations to Theatre Royal Hotel	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff	—	—
Hook Norton—Infants' School	Walter E. Mills, A.R.I.B.A., Architect, 12, Horse-fair, Banbury	—	—
Burntisland—Tenement, Somerville-street	B. and A. K. Smith, Ordained Surveyors, 1, Albany-place, Edinburgh	—	—
Duffield—Villa Residence, King-street	Sands and Walker, Architects, Angel-row, Nottingham	—	—
Lanely Hill—Alterations to Jolly Collier's Inn, &c.	B. J. Francis, Architect, Abergavenny	—	—
Harrogate—Two Semi-Detached Houses & Stable, South Drive	Bland and Bown, Architects, North Park-road, Harrogate	—	—
Dalston—Shop, Dwellings, Stabling, &c.	W. Pogson, Architect, 24, Devonshire-street, Carlisle	—	—
Blackburn—Rebuilding 3rd L.A.V. Barracks	Stones and Gradwell, Architects, 10, Richmond-terrace, Blackburn	—	—
Holybourne—Rebuilding White Hart Inn	Reginald A. Crowley, A.R.I.B.A., 22, High-street, Croydon	—	—
Melrose—Alterations at Roxburgh District Asylum	Sydney, Mitchell, and Wilson, 13, Young-street, Edinburgh	—	—
Rochdale—New Infirmary at Dearnley	S. Butterworth and Duncan, Architects, 4, South Parade, Rochdale	—	—
Thornaby-on-Tees—Church	Hicks and Charlewood, Architect, 67, Westgate-road, Newcastle	—	—
Woodford, Essex—School Buildings, Cowslip-road	E. Tidman, Architect, 34, Victoria-street, Westminster, S.W.	—	—

## ENGINEERING.

Deal—Laying Iron Steam Tube (2,900 yards), &c.	Cinque Ports Golf Club	J. Hunter, Golf Links, Deal	May 27
Wood Green, N.—Boring Artesian Well, White Hart-lane	Urban District Council	C. J. Gunyon, A.M.I.C.E., Engineer, Town Hall, Wood Green, N.	27
Forres—Waterworks	Lancashire Asylums Board	G. Gordon and Co., C.E.'s, Inverness	27
Winwick—Siding Extension	Ton Phillip Rhonda Colliery Co.	Robert Curran, C.E., Horsemarket Chambers, Warrington	29
Ton Phillip—Single Line of Railway from Cefn to Ton Phillip	Somerset County Council	Cook and Edwards, Masonic Buildings, Bridgend	29
Watchet—Sea-Wall, &c.	Corporation	C. A. Brereton, 21, Delahay-street, Westminster, London, S.W.	29
York—Widening Holgate Beck Bridge	James' Syndicate, Ltd.	Alfred Creer, City Engineer, Guildhall, York	29
London, E.C.—Speciality Winches of Malleable Iron or Steel	Rural District Council	The Syndicate's Office, 18, Billiter-street, London	30
Clayton—Reservoir, &c.	Commissioners	Milnes and France, Architects, 99, Swan Arcade, Bradford	31
Lancaster—Stone Bridge over Smallhope Burn, Donely Ford	Urban District Council	W. Cumming, Surveyor, Lancaster	31
Clacton-on-Sea—Sea-Defence Works	St. Mary, Islington, Guardians	T. A. Cressy, Surveyor, Clacton-on-Sea	31
Littlehampton—Waterworks at Warmingcamp	Urban District Council	H. Howard, Surveyor, Town Offices, Littlehampton	31
Highgate Hill, N.—Electric Light Installation at Infirmary	St. Mary, Islington, Guardians	Wm. Smith, Architect, 63, Chancery-lane, W.C.	June 1
Christiania—Blasting and Dredging in Harbour	Urban District Council	The Commercial Dept. of the Foreign Office, Whitehall, S.W.	1
Haworth—Four Condensers and Exhauster	General Works Committee	The Gasworks, Haworth, Yorks	1
Ikeston—Deepening Well at Little Hallam Waterworks	District Waterworks	H. J. Kilford, Borough Engineer, Ikeston	1
Ashton-under-Lyne—Open Watercourse	Lorn District Committee	G. H. Hill and Sons, Engineers, Albert-square, Manchester	1
Gloucester—Extension of Water Supply District at Carnock	Parish Council	K. Macrae, Surveyor, 5, Argyle-street, Oban	1
Southery—Pump and Filter-Beds at Ferry	Urban District Council	J. L. Peacock, Manor House, Southery, Norfolk	2
Hunstanton—Water-Tower and Tank at Waterworks	Committee	Stevenson and Burstal, Engineers, 38, Parliament-st., Westminster	2
Manchester—Electric Installation at City Art Gallery	Great Western Railway Co.	The City Surveyor, Town Hall, Manchester	3
Burgess Hill—Pipelining (4,270 yards of 6in. and 7in.)	Barton-u.-Irwell Union Guardians	The Secretary, Burgess Hill Water Co., Sussex	5
Newbridge—Subway under Railway Station	Union Guardians	The Resident Engineer, Theatre Royal Chambers, Cardiff	6
Patrioic—Wiring, Lamps, and Fittings, Workhouse Infirmary	High Welwyn, Ltd.	G. R. Peers, A.I.E.E., Electrical Engrs., 96, Deansgate, Manchester	6
Billerica—Sinking Well	Blackwell Rural District Council	The Master of the Workhouse, Billericay, Essex	6
Harmer Green—Deepening and Enlarging Well	Rural District Council	R. E. Middleton, 17, Victoria-street, Westminster	7
Pinxton—Water-Supply Works	Vestry of St. Mary, Battersea	H. Walker, A.M.I.C.E., Newcastle Chambers, Nottingham	7
Stroud—Steam Road-Roller (10-ton)	Guardians	J. E. Haynes, C.E., Surveyor, Union Offices, Stroud	7
Battersea, S.W.—Electric Lighting Works	Cuckfield Rural District Council	Prof. Alex. B. W. Kennedy, 17, Victoria-street, Westminster	7
Halifax—Electric Lighting, Workhouse and Union Offices	Rugby Rural District Council	Shepherd & Watney, Consulting Engineers, Greek-st. Chmbrs, Leeds	8
Balcombe—Sinking Well and Heading	Margam Urban District Council	Jas. Mansergh, Engineer, 5, Victoria-street, Westminster	8
Newbold-upon-Avon—Cast-Iron Water-Mains (1½ mile of 3in.)	Lancashire and Yorkshire Ry. Co.	T. W. Willard, Surveyor, Rugby	8
Port Talbot—Main (930 yards of 6in.) in Cwm-Werndri Valley	Hackney—Electricity Supply Mains	Taylor, Sons, & Santo Crimp, Engrs., 27, St. George-st., Westminster	10
Bolton—Widening Line through Bolton and Construction of New Goods and Passenger Stations	London, S.W.—Twin-Screw Fire-Float	The Engineer's Office, Hunts Bank, Manchester	13
Hackney—Electricity Supply Mains	Shotley Bridge—Gasholder Tank and Single-Lift Gasholder	Robert Hammond, M.I.C.E., 64, Victoria-street, S.W.	13
London, S.W.—Twin-Screw Fire-Float	Co. Durham—Deviation of Branch Railway	The Clerk's Department, County Hall, Spring Gardens, S.W.	13
Shotley Bridge—Gasholder Tank and Single-Lift Gasholder	Chartham Downs—Drainage Works, Reservoirs, &c., at Kent County Lunatic Asylum	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester	14
Co. Durham—Deviation of Branch Railway	Dudley—Electric-Lighting Plant	Charles A. Harrison, Engineer, Central Station, Newcastle-on-Tyne	14
Chartham Downs—Drainage Works, Reservoirs, &c., at Kent County Lunatic Asylum	Christchurch—Widening Stone Bridge across River Avon	W. J. Jennings, 4, St. Margaret-street, Canterbury	15
Dudley—Electric-Lighting Plant	Shanghai—Electric Trolley Tramways (23 miles)	Wilson and Story, 66, Victoria-street, Westminster	17
Christchurch—Widening Stone Bridge across River Avon	Naples—Harbour and Docks (estimated cost £162,400)	W. J. Taylor, County Surveyor, The Castle, Winchester	19
Shanghai—Electric Trolley Tramways (23 miles)	Thornton—Railway Siding to Dogton Colliery	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	30
Naples—Harbour and Docks (estimated cost £162,400)		The Public Works Department, Rome	July 10
Thornton—Railway Siding to Dogton Colliery		Harry W. Lewin, 154, West Regent-street, Glasgow	—

## FENCING AND WALLS.

Elgin—Walls, Railings, and Gates, Bureghad School	Lorn District Committee	A. and W. Reid and Wittet, Architects, Elgin	May 29
Oban—Parapet and Retaining Walls in Glent Nant	Southgate Urban District Council	K. Macrae, Surveyor, 5, Argyle-street, Oban	June 1
Palmer's Green, N.—Oak Fencing (100 rods) at Tile Kiln-lane	Lorn District Committee	C. G. Lawson, Surveyor, Council Offices, Palmer's Green, N.	1
Oban—Repairing Walls on Luing Island	City Council	K. Macrae, Surveyor, 5, Argyle-street, Oban	1
Troy—Wall to Inclose Graveyard	School Board	J. Wilson, Ballycassidy	3
Bristol—Boundary Walls, &c., Rodney-place, Clifton	Urban District Council	T. H. Yabicom, M.I.C.E., Engineer, 63, Queen-square, Bristol	5
Bradford—Rebuilding Walls at School Board Office	Wandsworth Burial Board	C. H. Hargreaves, Architect, Exchange Buildings, Bradford	5
Tottenham—Boundary Wall Fencing and Convenience, Chestnut Estate	Joint Hospital Board	P. E. Murphy, Engineer, 712, High-road, Tottenham	6
London, S.W.—Walls, &c.	Joint Hospital Board	The Office of the Board, Town Hall, Wandsworth	6
Ulverston—Raising Stone Wall at Hospital	Joint Hospital Board	Chas. W. Dean, Clerk, 3, Benson-street, Ulverston	14
Ulverston—Corrugated Iron Fence at Hospital	Joint Hospital Board	Chas. W. Dean, Clerk, 3, Benson-street, Ulverston	14
Ulverston—Unclimbable Railing at Hospital		Chas. W. Dean, Clerk, 3, Benson-street, Ulverston	14

## FURNITURE AND FITTINGS.

Leigh, Lancs—Cooking Apparatus Fittings, Astley Sanatorium	Leigh Joint Hospital Board	Banks, Fairclough, and Stevens, Architects, Leigh	—
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## PAINTING.

Warrington—Fire-Engine House	Council	Thomas Longdin, Borough Surveyor, Town Hall, Warrington	May 27
Wingate—Primitive Methodist Church and Schools	Kingston-upon-Hull School Board	Thos. Greenwell, Front-street, Wingate	27
Hull—Eleven Schools	Guardians	D. Jno. O'Donoghue, Clerk, School Board Offices, Albion-st. Hull	30
Barnet—Workhouse and Infirmary	Berks and Bucks County Councils	The Master, Workhouse, Barnet	30
Heywood—Technical School	Urban District Council	W. H. Meadowcroft, Town Clerk's Office, Mun. Bldgs, Heywood	30
Datchet—Iron Bridge spanning the Thames	Town Council	Joseph Morris, County Surveyor, Reading	30
Exmouth—Public Lamps, Shelter Seats, and Public Seats (Three Years)	Midland Railway Co.	W. G. Harding, Surveyor, Exmouth	31
Richmond, Surrey—Workmen's Dwellings, Manor-grove	St. Mary (Islington) Vestry	The Borough Surveyor, Town Hall, Richmond, Surrey	31
Manchester, Belle Vue, and Staveley—Goods and Locomotive Buildings, &c.	Trevethin School Board	The Company's Architect, Cavendish House, Derby	June 2
London, N.—Repairs, Painting, &c., at Public Gardens	Co-operative Society, Ltd.	J. Patten Barber, Surveyor, Vestry Hall, Islington	2
Pontypool—Board School, George-street	Trevethin School Board	H. Blythway, Clerk, Pontypool	3
1 Littleborough—Five Shops and Sixty-three Cottages	Trevethin School Board	The Society's Offices, Hare Hill-road, Littleborough, Lancs	3
Aberystwyth—Board School	Trevethin School Board	H. Blythway, Clerk, Pontypool	3
Cwmfrwdder—Infants' Board School		H. Blythway, Clerk, Pontypool	3



## PAINTING—continued.

Kingstown—Main Passage of Town Hall.....	Urban District Council .....	The Clerk's Office, Town Hall, Kingstown, Ireland .....	June 5
Southall—Schools.....	St. Marylebone Guardians .....	H. T. Dudman, Clerk, Northumberland-st., Marylebone-road, W. ....	17 5
London, E.C.—Artisans' Dwellings, Stoney-lane .....	Improvements Committee .....	The Engineer to the Corporation, Guildhall, E.C. ....	9
Macclesfield—Two Gasholders at Tytherington .....	Gas Committee .....	J. Newbigging, Engineer, Town Hall, Macclesfield .....	27
Batley—Methodist Free Church and Sunday School, Talbot-st. ....	Cricket Club .....	A. Shaw, 69, Commercial-road, Batley.....	—
Harrogate—Pavilions, Cricket Stands, &c. ....		T. Hindell, Sec., 13, Market-place, Harrogate .....	—

## PLUMBING AND GLAZING.

Dundalk—Glazing Carriage Shop Roof (6,096sq.ft.).....	Gt. Northern (Ireland) Railway Co. ....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ...	May 19
Bedminster—Luckwell School .....	Bristol School Board .....	H. C. M. Hirst, A.R.I.B.A., 80, Broad-street, Bristol .....	June 5
Pinner—Plumbing Work at Moorfields School, St. George .....	School Board .....	John Mickey, Kingwood, Bristol .....	5
Bristol—Wells-road School, Knowle .....	School Board .....	H. Dare Bryan, 28, College-green, Bristol .....	11 6

## ROADS AND STREETS.

Guisborough—Street-making in Cleveland-street .....	Urban District Council .....	B. Dunning, Surveyor, Guisborough .....	May 27
Ardee—Road Maintenance (One Year) .....	Rural District Council .....	Thomas B. Dromgoole, Clerk, Board-room, Workhouse, Ardee .....	27
Pinner—Two New Footpaths in Cemetery .....	Parish Council .....	C. A. Woodbridge, Surveyor, Pinner, Middlesex .....	27
Coventry—Paving Works .....	Corporation .....	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry .....	29
Barnet—Making-up Sebright, Puller, and Calvert Roads .....	Urban District Council .....	W. H. Mansbridge, Surveyor, 40, High-street, Barnet .....	30
Blackheath and Lewisham, S.E.—Kerbing and Paving Works .....	Lewisham Board of Works .....	The Surveyor's Department, Lewisham Town Hall, Catford, S.E. ....	31
Willesden, N.W.—Wood Paving in Willesden-lane (4,818 yards) ..	District Council .....	O. Claude Robson, Eng., Public Offices, Dyne-rd., Kilburn, N.W. ....	31
Barry—Road Works .....	Urban District Council .....	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry, Glam. ....	30
Greenwich—Paving Portion of Bridge-street and Church-street ..	Board of Works .....	The Board's Offices, 141, Greenwich-road, Greenwich .....	31
with Norwegian Granite Cubes and Jarrah Wood Blocks .....	Urban District Council .....	Alexander G. M'Beath, A.M.I.C.E., Surveyor, 4, School-road, Sale ..	31
Sale—Making-up Streets .....	Corporation .....	H. A. Winsor, Town Clerk, Clattera House, Kingston-upon-Thames ..	31
Kingston-upon-Thames—Tar-Paved Footpaths (6,000sq.yds.) ..	Rural District Council .....	T. Watkins, Clerk, Club Chambers, Putney .....	31
Putney—Widening Cwm-road (300 yards) .....	Town Council .....	A. Comber, Borough Surveyor, Town Hall, Kidderminster .....	31
Kidderminster—Kerbing and Channelling Vine-street .....	C. T. D. Acland, Bart. ....	E. H. Harbottle, F.R.I.B.A., Architect, Council Chambers, Exeter ..	31
Bude—New Streets, and Laying-out Building Land .....	Rural District Council .....	J. W. Riggs, Highway Surveyor, Fanshawe-street, Hertford .....	31
Hertford—Road Repair (Nine Months) .....	Works Committee .....	George Fitton, Borough Surveyor, Town Hall, Basingstoke .....	31
Basingstoke—Making-up Deep-lane .....	Urban District Council .....	W. P. Robinson, A.M.I.C.E., Council Office, Skelton-in-Cleveland ..	31
Skelton-in-Cleveland—Reconstructing John and Thomas-streets ..	Urban District Council .....	Henry Layton Staffarth, Clerk, Council Offices, Bognor .....	June 1
Bognor, Sussex—Limestone Tar Paving (1,885 yards) .....	Streets Committee .....	F. Baker, C.E., Engineer, Municipal Buildings, Middlesbrough .....	1
Middlebrough—Repairing Streets .....	Local District Committee ..	K. Macrae, Surveyor, 5, Argyll-street, Oban .....	1
Oban—Forming Access Road at Blackmill Bay, Luine .....	Essex County Council .....	Percy J. Sheldon, A.M.I.C.E., Surveyor, County Offices, Chelmsford ..	3
Chelmsford—Kerb, &c. ....	Urban District Council .....	C. Munckton, Surveyor, Council Offices, Wimbome .....	3
Wimbome—Road Works .....	Urban District Council .....	P. E. Murphy, Engineer, 712, High-road, Tottenham .....	6
Tottenham—Repairing Tar and Asphalt Paving .....	Rowley Regis U.D.C. ....	Daniel Wright, Clerk, Old Hill, Staffs. ....	7
Old Hill, Staffs.—Forming and Draining Banister-street .....	Urban District Council .....	Thos. R. Smith, Surveyor, Market Hill, Kettering .....	7
Kettering—Completion of Twenty-Two Private Streets .....	Glamorgan County Council ..	The County Surveyor's Office, Town Hall, Bridgend .....	7
Cardiff—Kerbing Footways on Main Roads .....	Vestry .....	W. C. Gow, C.E., Surveyor, Vestry Hall, Maxey-road, Plumstead ..	7
Plumstead—Paving Part of Ennis-road and Roydene-road .....	Urban District Council .....	G. Somers Matthews, A.M.I.C.E., 35, High-street, Dorking .....	9
Dorking—Making-up Rother-road .....	Metropolitan Asylums Board ..	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C. ....	15
London, S.W.—Asphalting Works at S.W. Fever Hospital .....		Marler and Co., Surveyors, 95a, Gloucester-rd., South Kensington ..	26
Cheriton, Kent—Roads (1,320ft.), &c., Ashley Grange Estate ..		H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff .....	—
Cadroxton—Roads and Sewers on Witchill Estate.....			

## SANITARY.

Swindon—Latrines at King William-street Schools .....	Highways Committee .....	W. H. Read, M.S.A., Architect, Corn Exchange, Swindon .....	May 27
Eccles—Sewering & Paving Joseph-st. & Parrin-lane at Winton ..	Urban District Council .....	Arthur C. Turley, Borough Surveyor, Town Hall, Eccles .....	29
Rotherham—Sewering and Metalling Ward-street .....	Board of Works .....	The Borough Surveyor, Council Hall, Rotherham .....	29
Chingford—Sewer, &c. ....	Urban District Council .....	W. Stair, Surveyor, Chingford .....	29
Limehouse, E.—Galvanised-Iron Pails for House Refuse (500) ..	Willesden District Council .....	S. G. Ratcliff, Clerk, District Board Offices, White Horse-street, E. ....	30
Kilburn, N.W.—Rebuilding Sewer in Carlton Vale .....	Rural District Council .....	Claude Robson, M.I.C.E., Public Offices, Dyne-rd., Kilburn, N.W. ....	30
Elstree—Pipe Sewer .....	Urban District Council .....	W. H. Mansbridge, Surveyor, 40, High-street, Barnet .....	31
Guiseley—Pipe Sewer .....	Highways Committee .....	H. A. Johnson, M.I.C.E., 14, The Exchange, Bradford .....	31
Halifax—Division of Hebble Brook at Salterhebble .....	Urban District Council .....	E. R. S. Escott, C.E., Borough Engineer, Town Hall, Halifax .....	31
Alnwick—Sewers, &c. (2,900 yards) .....	Urban District Council .....	Geoffrey Wilson, Town Surveyor, U.D.C. Offices, Alnwick .....	June 1
Lymington—Drainage Works at the Cemetery .....	Urban District Council .....	F. F. Jones, Borough Surveyor, 70, High-street, Lymington .....	1
Newburn-on-Tyne—Extension of West Newburn Sewer Outfall ..	Wycombe Rural District Council ..	Thomas Gregory, Surveyor, Newburn-on-Tyne .....	2
Princes Risborough—Sewers, &c. ....	Urban District Council .....	Taylor, Sons, and Santo Crimp, Engineers, 27, Gt. George-st., S.W. ....	3
Slough—Sewer, &c. ....	King's Norton & Northfield U.D.C. ....	W. W. Cooper, Surveyor, 1, Mackenzie-street, Slough .....	3
King's Norton—West Heath Sewerage Scheme .....	Town Council .....	A. W. Cross, Engineer, 23, Valentine-rd., King's Hth., Birmingham ..	3
Pembroke Dock—Sewerage Works .....	School Board .....	Beeley, Son, and Nichols, Engineers, 11, Victoria-st., Westminster ..	3
Halifax—New Conveniences at Siddal School .....	Urban District Council .....	W. H. Ostler, Clerk, 22, Union-street, Halifax .....	5
Brierfield—Sewering and Flagging Mount and Hill Streets .....	Urban District Council .....	Jas. T. Landless, A.M.I.C.E., Station Buildings, Nelson .....	5
Tottenham—Surface-Water Culvert in Broad-lane and West .....	Urban District Council .....	P. E. Murphy, Engineer, 712, High-road, Tottenham .....	6
Green-road, and Gin. Water Main in West Green-road .....	Urban District Council .....	P. E. Murphy, Engineer, 712, High-road, Tottenham .....	6
Tottenham—Surface-Water Culvert, &c., Chestnuts Estate .....	Rural District Council .....	J. B. Everard, M.I.C.E., Engineer, 6, Millstone-lane, Leicester .....	13
Market Harborough—Sewers, &c. (2,395 yards) .....	Guardians .....	Keith D. Young, Architect, 17, Southampton-st., Holborn, W.C. ....	15
Hampstead—Redrainage at Workhouse, East End .....	Llantrisant, Llantwit Fardre R.D.C. ....	Gomer S. Morgan, Surveyor, School-street, Pontyclun .....	—
Edmondstown—Stoneware Pipe Sewers (1,653 yards of 9in.) ..			

## STEEL AND IRON.

Copenhagen—Rails and Fastenings (4,700 tons) .....	Danish State Railways .....	The Engineer-in-Chief, 11, Colbjørnsensgade, Copenhagen, V. ....	May 27
Goole—Steel Girders, &c., at Gasworks, Doyle-street .....	Urban District Council .....	The Engineer's Office, Gasworks, Goole .....	27
London, S.W.—Permanent-Way Materials .....	Uganda Railway Committee .....	The Crown Agents for the Colonies, Downing-street, S.W. ....	30
Salford—Steel Rails, &c. (270 tons) .....	East Indian Railway Co. ....	L. C. Evans, Town Clerk (pro tem.), Town Hall, Salford .....	31
London, E.C.—Galvanised Ironwork, Steel Plates, Bars, &c. ....	Gas Co. ....	A. P. Bunstan, Secretary, Nicholas-lane, London, E.C. ....	31
Tonbridge—Cast-Iron Pipes (360 tons) .....	Corporation .....	James Donaldson, Secretary and Engineer, Tonbridge .....	June 2
Exeter—Cast-Iron Pipes (1,700 tons) .....	Urban District Council .....	Donald Cameron, City Surveyor, 18, Bedford-circus, Exeter .....	5
Trichinopoly, India—Pipes, Specials, and Fittings for Water-works Extension ..			
Wadebridge—Cast-Iron Pipes (350 tons of 6in., 4in., and 3in.) ..		Henry S. King and Co., 65, Cornhill, London .....	7
		Geo. H. Harris, Engineer, Wadebridge .....	—

## STORES.

Newmarket—Metalling (2,000 tons) .....	Urban District Council .....	S. J. Ennion, Clerk, Deva Chambers, Newmarket .....	May 27
Manchester—Flags, Kerbs, and Crossing Setts .....	Highways Committee .....	The Chief Clerk, Highways Department, Town Hall, Manchester ...	27
East Grinstead—Road Materials .....	Urban District Council .....	R. Wilds, Surveyor, Council Offices, East Grinstead .....	29
Cleckheaton—Stone Flags, Stoneware Pipes, Gullies, &c. (1 Year) ..	Urban District Council .....	J. Armistage, Clerk, Town Hall, Cleckheaton .....	29
Maidstone—Road Materials .....	Urban District Council .....	J. F. Bunting, Fair Meadow, Maidstone .....	30
Wolverhampton—Road Materials .....	Tramways Committee .....	T. W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	31
Christiana—Portland Cement (900 barrels) .....	State Railways Administration ..	Overingenjörens Kontor, Levanger, Norway .....	31
Kingston-upon-Thames—Granite (3,000 tons) .....	Corporation .....	H. A. Winsor, Town Clerk, Clattera House, Kingston-upon-Thames ..	31
Desborough—Granite for Road Metal (300 tons) .....	Urban District Council .....	D. J. Diver, Surveyor, Council Offices, Desborough .....	31
Levenshulme—Limestone Chippings, Artificial Flags, &c. (1 Yr.) ..	Urban District Council .....	James Jepson, District Surveyor, 8a, Tiviot Dale, Stockport .....	June 3
Pershore—Stone for Repair of Highways (One Year) .....	Rural District Council .....	Arthur E. Baker, Clerk, Pershore, Worcestershire .....	6
Branksome—Granite (275 tons) .....	Urban District Council .....	J. Newman, Surveyor, 3, Pennyson Bldgs., Ashley-rd., Branksome ..	6
Wolverhampton—Granite Setts (5,700 tons) .....	Streets Committee .....	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	30

## CHIEFS.

The Accomb Board Schools, York, are being warmed and ventilated by means of Shorland's patent Manchester grates and patent Manchester stoves, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

Lady Aberdare opened at Mountain Ash, on Monday, a new public hall and institute erected by the workmen, at a cost of £9,000, on ground leased from Lord Aberdare at a nominal rent. Mr. D. Lloyd, of Mountain Ash, was the architect, and Messrs. C. Jenkins and Sons, of Porth, were the builders.

Colonel C. H. Luard, an inspector of the Local Government Board, held an inquiry on Friday at the town-hall, Salford, with reference to an application of the corporation for permission to borrow £5,822 for electric-lighting purposes, and £4,000 for the building of a public hall, library, and reading-room at Irlams-o'-th'-Height.

The mayor of Swansea has formally opened the Victoria Nurses' Home erected in connection with the Swansea General Hospital, at a cost of £1,800, in honour of the Queen's Diamond Jubilee.

A new hotel, "The Ocean," has just been opened at Sandown (I.W.) from the designs of Mr. Lewin Sharp. It has been magnificently furnished as a country house, and special attention has been paid to the sanitary and heating arrangements, Messrs. C. P. Kinnew and Co. being responsible for the latter. The dining-hall is furnished in Chippendale style, and is an exact copy of the Queen's private dining-room at Windsor, whilst other suites are furnished in pure Louis XV. style, the furniture in the drawing-room being actually of that period. An important feature is that in addition to the Royal suite there are, on each floor, bedrooms, sitting and bathroom, which can be shut off from the rest of the hotel to form a suite in itself. The builder is Mr. Jas. Hayden, of Sandown.

Mr. W. A. Ducat, Local Government Board Inspector, held an inquiry at the Oldham Town Hall, on Friday, into the application of the Corporation for power to borrow £14,209 for the erection of refuse destructors at Hollinwood and Robin Hill, and £12,335 for the erection of public baths at Hathershaw and Lowermoor.

At the last meeting of the London Sanitary Committee, the scheme of Mr. Edwin T. Hall, F.R.I.B.A., for the extension and completion of the Manston Infectious Hospital was adopted, and he was instructed to prepare detailed plans and specifications. Over 300 additional beds will be provided, besides extra accommodation for the resident staff.

The Board of Trade have confirmed an order, intitled the Merthyr Tydvil Railway Order, 1899, authorising the construction of light railways in the counties of Glamorgan and Brecon, between Vaynor Dowlais and Merthyr Tydvil.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### REPLICAS.

**R**EPETITION is frequent in all artistic work, and a great deal that an architect does may be placed under this description. When he designs a row of houses for an estate, he finds it economical to build on the same plan and elevation, though it is now, happily, a custom to vary the latter a little. His scheme for a large hospital or collegiate establishment is largely made up of repetition. It would be easy to write a discourse on the economy and moral influence of repetition in house-building as it affects the individual and the community. There is an ethical as well as an artistic side to the question, which even the speculative builder, sordid as he is, can ill afford to despise. In many of the recently developed building estates round London, the idea is prevalent that variety is not merely charming, but of some pecuniary value; men and women of differing habits and tastes find it easier to select a dwelling that will suit them from among many of varying types: and it has been long a marvel why mechanical repetition in house-building should have so persistently prevailed, to the intent, as it would seem, of showing that every individual is cast in the same mould. A number of houses built on the like plan and of identical size, in which the same fittings and details can be multiplied, is cheaper to build: there is less setting out, less labour, and a saving of material. Machinery has aided in the production of repetition in building, so that, in spite of all that can be urged against it, repetition will always be a factor in modern building which the architect has to reckon with. So much from the commercial point of view.

The necessity of repetition also arises from the requirements of modern buildings designed for a large number of people. Take as an example a large school or college, or a hospital: it is made up mainly of units—of students' rooms and dormitories, or of pavilions of wards for the sick. There is no object gained in varying these parts, at least from an economical view. The architect can, indeed, in his grouping and design give variety; he can make this room wider or longer; he can throw out a large bay in certain wards or day-rooms, and so avoid monotony. This entails extra thought and labour on his part, not appreciated as it ought to be; but it is an artistic protest against repetition. Dislike it as we may, the repeating or duplication of features cannot be avoided. Every class of building repeats itself as soon as there is nothing further new to introduce. Directly a plan is perfected, there is little more to do than to repeat it; so it is that our churches, more than all other buildings, show so little variety in their main parts. The old 16th-century type of church found many copyists, the same type with slight variations appearing in every county. Has it not been the same with house-building? We can point to a few recognised forms of plan in the terrace or street-dwelling, and some well-worn types of gabled houses, the Manor-house and Tudor Hall plans which have all been imitated. This quiescent condition of design reached, there is little to add: the architect can vary his models within certain limits; but, on the whole, he has to be content to repeat general forms and features. Repetition implies too often poverty of thought, as we find in the imitations we meet of the old 18th-century brick style, with its plain sash windows and

large stacks of chimneys; still more in the imitations of Gothic churches in the earlier part of this century, where naves and lean-to aisles were copied with the most nauseating likeness, and a future generation will regard with similar feelings our replicas of "Queen Anne" and Neo-Renaissance which are being repeated in every suburb and in every street.

No doubt the necessity of repeating buildings, or their plans and external features, have, to a large extent, abetted the copyist. He has a fair excuse to make to Mr. A., who charges him with a flagrant copyism of his design. He can say that his building was only a copy of some other building; that, in point of fact, there was little to choose, the plan only embodying the usual arrangements, leaving little to vary in the elevations. In short, he can argue that between legitimate adaptation and imitation there is very little margin: that no one can charge another with plagiarism if he cannot prove his sole right to use a certain plan or arrangement of features. And no doubt it would be difficult to establish a claim for absolute originality.

In addition to repetition in the larger sense of the term, the replication of parts is common. Many large buildings like hospitals duplicate themselves on each side of a centre axis, and to this extent the work of the architect is reduced. One side is a repeat of the other in its chief parts and features. Such replication is a source of unity and power in all great buildings, and the architect who studiously neglects it would signally fail in producing an impression. Every portico, every west front of a cathedral, is an instance of symmetrical replication of parts, but there are limits to its use. There are some plans that cannot be duplicated: they do not admit of an axial distribution of parts, many municipal office blocks, baths and washhouses, technical schools, hotels, and private residences are often better arranged unsymmetrically; and the attempt to place the entrance in the centre and to arrange two wings would be affectation. The artistic and ingenious planner is never at a loss when to adopt the first or second of these arrangements. He regards his requirements, the number and sizes of his rooms, their relative importance to each other, and determines which principle to adopt; he can make his chief masses cohere and group together quite as well with a tower or assembly-room on one side, with the other lesser parts leading up to it. Nor does his composition lose by this un-bilateral arrangement: he emphasises his most important hall or entrance, and disposes his buildings in such a manner as to express the relation of parts to the whole. Of recent examples of the bi-lateral or axial design we may mention Mr. Aston Webb's able design for the Cromwell-road front of the Victoria and Albert Museum, a building in which the conditions of plan called for an axial arrangement, and where a number of large courts could be duplicated, and also his design for the Britannia Royal Naval College, Dartmouth; or Mr. J. M. Brydon's New Government Offices design. In these buildings the rooms or offices of similar size and of equal importance could be planned in halves on each side of a main entrance.

There is another aspect of repetition or replication that may be briefly touched upon—its relation to remuneration of architects. It is considered reasonable that in charges for designs repetitions of plan or design should be on a lower scale than for buildings where such do not occur; and this question of remuneration is a frequent one made by architects who have prepared designs in which similar blocks are repeated, like labourers' cottages, houses on building estates, and the like. Or an architect has prepared quantities for several blocks of houses of the same design, and he naturally inquires as to what he should

charge. In this connection we may refer to the revised Schedule of Charges adopted by the Institute some time ago, and referred to in our pages. Clause 4 of this schedule states: "When several distinct buildings, being repetitions of one design, are erected at the same time from a single specification, and one set of drawings and under one contract, the usual commission is charged on the cost of one such building, and a modified arrangement made in respect of the others; but this arrangement does not apply to the reduplication of parts of one building undertaking, in which case the full commission is charged on the total cost." "Several distinct buildings, repetitions of one design," will apply to a number of isolated pavilions for a hospital, dwelling-houses and labourers' cottages in distinct blocks erected from a single set of plans and under one contract; but if there are different contracts for each block, the arrangement will not hold. The question is a difficult one. In many schemes there are a number of distinct buildings of the same design, but connected by corridors with the central block, that may be regarded more as reduplication of parts. In this case the rule will hardly apply. Then as to the modified charge to be made for the other buildings. The only satisfactory course seems to be for the architect to agree with his clients as to the terms at the onset.

### ESTIMATES.—VIII.

MASON.

**I**N the practice of measuring and estimating masons' work there are many differences, and these have to be considered. In large works where the Mason's bill is important, the practice is to price the work in detail or at the foot cube, separating all labours on it. The items give the stone and labour separately; but in many bills the custom is to price the work at per foot cube, including all labours. The latter plan saves trouble and calculation, and for ordinary stonework is generally trustworthy. The experienced builder or estimator can, no doubt, readily apportion the amount of labour on any particular class of work and the value to be put on it. If sketches are given of the section or mouldings, as in stone sills, mullions, plinths, &c., the items may be fairly priced in this way. Many contractors do not trouble to price the labour items, but take the items of cube stone at a price which they think will pay for labour. This rough method is not a reliable method of estimating, especially if the builder does not examine the drawings and details.

Mr. Leaning, whose valuable "Notes" are worth the study of all estimators, observes as to the modes of taking stonework: "Probably the most exact method, and the one which can most safely be priced, is the measurement of the stone and all the labour on it, presenting them separately in the bill. The experienced estimator will frequently price the cube stone at a rate to include all labours; but he will look through the list of labours before he does so, generally to see what proportion of moulded work they include." By proceeding to price the labours first, the prices will be often found, as this writer says, too high for contract work. The "stone and all labour" is frequently used, the different kinds of labour being separated as far as possible; but this plan is apt to lead to confusion.

Of course, the student in estimating should know the meaning of terms used by the surveyor, such as "half-sawing" or "beds and joints," "plain face," "sunk beds," "sunk face," "circular," and "circular-circular" work, &c. Half-sawing is usually taken to the back and faces for sunk or moulded stonework or to faces to which no other labour is taken.

"Half-sawing" means the surface divided by the saw on each of the pieces of stone.



The rough block from quarry is thus sawn into rough cubes. Formerly half-sawing was taken to all the six faces of the original cube, the plain work being measured over these sawn surfaces in addition where necessary. Surveyors now usually call these surfaces "half-bed" or "half-joint." Beds and joints are measured per foot super., and described as "one surface measured for two," equivalent to labour on the four sides of stone. Thus a bed and joint is taken to each stone, equal to half-bed or joint on four out of the six surfaces of the cube, or top and bottom and two sides.

In estimating stonework by the foot-run, stone and labour included, the scantlings must be taken into consideration where the labour is the same. The pricing must be obtained by comparing the sectional area. A stone sill, 10in. by 6in. = 60in. area, would be equal in price to another 12in. by 5in. In estimating labour on stone, the relative sectional area must be made the basis of the calculation. The proportion of beds and joints to each cubic foot of stone varies. In Classic or Renaissance work  $1\frac{1}{2}$  superficial foot to each cubic foot is considered reasonable, and for Gothic work 2ft. to each cubic foot.

The relative labour or cost would be simplified if a decimal for each kind of stone was given, as Laxton has done for a few stones, taking Portland stone as a basis. Thus, if the sawing and setting to beds and joints per foot super. is for Portland 1.0, that of Bath would be about 0.6; Hoptonwood 1.4 for plain work. The labour on Bath stone is 40 per cent. less than that on Portland; Yorkshire stone 25 per cent. more.

In pricing stone, the cost of the blocks as regards size, thickness of bed, the distance of quarry from building, cost of carriage, unloading, and labour have to be taken into account. Where the quantity of stone required is considerable, the contractor will find it more economical to get an estimate from the quarryman, or the stone can be worked at the quarry, as for a spire or turret. Quarry-worked stone is largely used, and is sent direct from the quarries ready for fixing. The labour on Bath stone is about half that on Portland.

The following are given in Laxton for Bath stone:—Random blocks, per foot cube:—Corngrit, Corsham, &c., Paddington High Level, 1s. 6d.; at Nine Elms, 1s. 6 $\frac{1}{2}$ d. Selected blocks, 1d. per cube foot extra. Blocks cut to given sizes, rough from the saw, 4d. to 5d. per foot cube additional.

The quarry prices for labour on Corsham Down stone, supplied by the Bath Stone Firms, Ltd., are:—

	£	s.	d.
Sawn face ..... per foot super.	0	0	1 $\frac{1}{2}$
Beds and joints ..... ditto	0	0	2
Sunk work ..... ditto	0	0	3 $\frac{1}{2}$
Ditto rebated ..... ditto	0	0	3 $\frac{1}{2}$
Ditto circular ..... ditto	0	0	5 $\frac{1}{2}$
Ditto sunk ..... ditto	0	0	8 $\frac{1}{2}$
Plain face ..... ditto	0	0	2 $\frac{1}{2}$
Ditto circular ..... ditto	0	0	3 $\frac{1}{2}$
Sunk face average 2in. deep ..... ditto	0	0	5 $\frac{1}{2}$
Ditto stopped one end ..... ditto	0	0	6 $\frac{1}{2}$
Moulded work (ordinary) ..... ditto	0	0	9
Ditto stopped one end ..... ditto	0	1	1 $\frac{1}{2}$
Ditto stopped both ends ..... ditto	0	1	3
Ditto circular ..... ditto	0	1	0

The cost of Box Ground is about 10 per cent. more than the above.

The prices given in Laxton are in the railway waggons at the loading stations, so that railway carriage, unloading, &c., have to be added.

For small quantities of stone, the builder often underlets the work to a local mason or stone merchant. For larger quantities the builder may enter into agreement with a quarry owner as to price. It is best, where a particular quarry is selected or specified, to obtain from the quarryman a price per foot cube before the contract is signed.

We may first take Portland stone as the stone generally used in the best London buildings. Laxton prices stone in scantling at an average of 3s. 6d. per foot cube in lengths over 4ft.; some contractors put

this stone per foot cube, including hoisting and setting, at 3s. 3d., but the price depends on the quantity.

The following constants are useful approximations to the value of labour:—

	Days of a Mason.
Half sawing .....	0.29
Beds and joints .....	0.56
Sunk joint .....	0.63
Circular joint .....	0.63
Plain face tooled .....	0.75
Ditto rubbed .....	0.90
Moulded work rubbed .....	1.50
Ditto stopped .....	1.83
Ditto circular .....	2.00

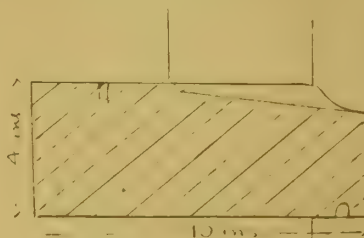
	Days of Mason and Labourer.
Hoisting and setting up to 40ft. above ground .....	0.40

	Days of Labourer.
Extra hoisting, 40ft. to 80ft. ....	0.25

For waste, allow about 5 per cent.

A London mason is paid 10 $\frac{1}{2}$ d. per hour fixing, and labourers 6 $\frac{1}{2}$ d.

Stone-working machinery is largely employed, especially at the quarries, and by several London firms, and the saving of labour thereby is considerable, often 33 per cent. It is stated on reliable authority that in sawing stones, Bath or Portland,



the cost of machine-sawing may be set down at about 2d. per foot, while the cost of hand-sawing will average 3 $\frac{1}{2}$ d. per foot; the cost of rubbing and facing stone may be put at 1d. to 3d. per super. foot. Stone can be sawn, squared, dressed, and polished; mouldings, like cornices, architraves, pilasters, &c., shaped and finished, and worked at a great saving by machinery.

#### OTHER BRICKWORK ITEMS.

##### No. 12. Ends of timbers cut and pinned.

Beams are generally built in as the work goes up. The ends are made good by filling the space round beam with brick or tile in cement. But if the holes are cut afterwards, as in old work, then the labour is much more. A bricklayer would take about half an hour cutting and another twenty minutes or so in pinning—say, 9d. If the work is only filling-in or "pinning," 5d. would be sufficient.

##### No. 10. Sills made good to and pointed, cutting and pinning ends.

The labour here is in filling-in the course of brick left out under the sill to enable the mason to insert it, and in making good to or

pinning the ends of sill under reveals. We may price this item as follows: Two ends cut and pinned at, say, 6d. each; making good to course under sill, say, 10d. Or—

	£	s.	d.
Bricklayer and labourer, 1 hour .....	0	1	3
(Making good, cutting, and pinning ends.)			
Materials, including, say, eight bricks and cement-mortar .....	0	0	6
	0	1	9
Profit .....	0	0	2
	0	1	11

#### STONEMWORK.

In estimating the labour on long lengths of stone, like plinths, strings, cornices, &c., it is generally convenient to take a 3ft. length, that usually being the distance of joints apart, or so many stones, to obtain the value per foot cube or run. By thus taking out the quantities of these items, and then finding the average per foot cube or run, a fair idea of the value of the "stone and labour" can be obtained, as in items such as these:—

Stone and labour in chamfered or moulded plinths.	
Ditto ditto chamfered jambs.	
Ditto ditto moulded strings and cornices.	

There are many short cuts used by surveyors in estimating which can only be discovered after some experience.

52ft. run. 6in. by 6in. Portland stone curb, rubbed on top and both sides, including joints and beds and jointing in mortar.

To value this item the best plan is to take out quantities of stone and labour. Suppose we take the joints at 3ft. apart, the cube of stone, 3ft. by 6in. by 6in., would work out at 9in., and the labour as follows:—

	£	s.	d.
9in. cube stone, including waste, hoisting and setting, &c. (constant 0.45), at, say, 8s. 3d., say .....	0	2	5
Half-bed (3ft. by 6in. = 1ft. 6in.) at 2 $\frac{1}{2}$ d. ....	0	0	4
Plain face, including half-sawing of sides and top, 4ft. 6in. (0.90 constant) at 9d. ....	0	3	4
Joints 6in. by 6in. = 3in. at 5d. ....	0	0	1 $\frac{1}{2}$

3ft. length ..... 3)0 6 2 $\frac{1}{2}$

Cost of 1ft. .... 0 2 0 $\frac{1}{2}$

This would equal about, say, 8s. 6d. per foot cube, including profit.

25ft. run. Ditto, ditto, with upper edges chamfered, 2in. wide.

There would be 3ft. of chamfer for length of stone each side = 6ft. of 2in. wide. Put this at 1 $\frac{1}{2}$ d. a foot, or 9d. extra, on above.

24ft. run. Portland stone sills, 10in. by 4in., weathered, throated, and grooved for iron tongue. (See sketch.)

Portland stone delivered is about 2s. 6d. per foot cube.

	£	s.	d.
3 $\frac{1}{2}$ in. cube at above price .....	0	0	7 $\frac{1}{2}$
Waste 10 per cent. ....	0	0	0 $\frac{1}{2}$
Hoisting and setting .....	0	0	3 $\frac{1}{2}$
2ft. half-sawing to three faces at 3 $\frac{1}{2}$ d. ....	0	0	7
7in. sunk face rubbed at 1s. 6d. ....	0	0	10
Three sides rubbed .....	0	0	4
2ft. groove for tongue and throating ...	0	0	2

10 per cent. .... 0 2 10 $\frac{1}{2}$

10 per cent. .... 0 2 10 $\frac{1}{2}$

10 per cent. .... 0 3 1 $\frac{1}{2}$

Say 3s. 2d. per foot run, or 10s. per foot cube.

18ft. run. 12in. by 12in. Portland stone stop-splayed sill (8in. and 4in. wide splays), rebated for lights, grooved and bedded in mortar. (See sketch.)

Let us take a 3ft. length.

	£	s.	d.
3ft. cubestone, including waste, hoisting and setting, &c., at 3s. ....	0	9	0
$\frac{1}{2}$ bed and joint (3ft. by 1ft. 8in. = 5ft. at 2 $\frac{1}{2}$ d.) .....	0	1	0 $\frac{1}{2}$
Joint (1ft. by 1ft. = 1 at 5d.) .....	0	0	5
Plain face (3ft. by 1ft. 3in. = 3ft. 9in. at 9d.) .....	0	2	9 $\frac{1}{2}$
Sunk work stopped, 3ft. long = 3ft. super. at 1s. ....	0	3	0
Groove and rebate 3ft. long, each 1d. ...	0	0	6
Cement, &c. ....	0	0	3
Cost of 3ft. ....	0	17	0 $\frac{1}{2}$
Cost of 1ft. ....	0	5	8

Or 5s. 8d. per cube foot.



## THE SETTLEMENT OF THE BUILDING TRADE DISPUTE.

As we announced a fortnight ago, the threatened lock-out in the Building Trades has been averted. The credit for this happy ending of a crisis, which had become a very dangerous one, is due to Mr. E. T. Cook, the editor of the *Daily News*, and to his colleague, Mr. Clement Edwards, the Special Commissioner of that journal. It will be within the knowledge of many that this is not the first service of the sort rendered by Mr. Cook and Mr. Edwards. It is an open secret that to their good offices the settlement of the Engineers' dispute was mainly due. Too much credit, in our opinion, can hardly be rendered to the statesmanlike foresight and diplomatic ability which have thus healed two great labour disputes. A lock-out of the Building Trades just now would have been a deplorable event. That it has been avoided is a matter for the heartiest congratulation. It is only fair to add that, but for the generous and conciliatory attitude of the National Association of Master Builders, and the common sense of the plasterers, a good understanding might still have been impossible. Among those who have facilitated it, Mr. Wm. Holdsworth, the president of the National Association of Master Builders, Mr. Benjamin I. Greenwood, Mr. C. W. Green, Mr. George Nichols, Mr. James Higson, Mr. J. W. Sugden, and the ever-courteous and able secretary, Mr. H. G. Hassal, deserve special mention; and no less so on the other side, Mr. Mark Jones, the President of the National Association of Operative Plasterers. Messrs. D. Hennessey, A. McLeod, George Jackson, Henry Duckett, and the general secretary Mr. M. Deller.

In February last some of the London members of the National Association of Operative Plasterers struck against the employment of certain non-unionist foremen. Soon afterwards, a vote of the association in London condemned this action. In the mean time, however, the National Association of Master Builders had issued a list of grievances, and declared a lock-out against the plasterers. The dispute dragged along, week after week, until the meeting of the National Association of Master Builders at Birmingham three weeks ago.

This meeting decided to call upon all the unions in the building trades to repudiate sympathy with the plasterers, or as an alternative to have the whole of their members locked out. The gravity of this decision was pointed out by us at once. It would have been a national catastrophe of the gravest character. The editor of the *Daily News* felt that if anything could be done to avert so disastrous a state of things, it ought to be done in the highest national interests. To this end a careful examination was made of the points at issue between the Plasterers' Association and the Master Builders. This led to the belief that a little friendly and informal negotiation between leading men on both sides might pave the way towards a conference and a pacific settlement. Friendly and informal communications were, therefore, opened up with Mr. Greenwood, on behalf of the employers, and Mr. Dan Hennessey and Mr. Geo. Cole, on behalf of the plasterers. Although there was a good deal of going backwards and forwards required to get even comparative agreement upon some of the more difficult points at issue, matters progressed so satisfactorily, that at last it was felt that more formal overtures could be successfully made to the official heads of both sides.

Thereupon Mr. Deller and his executive council were seen, and a suggested basis of settlement was formally submitted by the editor to Mr. J. A. S. Hassal, secretary of the National Association of Master Builders, on the one side, and Mr. M. Deller, secretary of the National Association of Operative Plasterers, on the other side. Both sides were further asked if they agreed to this suggested basis, to meet in conference upon neutral ground, to see if a settlement could not be arrived at. It was suggested that the conference should consist of six representatives from each side. Both sides met—the employers in Birmingham, and the plasterers in London—and agreed both to the suggested basis of settlement and to the conference.

The conference assembled at eleven o'clock on Tuesday at the Salisbury Hotel, and sat till past seven. At half-past one there was an adjournment for luncheon, at which Sir John R. Robinson, the manager of the *Daily News*, took the chair.

The following gentlemen represented the National Association of Master Builders:

Alderman Holdsworth, President; Mr. B. I. Greenwood, London; Mr. C. W. Green, Liverpool; Mr. Geo. Nichols, Leicester; Mr. James Higson, Manchester; and Mr. J. W. Sugden, President of the National Master Plasterers' Association, Bradford. The representatives of the Operative Plasterers were: Mr. Mark Jones, President; Mr. M. Deller, secretary; Mr. Dan Hennessey, London; Mr. A. McLeod, Newcastle-on-Tyne; Mr. Geo. Jackson, Manchester; and Mr. Henry Duckett, Birmingham. There were also present Mr. J. A. S. Hassal, secretary of the National Association of Master Builders, the Editor of the *Daily News*, and Mr. Clement Edwards.

The proceedings opened at eleven o'clock, when the Editor of the *Daily News* made a brief statement of the steps which had been taken to bring about the conference. Thereupon Alderman Holdsworth proposed, and Mr. Mark Jones seconded, a proposal that the Editor of the *Daily News* be asked to take the chair. This was unanimously carried, and the request being acceded to, the conference at once settled down to formal business. It was agreed that the meeting should first devote itself to drawing up the general terms of the settlement, and afterwards proceed to embody them in a code of rules. The conference then proceeded to discuss the suggested basis of settlement submitted by the Editor of the *Daily News* to both sides a few days ago.

### TERMS OF SETTLEMENT.

After considerable discussion, the following terms of settlement were arrived at and signed:

#### NON-UNION FOREMEN.

With regard to Clause 1 (a) and (b) of the employers' "Manifesto," which alleges:

The persistent attempt to coerce foremen of plasterers, or superintendents of plasterers' work into the membership of the National Association of Operative Plasterers; also:

The withdrawal of all members from the building firms employing such foremen or superintendents.

It is understood that the vote of the Plasterers' Association in London, in February, against this practice settles this point.

#### APPRENTICES.

With regard to Clause (2) which deals with the limitation of apprentices, it is agreed that, as this question is peculiarly complicated, different practices prevailing in different districts, both as to the extent to which apprentices are employed, and as to the ages at which they begin their apprenticeship, the question shall be referred to a Special Joint Committee of both sides to draw up working rules to govern the matter. This Conference is of opinion that the difficulty with regard to the proportion of apprentices could best be solved by a provision that every apprentice should be legally bound.

#### BOYCOTTING AND BLACKLISTING.

With regard to Clause 3 (a) and (b), which charges the Plasterers' Association with:

(a) The practice of boycotting certain building firms and employers of plasterers, in spite of the fact that such firms adhere to the rules agreed between the Master Builders' Association and the National Association of Plasterers.

(b) And the practice of printing and circulating amongst the members of the National Association of Operative Plasterers a list of such firms for whom they are forbidden, under penalty, to work.

It is understood that, while not admitting the accuracy of these allegations, the Plasterers' Association give an undertaking that no such boycotting or blacklisting shall take place in future where the firms adhere to the rules mutually agreed upon, the employers, on the other hand, giving a definite undertaking that such rules mutually agreed upon shall be strictly enforced in all parts of their contracts.

#### DEMARCATON OF WORK.

With reference to Clause 5 (a) and (b), which alleges:

(a) The refusal to accept the decision of the employer as to which workmen shall do certain work, in cases where plasterers dispute with other trades as to their right to do such work.

(b) Practice of withdrawing all their members when such work may not be placed in the plasterers' hands.

It is agreed that, for the purpose of the demarcation of work, joint committees shall be established in the different districts equally representative of the employers and the mechanics, whose representation shall be equally divided amongst the different branches of the trade in question. These committees shall, as far and as soon as is possible, draw up schedules of the work which it is recognised belong to certain branches of the trade. To such committees shall be immediately referred all points of dispute as to demarcation, and the decision of the majority in each case shall be accepted as binding on both sides. Should they fail, however, to decide, then the matter shall be referred for settlement to similarly constituted joint committee representative of the National Association of Master Builders and the other societies affected, whose decision shall be final, provided that the employers' representatives are bona-fide employers of plasterers direct. Pending such reference to the local committees no strike or lock-out shall take

place, but the decision of the employer shall be provisionally accepted as to who shall do the work.

Provided that preference shall be given to that branch of the trade which, in practice, has done the work before in that district, and provided no preference be given on account of the payment of lower wages.

#### NON-UNIONISTS AND DISPUTES.

With regard to Clauses 4 and 6, which speak of The refusal to work on buildings where some of the workmen employed may not belong to a trades-union, And of the objection to submit all trade disputes to discussion at a conference between employers and employed with a view to arrive at an amicable settlement prior to any strike or withdrawal of workmen.

It is agreed that, in the event of a dispute arising on any job or works, the district officials of the National Association of Operative Plasterers shall send written notice to the local Association of Master Builders, who shall inform them whether the said builder is a member of that body. If so, a strike shall not be sanctioned by the N.A.O.P. until six clear working days have expired from the receipt of such notice, during which time the matter shall be considered by the employers and the representatives of the workmen with a view to an amicable settlement. It is understood that the men the Operative Plasterers object to work with are defaulters, and other men who have been shown to the employers to have made themselves specially objectionable to the Union men.

#### FOREIGN "FREE LABOUR."

It is agreed that where the employers are able to secure British plasterers to meet their requirements they will dispense with the services of the Continental plasterers engaged during the present dispute as their contracts may expire. The employers will not require members of the N.A.O.P. to work on the same buildings with such plasterers. The members of the N.A.O.P. shall raise no difficulties in fixing work prepared by the Continental plasterers.

#### Signed,

WM. HOLDSWORTH, President.

BENJAMIN I. GREENWOOD.

C. W. GREEN.

GEORGE NICHOLS.

JAMES HIGSON.

J. W. SUGDEN.

H. G. HASSAL, Secretary.

(On behalf of the National Association of Master Builders of Great Britain and Ireland.)

MARK JONES, President.

D. HENNESSEY.

A. MCLEOD.

GEORGE JACKSON.

HENRY DUCKETT.

M. DELLE, General Secretary N.A.O.P.

(On behalf of the National Association of Operative Plasterers.)

(In witness)

E. T. COOK (Editor of the *Daily News*), Chairman of the Conference.

CLEMENT EDWARDS, of the *Daily News*.

#### GENERAL RULES.

The general terms of settlement having been agreed to, the representatives of each side retired to consider a suggested code of rules, submitted as embodying the general terms. This, however, the plasterers' delegates declared they were unable to accept, and the Chairman of the Conference was asked to draw up a code. This he did, and it was agreed to and signed as follows:—

1. The Plasterers' Association will not take any steps to compel managing foremen of plasterers, or superintendents of plasterers' work, into the membership of the N.A.O.P.

2. (Apprentices)—rules left for special joint committee to settle, in accordance with the general agreement arrived at by the Conference.)

3. No boycotting or blacklisting shall take place by the N.A.O.P. in future where the firms adhere to the rules mutually agreed upon. The employers agree that such rules shall be strictly enforced in all parts of their contracts.

4. For the purpose of the demarcation of work, joint committees shall be established in the different districts, equally representative of the employers and the mechanics, whose representation shall be equally divided amongst the different branches of the trade in question. These committees shall, as far and as soon as is possible, draw up schedules of the work which it is recognised belong to certain branches of the trade. To such Committees shall be immediately referred all points of dispute as to demarcation, and the decision of the majority in each case shall be accepted as binding on both sides. Should they fail, however, to decide, then the matter shall be referred for settlement to a similarly constituted Joint Committee, representative of the National Association of Master Builders and the other Societies affected, whose decision shall be final, provided that the Employers' representatives are bona-fide Employers of Plasterers direct. Pending such reference to the Local Committees, no strike or lock-out shall take place, but the decision of the Employer shall be provisionally accepted as to who shall do the work, provided that preference shall be given to that branch of the trade which, in practice, has done the work before in that District, and provide that no preference be given on account of the payment of lower wages.

5. In the event of a dispute arising on any job or works the District Officials of the N.A.O.P. shall send written notice to the Local Association of Master Builders, who shall inform them whether the said Builder is a member of that body. If so, a strike shall not be sanctioned by the N.A.O.P. until six clear working days have expired from the receipt of such notice, during which time the matter shall be considered by the employers and the representatives of the workmen with a view to an amicable settlement. Failing a local settlement, reference shall immediately be made to a Central Joint Committee of the two Associations, and until five days have expired from the date of this reference, no strike or lock-out



shall be sanctioned either by the N.A.O.P. or by the National Association of Master Builders. With regard to the alleged refusal of Members of the N.A.O.P. to work with workmen who may not belong to a trade union, it is understood that the men the Operative Plasterers object to work with are defaulters and other men who have been shown to the Employers to have made themselves specially objectionable to the Union men.

6. These Rules shall be construed together, and in the light of each other.

WM. HOLDSWORTH, President.

BENJAMIN I. GREENWOOD.

C. W. GREEN.

GEORGE NICHOLS.

JAMES HIGSON.

J. W. SUDDEN.

ADREWS G. HASSAL, Secretary (on behalf of the National Association of Master Builders of Great Britain and Ireland).

MARK JONES, President.

D. HENNESSEY.

HENRY DUCKETT.

A. McLEOD.

GEORGE JACKSON.

M. DELLER, General Secretary (on behalf of the National Association of Operative Plasterers).

(In witness,

E. T. COOK (Editor of the *Daily News*), Chairman of the Conference.

CLEMENT EDWARDS (of the *Daily News*).

It will be noticed that Clause 2 as to apprentices was left over to a committee to settle. This committee, consisting of three a side, sat in a separate room for an hour, but were unable to arrive at a definite settlement. The full conference thereupon resumed its sitting, and, after some discussion, the chairman urged the following as a possible solution:

No employer shall engage any additional apprentices to the Plastering Trade whilst the number of his apprentices shall exceed one-fourth of the number of journeyman plasterers then employed by him. All apprentices shall be legally bound.

The proposal was unanimously agreed to.

It was understood that the National Association of Operative Plasterers will have to submit the terms of settlement to their members for approval before work can be resumed. This vote will be taken next week, so that in all probability the men will be back at work early in the following week.

THANKS TO THE "DAILY NEWS."

At the conclusion of the proceedings, Mr. B. I. Greenwood said: I should like at this stage, on behalf of the National Association of Master Builders—and, for once, I think you will allow me to express the views of the operative plasterers—to say that we are greatly indebted to the Editor of the *Daily News* and his colleague, Mr. Clement Edwards, for the part that he has played in this matter. I was present at the last conference, and when we separated I was certainly under the impression that it would be a long time before we met again. Probably it would have been had it not been for his timely intervention. He has been at some trouble, I know, in order to bring this meeting about, and I think the way in which he has succeeded, in an almost impossible task, entitles him to the greatest possible credit, and also entitles him to our warmest thanks. I do not know why it was that I was approached in the original instance, unless it was that I am known to be a man of a very peaceable nature, and the one most likely to bring about peace. (Laughter.) I notice that remark is received with a little laughter; but here, again, I have great difficulty in convincing you, gentlemen, that I speak with honest conviction; but I assure you in this case I have not the slightest doubt in my own mind that the reason I was approached, on behalf of the Masters' Association, was because of the knowledge that I was inclined to peace. However, that is a personal matter which I do not wish to press at this juncture, and I do not rise to speak about myself, or what I have done, but I rise in order to express, in the name of the whole Conference, our great indebtedness to the Editor of the *Daily News*, not only for what he has done in bringing us together to-day, but also for the able and conciliatory way in which he has presided over our deliberations. I think the result we have arrived at is in no little degree due to his efforts and assistance. I beg, therefore, to move a very hearty vote of thanks to our chairman.

Mr. M. Deller: I beg to second the motion, for I, like Mr. Greenwood, am quite confident that had it not been for his good offices, and those of Mr. Edwards, that we should never have approached you. Like Mr. Greenwood, too, I am a man of a peaceful nature, but, at the same time, I must confess that although I am not a fighting man, when once I take my coat off I certainly go the whole hog. I can only say that we quite appreciate his good offices, and I quite endorse the views of Mr. Greenwood, when he says that he believes it is through the able manner in which the Editor of *The Daily News* has conducted this meeting, that we have been able to arrive at so

amicable and early a settlement. I feel myself that we should never have been able to have drafted these rules, as they have been drafted, had it not been for his skillful services.

Mr. Alderman Holdsworth: As President of the National Association of Master Builders, allow me to endorse the views that have been stated by both Mr. Greenwood and Mr. Deller on this proposed vote of thanks to you, Mr. Chairman. Allow me also to express my personal thankfulness and gratitude towards your colleague, Mr. Edwards. I assure you that to-night I shall sleep much more soundly than I have done for a considerable length of time. During this war I have received so many communications from different parts of the country, and more advice than any lawyer could give. Very different opinions are held by our members, and it has been a source of great worry and anxiety to me. I feel that the Editor of the *Daily News* and his colleague have got me out of my difficulties, which have lasted so long. But both sides can go away from this meeting with satisfaction, knowing that we have not been trying to get the advantage of each other. The past has been a misfortune, and in future, I hope, there will be a better understanding, and that our conference to-day will cement us for the future, and result in pleasanter association and more agreeable work betwixt the employer and employed. Allow me personally to express my thanks to you for your intercession and mediatorial work.

The motion was unanimously agreed to, with acclamation.

The Chairman: Gentlemen, I am exceedingly obliged by the compliment which you have paid to me, but your thanks are really due in a far greater measure to my able colleague Mr. Edwards. It is sometimes said that the greatest of British interests is the interest of peace. Well, from the point of view of a newspaper man, I cannot say I have found that. It seems to me that I have found the British public considerably less interested in the subject of peace, whether in conference or elsewhere, than in battles and disputes. I am afraid that by ending this industrial struggle we have spoilt a good deal of excellent copy. On the other hand, we must take as much satisfaction as we can from the fact that we have rendered some small service to the trades more intimately concerned, and through them to the general trade of the country. I can only say I have not been at all surprised by the result of this conference, because all through the negotiations and inquiries Mr. Edwards made, both he and I were struck very much with the eminently conciliatory and reasonable spirit that was manifested by influential men on both sides. I will only venture to add an expression of a hope that this may be found to be a real settlement, as well as a settlement on paper; that it will be accepted *bona fide* by both parties in that spirit; and that neither on the one side nor on the other will any attempt be made to pursue a policy either of retaliation or victimisation; that bygones will be bygones; and that a real effort will be made to work in the future on more satisfactory and pacific lines. I thank you very much again for the compliment you have paid me.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute was held on Monday evening at 9, Conduit-street, W., the President, Professor GEORGE ARTHUR, R.A., in the chair. At the commencement of the proceedings the meeting was made special for the purpose of temporarily suspending the regulations of By-laws 3 and 7, so as to allow of the nomination as a Fellow of the Royal Gold Medallist elect, Mr. George Frederick Bodley, A.R.A. The motion for suspension of the by-laws was carried by acclamation. The Secretary, Mr. W. J. LOCKE, announced the decease of Mr. Charles Bell, Fellow, of Salter's Hall-court, E.C.

#### THE PLANNING AND CONSTRUCTION OF BOARD SCHOOLS.

A paper on this subject, illustrated by many plans, elevations, and working drawings, was read by Mr. T. J. BAILEY, Fellow, architect to the School Board for London. Dealing first with the public elementary school, the author dwelt upon the need for careful selection of the site. An ideal site would be one of about 2 acres, rectangular, with the longest side as a street frontage, and having a western aspect streetwards. There should be proper provision of light

and air, immunity from noise of traffic for classrooms, an open playground space of at least 30 superficial feet for each child, and of such a shape as to be available for games, such as football for the boys, tennis, &c., for the girls. In London and crowded districts where the ideal 30ft. minimum cannot be realised, the playground question is usually best solved by providing on the ground-level for boys and infants, and putting a flat over the whole top of the building to form a playground for the girls. Where sufficiently large, playgrounds should have a covered space 50ft. or 60ft. by 18ft., with sides inclosed, open in front to the sun. Various desirable accessories to playgrounds, the most suitable paving, walls and railings, gates, the school-keeper's lodge, &c., were duly detailed by the author. Next treating of the buildings, of which 430 have been completed and opened, and others are in course of erection, the author described

#### THE THREE-STORY SCHOOL

as being the most usual type. The infants are on the ground floor, the girls on the first floor, the boys above. The maximum size or accommodation of a group should not exceed 1,548—in departments of boys 516, girls 516, infants 516; and if further accommodation is required, it should be provided by a separate mixed department. The hall, considered by the board indispensable to every department, is a very good size at 54ft. by 30ft.; the classrooms, ten in number to each department, graduate from 60 to 40 in accommodation. If possible, the main line of classrooms should face the playgrounds rather than a noisy road, and draw their light from the east, as that aspect suns up the rooms in the early morning, and does not disturb them for the day. The hall, facing west, provides a good reservoir of sun-lighted air to help the classrooms, and is a cheerful place to march the classes into for recreative or collective purposes. Architecturally, this elevation, being the more broken up (comprising the main lighting of the hall, the staircases, cloak, and teachers' room, and blocks and gable ends of wings), is more desirable for a street front than the long, unbroken line of classrooms. Two staircases for each senior department are required, and two entrances for the infants on the ground floor. The author then described in detail the plan of the building, the dimensions of the various rooms and staircases, the fittest materials for facing walls, and for floors and staircases, the requisite fittings, and the lavatory and sanitary arrangements. Touching

#### WARMING AND VENTILATION,

the author glanced at the efforts towards improvement in these matters during the last twenty years. He commended as very good the system of low-pressure hot-water pipes round the walls and just above the floor, where the desks are placed, and a few ventilating radiators bringing in warm, fresh air; but, even with this system, an open fire in the room is needed, the back flue simply connecting with the outer air not being sufficient for extraction. The author had tried trunks from the ceiling-line of each room gathered into groups, with a single outlet equal to the combined area of the group, and with a coil of hot pipes in the same to produce an up-cast. This was effectual so far as ventilation was concerned, but could not be recommended for schools of more than one story in height; in three-story buildings it had the effect of conveying the sound from the rooms below to those above, and disturbing the classes. The greatest care should be taken to get continued purity of air, and with as little trouble as possible. The system known as the "Plenum" effected this in the only satisfactory way; it introduced fresh filtered air above the heads of the occupants of the room, warm in winter, and cool in summer, diffused it over the area, and extracted it at the floor-level on the same side as the inlet, carrying away with it all the unpleasant odours of damp and evil-smelling garments. This system had the further advantage that where closed, and even double, windows are necessary to exclude noise, there is always a quiet side from which the supply of air can be drawn, and the closed and double windows improve the working. The cost is not appreciably more than an ordinary hot-water installation; but the builder's work involved in the formation of ducts, flues, &c., is a rather costly item. In a section on

#### FURNITURE AND FITTINGS,

the author dealt with the pattern of desks, and



their arrangement in the various departments, the lighting, the seating accommodation, platforms, cupboards, and the pianos, blackboards, and other adjuncts found essential for educational and recreative purposes.

#### ELEMENTARY SCHOLARS AS ARCHITECTURAL DRAUGHTSMEN.

Incidental reference was made to an order issued by the Board to each of their schools requiring a plan of the departments to be prepared by the scholars under the direction of the teacher, measured and drawn to a scale of 4ft. to the inch, the furniture delineated, and the walls coloured in, and submitted to the architect for approval before being framed and hung up in the school. Some two or three hundred of these plans had been submitted to the author, and he had been much surprised and pleased at the general high quality of the work. Few had been returned for revision, and some would have been no discredit to an architect's drawing office. These plans give proof of the useful character of the drawing instruction given in the schools.

#### THE HIGHER GRADE SCHOOLS,

of which there are forty-four in operation under the London School Board, are equipped with rooms for science teaching in addition to those for art and manual work. They comprise chemical and physical laboratories, with balance room and small dark room for experiments in photography, and a store for chemicals, also a demonstration and lecture room. The buildings, fittings, and general arrangements of the Cassland-road School, Hackney, a typical example of the higher grade school, were shown in a series of detail drawings exhibited on a screen.

#### SPECIAL INSTRUCTION BUILDINGS.

A third division of the paper was devoted to buildings for special instruction, comprising centres for domestic economy (cookery, laundry-work, and housewifery); manual training in wood, manual training in metal-work; swimming. The combination of subjects in the domestic economy curriculum has led to the requirement of a building in each case capable of giving proper facilities for the teaching. A typical building, planned, after consultation with the committee in charge of these subjects and the lady superintendent, consisted of a classroom on the ground-floor, 22ft. by 18ft., seated for forty girls, a kitchen, sitting-room, scullery, and bedroom, with entrance-lobby and staircase leading to the laundry and cookery classrooms on the upper floor, the object being to provide instruction in general housework, as well as cookery and laundry work. Details were given of the requirements of the manual training centres for wood and metal work. With the sanction of the Education Department, the Board have decided to establish three

#### SWIMMING BATHS,

in connection with the schools at Marlborough-street, Southwark; Hugh Myddelton, Finsbury; and Lyham-road, Brixton. Particulars were given of the proposed bath at Lyham-road. The building will be separate from the school, and have a distinct entrance, with superintendent's office, towel storage, &c. The actual swimming-pool will be 50ft. by 20ft., 2ft. 9in. deep at one end and 5ft. 6in. at the other, lined with white glazed bricks, and having dressing-boxes, spray-baths, w.c.'s, &c., and washing and drying room for towels and bathing-dresses. The water will be warmed by the injection of steam round the sides, close to the bottom of the bath, the pipes being in chases and cased for protection.

#### PROVISION FOR THE MENTALLY WEAK, THE DEAF, AND THE BLIND.

The mixing of children mentally weak with those of normal intellect being productive of undesirable effects on both, it has been found necessary to provide accommodation for these, and for the deaf and blind, in specially planned buildings. There are 39 centres in actual work in London, with 1597 children on the rolls (Oct. 31, 1898), and about thirty-five more are either in course of building or immediately contemplated. The unit for classroom is less than that for the ordinary school, more individual attention being required. The classrooms are all on the ground-floor, are 20ft. square, warmed by open fires, and seated for twenty children. A hall corridor about 20ft. wide, well warmed and made as cheerful as possible, is provided for

exercise, drill, &c. A good lavatory and bath are provided, boys and girls are frequently taught in mixed classes, but have separate playgrounds and offices. Schools for the deaf are also provided on the centre system, and are much on the same plan as those for the mentally defective. The classrooms are smaller, 18ft. square, and seated for ten. The seats should be arranged in a circle, and the rooms should have a strong high or top light, so that the lips of the children can be watched and studied, they being taught to read what is said by the lip movement. The Board have 17 centres in operation, with 513 children on the rolls (Oct. 31, 1898), and seven more centres are in course of provision. Particulars were given by the author of a scheme for the establishment by the school board of a home for the boarding and instruction of some 40 deaf and mentally-defective children who had to be taught on the sign system. The schools will be built on the cottage home principle, the number in each home not to exceed ten, and the training will be largely agricultural or horticultural. In most divisions of the London district school accommodation has to be provided for a few blind children. These number about 150, distributed over eight centres, and it is generally sufficient to provide two small classrooms at each centre, with separate entrances, cloakrooms, and lavatories, the classes being mixed. Separate play-yards and closets are, of course, necessary, apart from those of the ordinary school, to which this department is attached. Under the head of

#### BUILDINGS FOR THE TRAINING OF TEACHERS,

the author described a scheme of buildings for this purpose, which might be considered as very complete, and as embodying all that is likely to be required in the future. On the ground floor are provided four classrooms for 42 and 36, two of each, seated with single desks; a central hall 50ft. 6in. by 33ft. 6in., with separate staircases, lavatories, &c., for each sex at each end. On the first floor are four first classrooms, and a properly-equipped gymnasium over the hall; on the upper floor an art-room over the gymnasium, the remainder of the floor being devoted to chemical and physical laboratories, lecture-room, balance, and dark rooms. A basement is provided for the engineering apparatus, and also a kitchen for the preparation of luncheons. The site of the particular buildings dealt with was large enough to give space for lawn tennis on the girls' side and for football on the boys'.

#### THE BUILDINGS FOR INDUSTRIAL AND TRUANT SCHOOLS,

which next came under consideration, must be of an essentially different character from other buildings of the Board, as they are boarding establishments. Descriptions were given of a building recently erected for this purpose in connection with the Shaftesbury training ship stationed off Grays, and also of the Upton House Truant School, the only building as yet erected specially for the purpose. The Board are negotiating for a large site of some fifteen acres in the neighbourhood of London for the purpose of erecting two establishments—an industrial school for about 120 boys, and a truant school for a like number. The two institutions will be entirely separate as far as their occupation and management are concerned, but will probably be under the control of one superintendent and body of managers. Details of the proposed plan and general arrangements of the buildings were given by the author.

#### DIVISIONAL OFFICES.

For the purposes of the administrative work of the Board, London is divided into eleven divisions, necessitating a corresponding number of office buildings. The offices for the East Lambeth Division, now erecting in the Peckham-road, were selected for description as a typical block. On the ground floor is the entrance hall, a large room 57ft. by 22ft. for the visitors to perform their clerical work, a room for the assistant superintendent, and an office for the check clerk, also the lavatories, w.c.'s, &c.; on the first floor a committee-room, used also by the superintendent, and a clerks' office; on the second floor the correspondents' and clerks' offices, and caretaker above.

#### COST.

In a few general remarks with which the paper closed, the subject of cost was dealt with. The Princess May School, Kingsland, was cited as a typical case, and as tenders were received only so

lately as March of the present year, it may be considered as up to date. The building is to be of three stories, to accommodate 1,548 children, on a site of about 1½ acre; the cost per head is estimated to be £13 18s. 4d. This includes building the whole of the brickwork in cement, also the provision of glazed bricks to staircases, corridors, and dados of classrooms and halls, but does not include furniture. The cost of inclosing the whole site with walls and railings, tar-paving, drainage, and provision for deep foundations below a normal depth of 6ft. is about £5,000 more. The total cost will be some £750 within the limit allowed by the Education Department. There was a suggestion a few years back that unnecessary expenditure was incurred on architectural adornment, and the committee dealing with this branch of the work ordered two or three schools to be built of plain stock bricks and slate roofs, with no architectural features about them. It was found, however, that the difference of cost between bare utilitarianism and buildings designed in some sort of style and regard for materials and colour was rather less than 5 per cent.

Lord REAY, chairman of the London School Board, wrote expressing his regret at being unable to hear Mr. Bailey's paper, adding: "Mr. Bailey speaks with authority. The building operations of the London School Board are on such a large scale, the problems which have to be solved are so varied, they have been so carefully considered by a number of experts, that Mr. Bailey's admirable review of this branch of the School Board work cannot fail to meet with the full recognition due to the care with which it has been written."

The Hon. E. LYULPH STANLEY, vice-chairman of the London School Board, observed that the planning of board schools could never be a simple matter, for, in addition to the requirements of the Education Department, the architect needed to be conversant with the policy of the employing board, for this would govern the size and number of classrooms and the arrangement of his central hall. Mr. Bailey's ideas of the ideal London board school had been obviously modified by the parsimonious policy of his employers—a remark greeted with laughter and applause. The architects present would consider that the walls above the dado level ought not to be left in rough brick-work, which obviously might harbour dust and germs; but should be finished with rendered plastered surfaces. Then no scholar ought to be more than 20ft. from the nearest side-light; but the Education Department had in the past endeavoured to get classrooms so wide that the scholars' distance was increased to 22ft., and even 24ft., from the side-light. The London School Board had been obliged to press upon the department many improvements, and many things which were now regarded by the Department as axiomatic were originally concessions to the board. The Department had sometimes suggested that classes could be taught in the central hall; but it was an undue strain on the teacher's voice to be expected to teach in a hall, which was practically a passageway 60ft. by 20ft., and of proportionate height. There were still many unsettled points in school planning, such, for instance, whether the classroom floor should be graded from the centre, or whether the general floor should be kept flat and the teacher occupy a raised platform, which he himself regarded as the preferable arrangement. The size to be given a classroom depended on the rapidity with which the air could be changed, and it was unwise to make the classroom any larger than was absolutely necessary. The system of ventilation by impulsion was a fine one, but care needed to be exercised lest the draught became too violent or insufficient, or the noise and vibration from the engine too apparent. Any board proposing to adopt a system of ventilation should carefully study and test its working in existing installations before embarking on a scheme. The London School Board had adopted in turn three or four systems, and each fresh one had been regarded—and, he thought, with reason—as an improvement on the one previously adopted. So far as he could judge, a "plenum" system worked apparently better than one on the exhaust principle. Reverting to classrooms, it was an excellent rule to reduce the size of these as the grade advanced, not only because there were fewer scholars in the higher classes, but because the strain on the teacher became greater in advanced studies. In some school buildings classrooms for 80 scholars



were provided; but, as it was considered unwise to put more than 50 pupils in one class, the additional space was more than wasted—a proof that policy ought to determine planning.

Mr. C. J. DAWSON, head master of Aldenham-street School, St. Pancras, said he had to work in one of the earlier buildings, which possessed almost all the defects that had been alluded to by the lecturer. He urged the importance of adapting a building to the exact requirements of present-day teaching, and in accordance with the possibilities of a teacher's power. The great mistake had been making the classrooms too large, and separated only by sliding partitions. In many schools the system of ventilation and warming was an entire failure, and the atmosphere could only be renewed by opening windows, a practice fraught with considerable danger. It was important, both for educational and disciplinary reasons, that there should be no dark corners in schools, and the acoustic properties of a room ought to be well considered in planning.

Mr. E. W. MOUNTFORD, in proposing a vote of thanks to the lecturer, said they were indebted to Mr. Bailey for having laid bare to his professional brethren the secrets which he had been putting into practice all over London; but this had been the more easy to Mr. Bailey because he had no fear of competition in his work. Indeed, when they heard of the numerous schools in progress, and the various problems in planning and construction to be solved, they must have all felt that the architect to the London School Board must be terribly overworked, and that it would be only fair to Mr. Bailey to give some of the work to other architects. (Laughter.) When the speaker was submitting some plans to the late Mr. Ewan Christian as architect to the Charity Commissioners, Mr. Christian flatly refused to sanction any mechanical system of ventilation, declaring that there was nothing equal to the open window. The "plenum" system of ventilation seemed to the speaker to be the best, but he should like to hear the result of practical experience ten years hence. When some members of the Institute Council visited the new hospital at Birmingham a short time since, they found the ventilating ducts full of very black dust, and it seemed as if some of this dust must be forced into the lungs of the patients. It was a great mistake to think that the plenum system could be used for cold air; people would tolerate a draught of warm air, but if cold air were forced in the inlets would be shut down.

Mr. R. PHENE SPIER, F.S.A., seconded the vote of thanks, remarking that he had designed two of the earliest London board schools, but in the light of present-day experience he could see that they were entirely wrong in planning. Mr. Bailey had marshalled his facts in an admirable way, giving them the experiences of a lifetime in a clear and lucid manner.

The vote of thanks having been carried unanimously, Mr. BAILEY briefly acknowledged it, observing that he had tried to make his paper as comprehensive as possible. He quite realised the value of Mr. Stanley's suggestions as to finishing the internal walls, which he had often heard before, and if he had more money at his disposal he should like to carry them out.

The PRESIDENT remarked that children housed in roughly completed buildings could not be expected to give proper attention to questions of colour and refinement of detail. He considered that the best enamelled tiles and bricks that England could supply should be employed on the wall surfaces of schools, so as to cultivate the tastes of the children. He knew by experience with students of another class how difficult it was to cultivate appreciation and observation of the things constantly before them—of simple shells, flowers, and leaves—and how more difficult the educational task became when scholars were constantly surrounded by quasi-ugliness.

#### THE ARCHITECTURAL ASSOCIATION DINNER.

THE close of the fifty-second session of the Architectural Association was marked on Wednesday evening by the annual members' Dinner held at the Caledonian Room, Holborn Restaurant. The chair was occupied by the President, Mr. G. H. Fellowes Prynne, F.R.I.B.A., who has just been elected to a second year of office, and who was supported by about ninety members and guests, including Sir Edward Clarke, Q.C., M.P., Sir Henry H. Howorth, M.P., Archdeacon Sinclair, Mr. Aston Webb, A.R.A., the Dean of

Bocking, Canon Porter, Dr. G. V. Poore, Alderman Hind, Messrs. T. Blashill, W. E. Riley, J. C. Preston, W. H. Seth-Smith, H. L. Florence, W. B. G. Lewis, E. T. Hall, W. White, B. F. Fletcher, F. W. Pomeroy, F. T. W. Goldsmith, H. T. Hare, &c. The toast of "The Queen and Royal Family" having been heartily honoured, the PRESIDENT proposed "The Church and the Houses of Parliament," remarking that the former had ever been most closely associated with architecture, on which she had had an incalculable influence, while their art in its catholicity and universality had exercised an equally great influence on the Church. In conclusion, the President touched on the decoration of St. Paul's, and while giving all credit to the Dean and Chapter, and to the talented architect, who had been actuated by the noblest aims and aspirations, and had executed his scheme with wonderful industry and enthusiasm, still, in all charity, he must say that in his recent letter to the *Times* Sir William Richmond had assumed a very haughty tone, or had put himself on a very high pedestal, and he must, as an architect, protest against so characteristic and national a building as the Metropolitan cathedral, designed, too, by one of the ablest of English architects, being spoiled and utterly ruined. The decoration of St. Paul's could only be successfully accomplished by a co-operation of architects and artists. Turning to the second part of his toast, the President declared against the way in which the House of Commons cut down the expense of every public building, a matter in which a little State like Belgium put us to shame. With the toast he coupled the names of the Ven. Archdeacon Sinclair and Sir H. Howorth. In his response, Archdeacon SINCLAIR remarked, amid laughter, that the modern churches were not so well built as those of former days; in his duty of inspecting in London various churches, he found the newer edifices were thinly built—due, doubtless, to insufficiency of means, and also badly ventilated; while in a large and new church in the East-end, planned by an eminent firm of architects, he found the doors so narrow that a coffin could not be brought in until the building had been altered. He eulogised the restoration of St. Saviour's, Southwark, and St. Bartholomew's, Smithfield, and the new church of St. Philip, Stepney, designed by the late Arthur Cawston. The present race of architects restored our churches in a conservative spirit; but in the "fifties" all work of the Queen Anne, Jacobean, and even earlier work was ruthlessly swept out of our churches by the eminent architects of the last generation; so that it was clearly not always wise to follow the advice of the leaders of the architectural profession, however eminent and unanimous they might be. As to St. Paul's, the Restoration Committee welcomed in the freest and frankest manner all honest and kindly-expressed criticism. Further, he felt that the Restoration Committee was somewhat too weak to bear the strain of so great a work, and he, for one, would welcome upon it some architects in sympathy with Wren's work, and one or two Academicians; certainly the P.R.A., the chief of the Ecole des Beaux Arts, and the corresponding official in Germany. Dr. Sinclair then entered at length into the history of Wren's work, and the schemes of decoration during the last quarter of this century. He, for one, should like to see a great part of the reredos, including the upper portion and the wings, removed, and all the modern stained glass taken out. Anyone who was appointed to carry out the decoration ought, he thought, to work in the spirit of Wren's ideas. Even if the original architect did commit some architectural mistakes, as he admittedly did in the curtain walls and quarter-domes, these should be left uncorrected. When the stencilled work had been taken off (and Sir W. Richmond had agreed to this course, although reluctantly), the result of the decorations would be, he believed, very satisfactory. Allowing for ignorance and exaggeration, the discussion had been a beneficial one, and the Restoration Committee honestly wished to do the best for the great building with which they were intrusted. Sir H. H. HOWORTH, in replying, admitted that in neither House was much encouragement given to art; but when a body was making history, they had little time or inclination to patronise art. He poured ridicule on the idea of Parliament appointing an ædile,—such a man, e.g., as the late A. S. Ayrlton—to pronounce judgment on proposed new buildings, and argued that the best

opportunity for architecture was unfettered freedom. Turning to decoration, Sir Henry argued that England had never, even in Mediaeval days, been capable of satisfactorily decorating her buildings, either with frescoes or stained glass. In proposing the toast of "The Royal Academy and the Royal Institute of British Architects," Mr. H. HEATHCOTE STATHAM commented on the fact that both these bodies were charged by outsiders with neglecting the poetic aspect of their art. Neither an Academy nor an Institute of Architects could create genius, but both could educate students and set a high standard of technique in their art, and this was done by the Academy in its schools and by the Institute in its scheme of examination and of prizes. With the toast were coupled the names of Mr. Aston Webb, the newest Associate of the Academy, and Mr. H. L. Florence, both past presidents of the Association, who were cordially greeted when responding. Sir EDWARD CLARKE, in proposing the toast of the evening, "The Architectural Association," referred to its work as the educational body of the profession, and to the influence and authority it had gained as the result of its fifty years' work on behalf of students. He congratulated the Association on having re-elected to the chair Mr. Fellowes Prynne, whose genius as a sympathetic and artistic church architect was widely appreciated, and who had carried for the speaker a commission of that character. The PRESIDENT replied in a genial speech, emphasising the value of the Association as the only body which really systematically carried on the education of architects, and he urged students to maintain their enthusiasm in the work of the classes, and appealed to the senior members of the profession to aid the Association's work by continuing or becoming members. The remaining toasts were "Our Guests," proposed by Mr. Beresford Pite, past-President, and responded to by Mr. J. C. Preston, Master of the Carpenters' Company, Alderman Hind, Master of the Plumbers' Company, and Dr. G. V. Poore; "The Lecturers and Instructors," given by Mr. Hampden W. Pratt, ex-President, and acknowledged by Messrs. H. A. Satchell and W. G. B. Lewis; "The Committee and Officers," proposed by Mr. F. T. W. Goldsmith, and to which Messrs. E. Howley Sim and G. B. Carvill replied; and "The President-Elect," given by Mr. W. H. Seth-Smith, and acknowledged from the chair. During the evening a number of songs were given in excellent style by Messrs. S. Constanduros, H. Passmore, Gervase Bailey, F. D. Clapham, and G. B. Carvill, with accompaniments by Mr. Leonard Butler.

#### THE SOCIETY OF ARCHITECTS.

THE last monthly meeting for the present session of the Society of Architects was held at St. James's Hall, Piccadilly, on Thursday evening in last week. Mr. H. G. Quartermain, treasurer, in the chair. The following new members were elected: Silvester Stevenson Atherby, 3, Clifton-terrace, Forest Hall, Northumberland; W. J. Blaylock Carter, 16, The Bund, Shanghai, China; and John Riding, Derby Chambers, Derby-street, Ormskirk. Six nominations for membership were read by the secretary, Mr. C. M'A. Butler.

#### SOME CHURCHES IN AND NEAR COLCHESTER.

A paper on "Some Essex Churches," illustrated by a large number of lantern slides, was read by Mr. G. GARD PYE, member. The lecturer explained that, on account of the fulness of his subject, he proposed to confine his remarks to a notice of the churches in the neighbourhood of Colchester. A good number of the churches in Essex—and more so round Colchester—are of Norman origin, being restored or rebuilt later on in the Decorated and Perpendicular periods—more in the latter than the former. St. Botolph's Priory, through being unfortunately between the fires of the besiegers and the besieged during the siege of Colchester in 1648, was reduced to its present ruinous state, and consisted of nave, central tower, transept, and choir. This is a remarkable instance of the use made of Roman materials for building, and singularly enough these materials were used for the ornamental part, as can be seen in the west front. The bricks used were of the 4th century, and some even earlier. When the Royal Archaeological Society visited this building in 1877, several members pointed out some bricks that were as



early as the 1st century, being only lin. in thickness. The west doorway is a good specimen of a Norman arch, with its zigzag or chevron, and billet mouldings, with a rude hood mould formed of tiles, and the interlacing arches from which it is said the Gothic arch of later years took its form; but I think this is theory only. The gateway is all that is left of the once large and handsome abbey of St. John, dating from the time of Henry II., and has been truthfully restored some years back by Major-General Montagu, Royal Engineers. Fortunately for him, one of the pinnacles was discovered buried in a wall, and from this clue he was enabled to add the others. In the priests' doorway in the ruins of St. Nicholas' Church at Colchester, you again see the introduction of Roman bricks re-used from some old building that had been pulled down. These ruins have given place to a new church that was designed by the late Sir Gilbert Scott. A very interesting specimen of a Saxon doorway is in the tower of Holy Trinity Church, Colchester. Here we have another example of the introduction of Roman brick, and the primitive idea of ornament in the rude formation of the shaft, with cap and base, with the hood mould, and, as a sign of the religious revival, the formation of the cross in the key of the arch. Ardleigh Church, some four miles from Colchester, is a specimen of an ordinary Essex church, Perpendicular in style, with its tower, nave, aisles, and chancel. The porch contains some fine work in flint and ashlar work. The churches of East Anglia are different from those in the West of England, though there is much Perpendicular work in each, the style being largely ruled by the materials at the disposal of the builders. Here there was little stone to be obtained, and they had to use flint, with facings of fine stone, which is the characteristic treatment of the district. Great Bromley Church is another good specimen of an Essex Perpendicular church. The nave roof is very elaborate, having double hammer-beams, richly carved and picked out in vermilion. This church stands in the beautiful vale of Dedham, was the subject of one of Constable's paintings, and was built by a father and his sons, whose marks still remain in the tower. In this church, on the south side of the chancel, is an oven with flue complete for the baking of sacred wafers, the only instance, I believe, in England of an oven in a church. The stairs to the rood loft still remain. The north porch has a narthex or room over, used either for storing parish documents, or as a library to store those books given to the parish, as in those days books were scarce, and such a gift was in consequence valuable. When these rooms had a fireplace in them and a window opening into the church, they were usually used as watching-rooms and chambers. Lawford Church has an interesting group of chancel windows of an earlier period than are mostly to be found in this part of Essex. Internally are some elaborate stone carvings. It is said of this church, but I will not vouch for the truth of it, that an amusing tale is told. It was many years ago the custom for the rector to wait until the squire of the hall adjoining had arrived before he began the service. One Sunday, being later than usual, the rector began with the usual opening sentence, "When the wicked man—" The old clerk jumped up and said, "Please, sir, he baint come yet." Higham Church, Suffolk, contains a specimen of a priest door and chancel window. Another fine Perpendicular church across the border in Suffolk is at East Bergholt, with unfinished tower. The bells hang in a cage in the churchyard. There are several brasses and tombs in this church, and a window to the memory of the painter Constable, who was born in this village, and here painted many of his pictures. The north porch of Boxford Church, also just over the Stour in Suffolk, is one of the oldest wooden porches in England unrestored. The south porch is of stone, which must have been brought from some distance, as there are no quarries anywhere near. The ceiling is very handsomely groined. There is a good specimen of a Late Perpendicular door richly carved and moulded, and also a very handsome screen of stone in this church. Little Oakley Church contains a curious feature, a priest-door being pierced in a buttress. Great Bentley has a good specimen of a Norman door, with its zigzag and rose mouldings. There are several other Norman features in this church, including five windows. The staircase to the rood still exists. Fingringhoe has a Perpendicular porch, built in rubble work, finished with flint

and stone in the parapet. In the spandrels are the Archangel Michael and the Dragon, evidently symbolical of heaven and hell, since the church is dedicated to St. Andrew and not to St. Michael, as these figures would lead one to suppose. This church was considerably damaged by the earthquake in 1884, and has since been restored. There are some interesting frescoes, including one of St. Christopher carrying Christ over the river of the waters of life, and an old oak chest, richly carved. Langenhoe Church was entirely destroyed in the earthquake of 1884, and has since been rebuilt. Brightingsea Church contains good specimens of Perpendicular work, although it is clear that from the buttress level with the chancel, which is of earlier date than the rest, that it is a 14th-century church changed at the end of the 15th as regards the aisles with battlements, and the tower added. The late Prof. Freeman describes this tower as being one of the finest of its kind in existence. Frating Church has an old oak porch with an open roof. Berechurch is a curious old church prettily situated in a park. It is difficult to account for the large window that has been inserted. The church at Copford was undoubtedly of Norman origin, having a vaulted roof, but the destroying hand of time obliged the substitution of a wooden roof, which by archaeologists is acknowledged to be a beautiful piece of work, and much admired by the late Sir Gilbert Scott. The walls, which are very thick, were mostly built of Roman brick. The noted features of this church are its frescoes. In the apse Christ is represented seated on a throne with a rainbow behind, and clouds under His feet, His right hand in the attitude of benediction, and His left resting on a book, the wounds being visible in the hands and feet; below are angels, and in the background the towers of New Jerusalem. On each side stand four apostles under canopies. Excepting the chapel in Canterbury Cathedral, the late Sir Gilbert Scott said in his whole experience he had never seen anything to compare with it. The south porch to the same church is considered by Sir Gilbert Scott to be the most beautiful specimen of a Decorated wooden porch in the country. The door leading from the porch to the church was covered with the skin of a man who had been caught in the act of sacrilege.\* Close by is the famous Tower of Layer Marney, with its terracotta work, but as it is a domestic building it is out of my province in this paper to describe it fully; but it is well worthy of a visit should any member of the Society be in the neighbourhood. Marks Tey is a 13th-century church, curious in its having the upper portion of tower of wood. Great Tey Church is very interesting, with its Norman tower heightened at a later period. The plan of this church was cruciform, the nave and chancel being rebuilt in the Early English and Decorated periods. The old wooden porch to Aldham Church is of the Decorated style, mentioned and illustrated by the late J. H. Parker in his "Glossary of Gothic Architecture." Bures Church, like that of Little Oakley, has the buttress of the chancel pierced for the priest-door, another good specimen of East Anglia Perpendicular work. The south porch is a good specimen of a treatment in brick, but of course is of later date than the church itself. Mount Bures Church is another specimen of a Norman tower, but heightened, as you will see, a few centuries later. Coggeshall has a fine Perpendicular church of large proportions, the interior being richly carved. It is the largest church in Essex. Little Maplestead was originally attached to the Rectory of the Knights of St. John of Jerusalem, founded here in the time of Henry I. Though restored in 1854, it is still of special interest as being one of the four remaining round churches in England built on the model of the Holy Sepulchre; the others being the Temple Church, London; St. Sepulchre, Northampton; and St. Sepulchre, Cambridge. The chancel is an apse; the nave is circular, with peristyle of six clustered columns; the western entrance has quatrefoil border. This church is said to have had the privilege of sanctuary. I have now completed my paper; but before I conclude I should like to thank my friend, Mr. John Bettison, a retired naval officer, who takes a great interest in photography, and who has kindly prepared the slides from the photographs I took myself when in my articles, some thirty years ago,

\* Since writing this paper a friend has kindly forwarded to me a copy of the supplement to the *Tablet* of the 13th inst., in which this church is very fully described and illustrated by Mr. Dudley Baxter, B.A.

before the hand of the restoring architect had touched most of them.

At the close of the lecture a vote of thanks was accorded to Mr. Gard Pye, on the motion of Mr. SEABRIGHT GREEN, seconded by Mr. G. A. T. MIDDLETON, and supported by Messrs. S. W. KERSHAW, F.S.A., J. R. MANNING, ELLIS MARSLAND, W. COOPER, A. A. ATKINS, and the Chairman.

#### THE EXCAVATIONS AT SILCHESTER.

AN exhibition has been opened this week at the rooms of the Society of Antiquaries in Burlington House of the objects brought to light during the operations of the Silchester Excavation Fund last season between May 2 and November 26. The area examined consisted of eight acres in the extreme south-west corner of the city, and the finds have not been so numerous as in some former years. The principal discovery is a large mosaic pavement found in one of the rooms of an old house in *insula* 19, which is quite different from anything hitherto found at Silchester. The room in which it occurs measures about 15ft. by 20ft., and one-half or two-thirds of the pavement remain. It is executed in Purbeck marble, hard chalk, burnt brick, &c. Along one side of the room there is a passage ornamented with a woodbine pattern, black on a white ground, while round the central part, which is decorated with panels containing beasts and busts, there runs a scroll pattern of flowers and leaves, with a strong general resemblance to several known at Pompeii. The house from which it was obtained was an early one, for a part of it was overbuilt by another house, itself of early date and of the largest size, with fine hypocausts. In a workshop attached to this some industry had been carried on. Other exhibits include earthenware vessels, pieces of plaster painted to imitate various kinds of marble, a pair of handcuffs with a lock, a set of hooks, a scone, enamelled brooches, fibulae, intaglios for rings, and pins with bronze and glass heads. The exhibition remains open till Saturday in next week, the 10th inst. In the current year the committee propose to turn their attention to the other side of the city, and excavate two *insulae* in the northern part, lying to the east of the portion examined in 1890.

#### CHIPS.

On Thursday, June 8, the annual meeting of the Royal Architectural Museum will be held at four o'clock, when the President, the Duke of Westminster, will take the chair, and Sir Wyke Baylis, P.R.B.A., will deliver an address to art students on contemporary matters connected with their work, under the title of "The Bogey in the Studio." The gathering will be free, and will take place at the School of Art in Tufton-street, Dean's-yard, Westminster.

Mr. W. O. E. Mead-King, C.E., on behalf of the Local Government Board, conducted an inquiry at the Town Hall, Dudley, on Friday, respecting the application of the Corporation for sanction to borrow £1,425 for various public improvements, including £500 for a warehouse for the market-stalls, £300 for the erection of a weights and measures office, and £300 for a public mortuary in Stone-street.

The Eye and Ear Infirmary, Portsmouth, is being warmed and ventilated by means of Shorland's patent Manchester Grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

Mr. A. J. Wood, 22, Surrey-street, Strand, has been appointed architect for extensive additions and alterations to the Norfolk County Asylum at Thorpe, near Norwich.

Mr. Robert Hope, contractor, of Sheriff Hill, Newcastle, died on Monday from the effects of a fall from his horse while riding up High-street, Gateshead.

The memorial stones of a new Primitive Methodist Chapel were laid at Penzance on Monday. Mr. Oliver Caldwell is the architect, and Mr. J. Tucker the builder. The edifice, which is to seat 400, will cost £1,400, and is being built on the site of the old chapel in Mount-street.

A bandstand erected in Aston Park was formally presented to the Birmingham City Council on Saturday. The bandstand, which was designed by Mr. Arthur Edwards, of Bennett's Hill, Birmingham, is octagonal in shape, and is 22ft. in diameter. It rests on a base of King's red bricks, with York stone coping, and has cast-iron columns, with circular cast-iron spandrel, supporting an overhanging pyramid roof, 30ft. in diameter.



## OBITUARY.

By the death of Mr. ALEXANDER FRASER the Royal Scottish Academy has lost one of its oldest members. For the last ten or fifteen years Mr. Fraser has been virtually laid aside by advancing age and bodily infirmities, but a couple of his latest canvases were to be seen in the exhibition of the Scottish Academy, which closed on Saturday. He was born in 1828, at Woodcockdale, near Linlithgow, being the son of an able amateur artist, and on leaving Lanark Grammar School he was sent to Edinburgh to study drawing in the Gallery of Arts. Afterwards he was admitted to the School of Design, and while engaged there he also employed much of his time copying pictures in the Scottish National Gallery. His first appearance in the Royal Scottish Academy's Exhibition was with a figure picture, entitled, "A Gipsy Girl in Prison"; but he soon turned his attention to landscape, and in that department with success. From the year 1858 he appeared regularly in the Royal Scottish Academy exhibitions. In 1858 he received recognition from the Academy by being elected an associate; and four years later was raised to full membership, on which occasion he painted as his diploma work a landscape entitled "At Barnclough." Most of his pictures were painted in the open air.

Mr. THOMAS COOKE NICHOLSON, F.R.I.B.A., F.S.I., of Blagdon-on-Tyne and Grange-street West, Newcastle, whose remains were interred on Monday at St. Patrick's Churchyard, Winton, was the author of an exhaustive description of St. Mary's Cathedral, Newcastle. Previous to becoming architect to the proprietors of the Towneley Estates, he was in practice in Newcastle. As an architect Mr. Nicholson was keenly interested in the progress of his profession. He joined the Institute of British Architects and the Surveyors' Institution, in both cases as a Fellow, in the autumn of 1891.

Mr. ABRAHAM GRAHAM, of Bankfield House, Bankfield-road, Huddersfield, and head of the firm of Abraham Graham and Sons, contractors, Longroyd Bridge, Huddersfield, died on Saturday morning at his residence at the age of 66 years. The firm of which he was the principal controller is probably the largest engaged in the building trade in the Huddersfield district, and he was well known in the West Riding. The town-hall was erected by his firm, and he was also responsible for the building of the new sanatorium at Mill Hill; High-street Methodist New Connexion Chapel and Schools; the Halifax and Huddersfield Joint Stock Bank at Huddersfield; and the present extensions to the Huddersfield Technical College. On railway and public works Mr. Graham was engaged at Sheffield, Mirfield, Heckmondwike, and Lockwood, and he carried out the scheme of intercepting sewers for the corporation. He was not conspicuous in public affairs, although at various times he was connected with the town council and the board of guardians. His resignation as town councillor was due to having undertaken contracts for the corporation. He leaves a widow, five sons (all of whom were associated with him in his business), and four daughters.

Mr. R. H. Bicknell, M.Inst.C.E., Local Government Board Inspector, held an inquiry on the 27th inst. with respect to an application by the town council of the county borough of South Shields for permission to borrow the sum of £2,883 for the provision of a branch police and fire-station and a branch public news-room at Laygate-lane district, within the borough. Mr. S. E. Burgess, M.I.C.E., borough engineer and surveyor, explained the plans and other details of the scheme.

The Royal Arcade near the market-place at Norwich was formally opened on Thursday in last week. It runs from the Gentleman's Walk to the Back-of-the-Inns, and Doulton's Carrara ware has been largely employed for fancy and decorative purposes. The arcade is 29ft. in height and 15ft. wide, is lighted by electricity, and contains twenty shops. It has been erected from designs by Messrs. G. J. and F. W. Skipper, architects, London-street, Norwich.

A statue of the late Lord Aberdare, who was Home Secretary in Mr. Gladstone's first Government, and first President of the University College of Wales at Aberystwith, was unveiled at Aberystwith on Friday, by Sir Lewis Morris. The statue is a replica of the original in bronze erected some months ago at Cardiff, and has been presented to Aberystwith College by the designer, Mr. Herbert Hampton.

## Building Intelligence.

COLWYN BAY.—The first pile was driven on Monday last, May 29, for the new pier. The work is being carried out from designs by Messrs. Mangnall and Littlewoods, Manchester, the Widnes Foundry being contractors for the first section including the pavilion, which has to be completed by the end of this year. The pier promenade leading to the pavilion will be 40ft. wide, and is constructed with iron piles placed at intervals securely braced together, supporting steel riveted girders of spans that are considered strong without any extravagant use of metal, based on experience gained in the construction of two piers and pavilions recently erected at Morecambe. The pavilion is situated 50 yards from the entrance to the pier on the right-hand side, having a large dome and campanile towers, treated in the Renaissance style, calculated to hold about 1,500 persons. Gallery, cloakrooms, lavatories, and shops are provided. It is intended next year to complete the second section, which will comprise the continuation of the pier to 350 yards in length and 30ft. in width, the extremity being widened out for open-air music and other entertainments.

TRURO.—The preliminary work in connection with the completion of Truro Cathedral is being pushed forward as quickly as possible. The clerk of the works, Mr. E. T. Price, late of Bourne-mouth, has taken up his abode in the city, and under his direction offices, workshops, trestles for steam cranes, and other necessary work has been carried out, and the actual building operations have been commenced this week, preceded by a religious service held on Monday. As far as practicable, preference will be given to local labour. The builders, Messrs. Wilcock and Co., of Wolverhampton, are allowed 3½ years to complete the work, and during that time between 200 and 300 men will find constant employment on the work.

WALTON-ON-THE-HILL, LIVERPOOL.—Miss Ryle laid on Friday the foundation-stone of the new church of St. Luke the Evangelist, Walton-on-the-Hill. The church, when completed, will provide 564 sittings, and the present contract is for £4,500, which will cover the cost of erecting the shell of the building. The building is to be of brick, with stone jambs and mullions to windows, with Rusbon brick quoins and bands and terracotta finials, &c. The style is Early English. The architect is Mr. J. Francis Doyle, whilst the contractor is Mr. Samuel Webster, and the clerk of the works Mr. Gilbert Morris.

## CHIPS.

A consulting engineer and his son, of Birmingham, have secured British and international protection under the Patent Acts for an invention entitled "a mechanical bricklayer," for use in automatically laying, cementing, and levelling bricks, slabs, stones, and the like, in buildings of every description. The inventors expect to save two-thirds of the time occupied in laying bricks by hand.

At a meeting of the Malmesbury Abbey Restoration Committee, held on Wednesday week, it was stated that the estimated cost of the works needed for repairs was £10,000, towards which £1,685 had been promised. It was decided to invite a limited number of firms of builders to send in tenders, and a sub-committee of three was appointed with power to accept a tender.

At the Tonbridge Police-court, on Tuesday week, the adjourned case against Mr. Henry Adams, builder, of Monson-road, Tonbridge Wells, his son, George, aged 18 years, for committing wilful and corrupt perjury, was heard. The summonses were taken out by Messrs. William L. Bradley, surveyor to the Tonbridge Urban District Council, and related to a charge of alleged contravention of local by-laws as to drain connections. In the event both cases were dismissed.

The new Jamaica-street bridge at Glasgow, replacing one by Telford finished in 1836, was publicly opened upon the Queen's Birthday. It is 22ft. wider than the former structure, or 80ft. in width, and has cost about £100,000. Messrs. Morrison and Mason, of Glasgow, were the contractors, and the work has been four years in progress.

On Saturday there was erected in the Abbey Churchyard, Jedburgh, a monument of Aberdeen granite in memory of Mr. James Watson, historian of Jedburgh Abbey. Mr. Watson's volume on the history and architecture of Jedburgh Abbey is recognised as a work of comprehensive and careful research and of good literary character.

## PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH SOCIETY OF ORDAINED SURVEYORS.—The inaugural dinner of this Society was held in the Royal British Hotel, Edinburgh, on Friday night, and was attended by over thirty members. Mr. Peter Lawrence, President of the Society, occupied the chair, and the croupiers were Mr. A. Lawrie and Mr. R. Hamilton Paterson. The loyal toasts having been honoured, Mr. W. W. Robertson gave the toast of the evening, "The Society of Ordained Surveyors." The society was, he said, established for the purpose of promoting the interests of the profession, and he noticed from their rules that they proposed first to concern themselves with the establishment and conduct of examinations in connection with the qualification of candidates for admission to the society, and through the society to the profession. That, he thought, was in itself a very large and important piece of work, and it had a very direct bearing upon the standing of the profession in the future. The chairman, in replying, also referred to the regulations that had been drawn up by the society. Of course, he said, the surveyors wanted to get the best charges they could, and he thought this society would be helpful in this. They had been doing what they could to get a regulation mode of measurement adopted, which, he trusted, would satisfy architects as well as builders. He then proposed "The Ordaining Authorities," which was acknowledged by Bailie Robertson and Councillor Cameron. Mr. Paterson gave "The Builders," Mr. Edward Bruce responding. Mr. F. H. Lightbody, the hon. secretary, replied to the toast of "The Office-Bearers."

## LEGAL INTELLIGENCE.

CARNARVON.—THE ARBITRATOR'S AWARD.—Mr. Robert Vigers, the umpire in the arbitration case between the Carnarvon Corporation and Mr. Lloyd W. G. Hughes, Coedhelan, respecting the value of the ancient ferry rights over the river Seiont, at Carnarvon, has forwarded his award to the town clerk. The corporation are erecting a bridge over the ferry, and require land on the Coedhelan estate, to the extent of 290 square yards, for the purposes of the approach. In the course of the arbitration proceedings the corporation called evidence to prove that the value of the ferry and the land was about £500, while the witnesses called on behalf of the estate valued it at £4,000. The umpire has awarded the sum of £2,079 to Mr. L. W. G. Hughes as compensation.

WORKMEN'S COMPENSATION ACT.—At the Birmingham County-court, on Monday, two applications were made under the Workmen's Compensation Act to fix the amount to be paid to Ann Peyton for the death of her son, and to Mary Stokes for the loss of her husband, the two men who were killed during the demolition of Christ Church on Feb. 7. In the first case it was stated that the mother was partly dependent on her son's earnings, but His Honour Judge Whitehouse held that the members of the family must be wholly or partly dependent upon the man's earnings at the time of the death. Mrs. Peyton admitted that she had not received anything for six months, and therefore, while he felt the keenest sympathy with her, he regretted that he must non-suit her. In the case of Mrs. Stokes he awarded £187 compensation—£100 to the widow and £87 to her twelve-year-old daughter.

The architect's plans and specifications for new Hall of Records for New York have just been issued. They require two million dollars to be spent on the external building proper, and two and a half million dollars additional to complete the interior. The estimate for sculpture is 85,000 dollars, and for mosaic work is 10,000 dollars. No wood whatever will be used, the interior being entirely of coloured marble and the window frames of copper.

The decoration committee of St. Paul's have decided to remove the stencilling, and that it is desirable, before proceeding to do so, to see what will be the best mode of finishing the arches by completing the south-west dome without any decoration of the flat stone work. It has also been agreed that the panels in the fourth quarter-dome shall not be proceeded with until the committee have seen the effect of the whole of the south-west section being so treated.

The city council of Ripon have unanimously resolved to instruct their water supply committee to proceed with their inquiries respecting the proposal to purchase of the Marquess of Ripon the sulphur water spring, Aldfield Spa, and to present at the next council meeting plans and estimates of the cost of bringing the water to Ripon, and the erection of the necessary baths and other buildings.



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## ILLUSTRATIONS.

SELECTED DESIGN FOR THE ROYAL INSTITUTION, LIVERPOOL.—CAVENHAM HALL, SUFFOLK.—ARTISTIC WALL-PAPERS BY JEFFREY AND CO.—HOUSE AT APSLEY HEATH.—VICTORIA JUBILEE JUNIOR SCHOOL, BYKER.—FURNITURE FROM THE HOME ARTS AND INDUSTRIES EXHIBITION.—ORNAMENTAL IRONWORK.

## Our Illustrations.

THE ROYAL INSTITUTION, LIVERPOOL.  
SELECTED DESIGN.

THE design illustrated herewith was placed first in the recent open competition for the entire reconstruction of these buildings for the Royal Institution, Liverpool. It is the intention of the committee to first proceed with the building of the large lecture hall and retiring rooms, using them in conjunction with the existing premises. These, when funds allow, will be pulled down, and the scheme completed as shown by the drawings. The problem to be solved in the plan was to allow the hall to be easy of access and convenient to the existing buildings, and also admit of a similar arrangement when the completed scheme came to be carried through. The large lecture hall will accommodate 1,100 on the ground floor and 150 in the end gallery. The completed scheme provides for a small lecture theatre for 500, and has also top-lighted sculpture and picture galleries on the first floor. It is intended to use red pressed brick with terracotta dressings for the façades; the roofs to be slated. The estimated cost of the entire scheme is £18,000. The architects are Messrs. Briggs and Wolstenholme, of Liverpool and Blackburn. The plan, section, and elevation fully illustrate the provisions of the undertaking. Besides the top-lighted sculpture gallery and other galleries for pictures, there will be rooms for society meetings contrived on the first floor; the library to be at the corner of Colquitt-street also on the first-floor level.

CAVENHAM HALL, SUFFOLK.

THIS house, which is now in course of completion, has been built on a large shooting estate not far from Bury St. Edmund's. The old mansion-house, situated in the lower portion of the park, has been used for housing the workmen during the erection of the new hall, which has been placed some 300 yards to the south-west, on more rising ground. On the finishing of the stable buildings and gate lodges, the old hall will be entirely pulled down by the contractors, Messrs. Waring and Gillow, Ltd. The house has been built of dark-red narrow bricks, averaging five courses to the foot, supplied by Messrs. Allan and Co., of Sudbury, and the stone facings are of Casterton stone; the main cornices are of deal lined with lead to form the gutters, and the roofs have been covered with tiles supplied by the Broseley Tiley Company. The lifts have been supplied by Messrs. R. Waygood and Co., Ltd., and the internal ornamental plaster-work by Messrs. George Jackson and Son. This drawing is now on view at the Royal Academy, and Mr. Andrew N. Prentice, A.R.I.B.A., is the architect.

## ARTISTIC WALL PAPERS.

MESSRS. JEFFREY AND Co., of Islington, have long obtained a considerable reputation for the designs which they have brought out for wall and ceiling decoration. To-day we have made a choice of some of this firm's new patterns, executed for the present season and for next year. Mr. Walter Crane is the author of the very lively and picturesque composition entitled the "Cockatoo and Pomegranate," and Mr. Heywood Sumner's "Ribbon and Rhododendron" design also figures on the same sheet. This paper is rendered, of course, like most of the others, in a variety of colourings; but in all the space is admirably covered with well-drawn forms and well-defined spacings. "The Cardiff" is excellent in its sweetness of line, and although a very definite pattern, it cuts up exceedingly well in half-widths in narrow spaces. This can be seen at once by placing a piece of paper over one side of the design. The foliations, in a good red terracotta on a pale cream ground, well adapt this pattern for many uses, and it is very effective in execution. The Adams ceiling shown in the centre of our sheet reverses in hanging, and produces a bold and handsome arrangement in refined detail. The Oxford ceiling-paper is less mannered, working within the narrower limits of 21in. per square. The same restriction is observable in the "Stud" ceiling in relief. Mr. Lewis F. Day is the author of several of Messrs. Jeffrey and Co.'s most successful patterns. A whole book is devoted to Mr. Heywood Sumner's designs, which have a quaint directness and decorative character essentially their own. Some would feel their mannerism a difficulty, while others will in this recognise a special charm. The "Oak and Ash" is one of the best, well adapted in reds for dining-rooms. The "Campden" and the "Crown Imperial" are specially bold. The "Plantain" is a powdered diaper in graceful ovals, tracery-like, over the whole surfaces, while the "Knapweed" makes another elementary sort of design gracefully composed. The Floral Trellis is very pretty. We have only noted some of the most novel. The variety is so endless that it is impossible to name them all, and then Messrs. Jeffrey's variations in colour greatly augment the available choice adapted for every requirement of good taste.

RESIDENCE, APSLEY HEATH, NEAR BEDFORD.

THE above house has been erected on a charming site on the outskirts of the Woburn Estate, and in the midst of exquisite woodland scenery. The lower part is built of red sand-faced brick, and the upper part of stucco, and covered with a red tile roof. The work has been carried out by Messrs. Spencer, builders, Bedford. The architects are Messrs. Brewin and Baily, Pelham Chambers, Angel-row, Nottingham.

VICTORIA JUBILEE JUNIOR SCHOOL, BYKER,  
NEWCASTLE-ON-TYNE.

THIS school, which was recently opened, was erected to provide accommodation for 840 junior scholars. The buildings are of local stone, simple in character, and designed to harmonise with the older school buildings on another portion of the site. Internally, the school is finished with high-glazed brick dadoes and plaster above, with pitch-pine to 1st floor and plaster to ground-floor ceilings. The school is heated on the low-pressure hot-water system, and ventilated by means of shafts carried up to exhaust turret on roof. The work was carried out by Mr. Alex. Pringle, contractor, Gateshead, under Mr. Boocock as clerk of works. The architect was Mr. Charles Walker, of Eldon-square, Newcastle-on-Tyne.

THE HOME ARTS AND INDUSTRIES ASSOCIATION.

THE annual exhibition of this useful society has just closed at the Albert Hall. To-day we give a sheet of sketches from the gathering of Arts and Crafts Exhibits shown on the above occasion at South Kensington. The Oak Cabinet designed by Mr. W. H. Heady obtained a gold star, the highest award in the exhibition, and, like the Escriptoire from the same hand, was made at Mrs. Leopold de Rothschild's School at Ascot, Leighton Buzzard. The Cabinet Doors are delicately carved in a sort of teazle pattern; the handles, &c., are of beaten copper. The Escriptoire is of oak, stained a deep green, the upper portion being skillfully inlaid with a tulip and foliated design. Eight recesses occupy the upper part, as shown by the second sketch, with the flap

open. Immediately the exhibition opened this piece was bought by Lady Lovelace, and the Princess Louise ordered another of similar design. The council report another material advance in the progress of the association, as during the year 27 new classes were started. The average standard of work is higher, and the experience gained in former years is now bearing fruit. The stronger classes have developed so much as to make their endeavour felt by wishing to be established as a trading industry. The determination of the central authority to avoid, at any rate in headquarters, a commercial enterprise is of prime consequence; but in agricultural districts and in Ireland a class called "Developed Industries" is to be tried with a view of meeting the difficulty referred to. Woodwork, metalwork, basket-making, leather-work, embroidery, and pottery, besides minor classes of work, continue to occupy the energies of the various classes which are now established in all parts of the three kingdoms.

## EXAMPLES OF OLD IRONWORK.

THE accompanying illustrations of old ironwork are mostly taken from South Kensington Museum. The wrought-iron hinge is from an oak door removed from an old house near Exeter, and is of a form very much in use at that time (about 1600). The door-handle to the left is from Chastleton House, Gloucestershire. The hammered iron escutcheon is a fine example of German workmanship; but the door-handle strikes one as not being quite so comfortable to grasp as the simpler English ones, which seem better adapted to their purpose. The bolt-plate in the form of a crowned F (the initial of Francis I.) is cut out of one piece, the bolt itself sliding in the middle bar of the letter which is pierced for that purpose. W. HODGSON BURNET.

## COMPETITIONS.

LEAMINGTON.—For the proposed free library, school of art, and technical institute, nine sets of plans have been sent in, and have been numbered and forwarded to the assessor, who will report upon them by the end of next week.

LEICESTER.—A short time since the Markets Committee invited architects practising in Leicester to prepare designs in competition, and offered premiums of £100, £50, and £25 for the three best designs. Messrs. Leeming and Leeming were appointed assessors, who made the awards as follows: 1st premium (£100), Mr. Walter Brand, A.R.I.B.A., 16, Bishop-street; 2nd premium (£50), Mr. A. Bird, A.R.I.B.A., Grey Friars; 3rd premium (£25), Messrs. Blackwell and Thomson, Bredford Chambers; all of Leicester. The assessors state they have carefully gone into the estimate of the 1st premiated design, and make the result practically the same; which is as follows: markets, £24,087; cow storage, £6,417; baths extension, £1,329; total, £31,833. The recommendation of the Markets Committee to the Council that they authorise them to appoint Mr. Brand to act as architect was adopted last Tuesday.

The ceremony of laying the memorial-stone of the new wing of the British Home for Incurables, at Streatham Common, was performed on Tuesday. The object of the new wing, which will complete the Home as originally intended, is to provide accommodation for both inmates and staff, and also a recreation-hall. The architect is Mr. E. T. Hall, F.R.I.B.A.

At Loddon, Norfolk, a Primitive Methodist chapel is being built at a cost of about £1,000, to seat 200 persons. Messrs. Verridge and France, of Wisbech, are the architects, and Messrs. Chaston and Grimston, of Loddon, are the builders.

The directors of the Comrie, St. Fillans, and Lochearnhead Railway have accepted the offer of Messrs. John Paton and Company, contractors, Glasgow, for the construction of the section of the line between Comrie and St. Fillans, some six miles long. The contract price is over £78,000.

You want to read George Griffith's new story, "BROTHERS OF THE CHAIN," in the *Weekly Times and Echo*, don't you? Better order that paper for June 18 at once of your newsagent, then, or you may miss the first chapter. You remember the demand for his "Angel of the Revolution," "Olga Romanoff," "The Outlaws of the Air," and "The Romance of the Golden Star," and how you couldn't rest till you got *Pearson's* every week to read them. This is as good as the best of them—some say better.











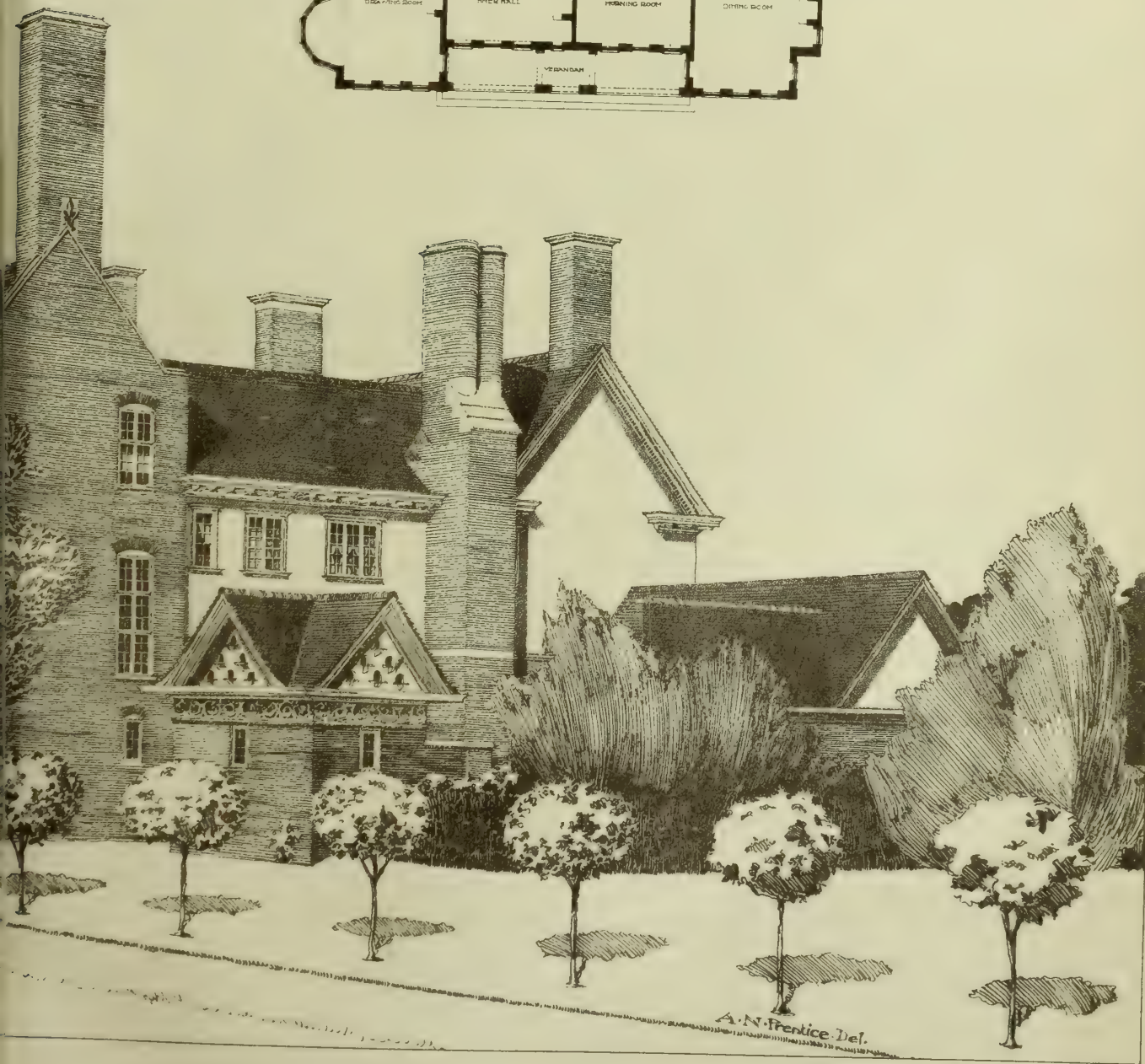
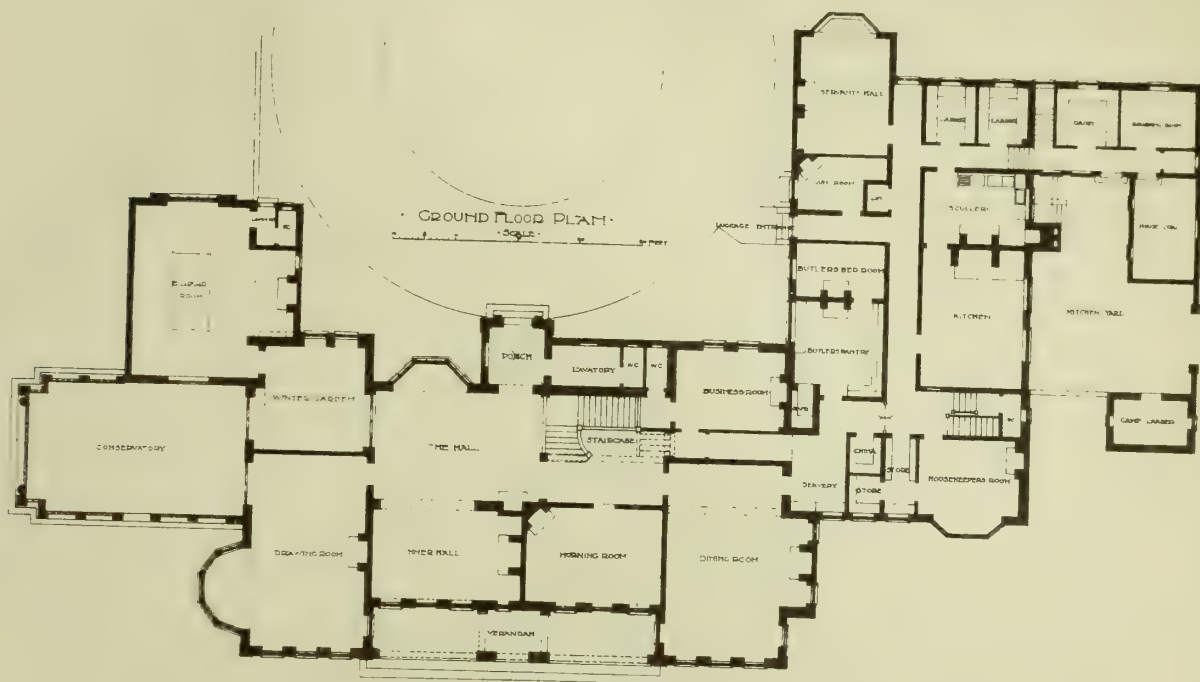
CAVENHAM HALL: SUFFOLK.

A · N · PRENTICE · ARCHITECT.





JUNE 2, 1899.

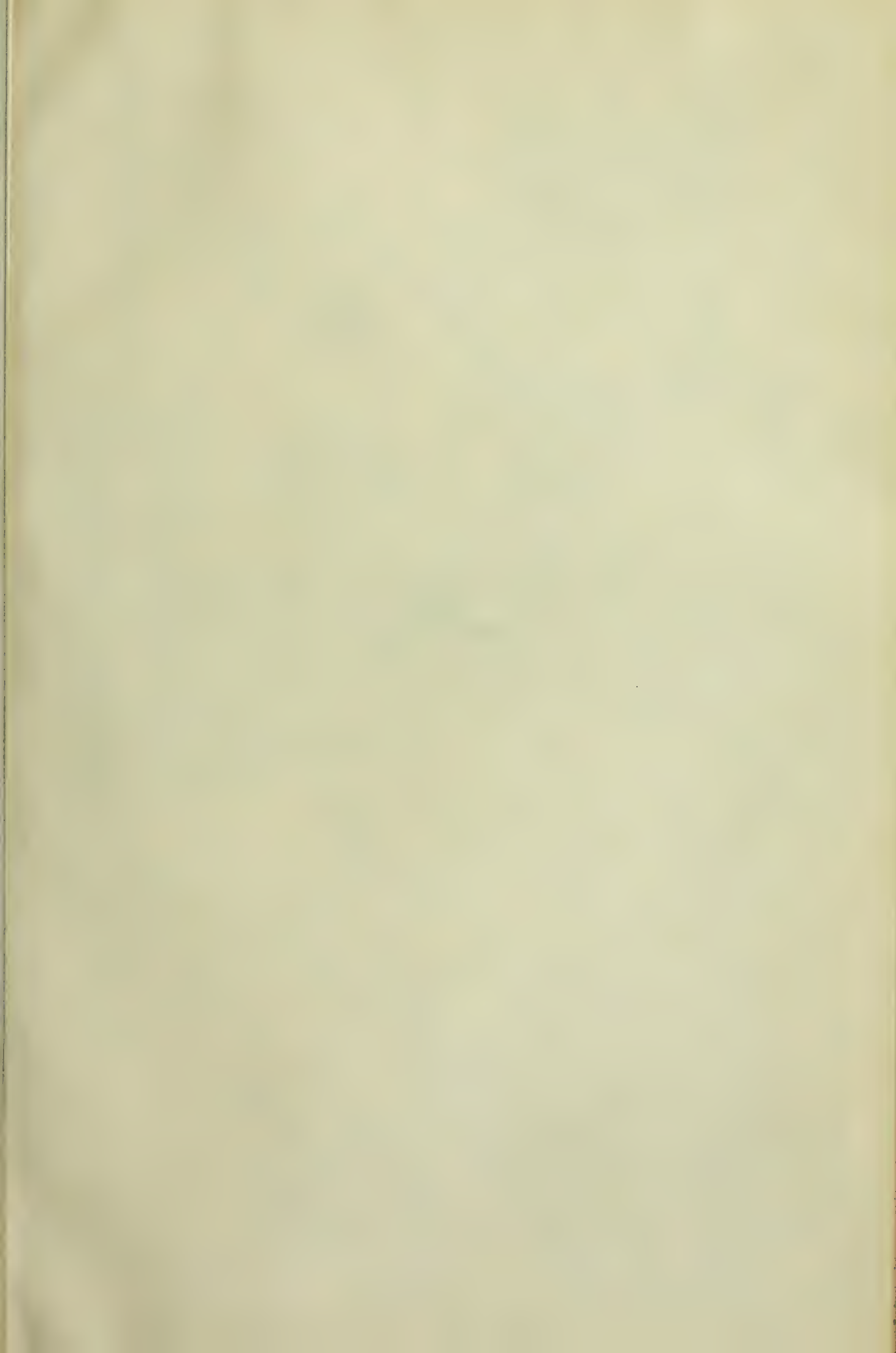


"PHOTO-TINT" by James Akerman, Queen Square London W.





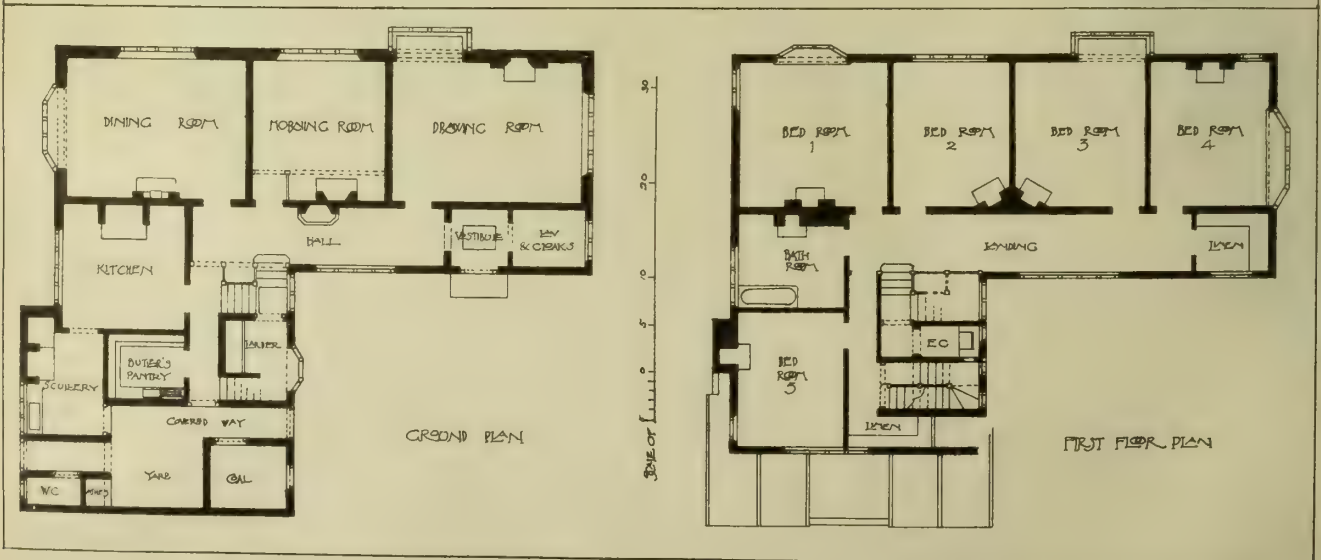






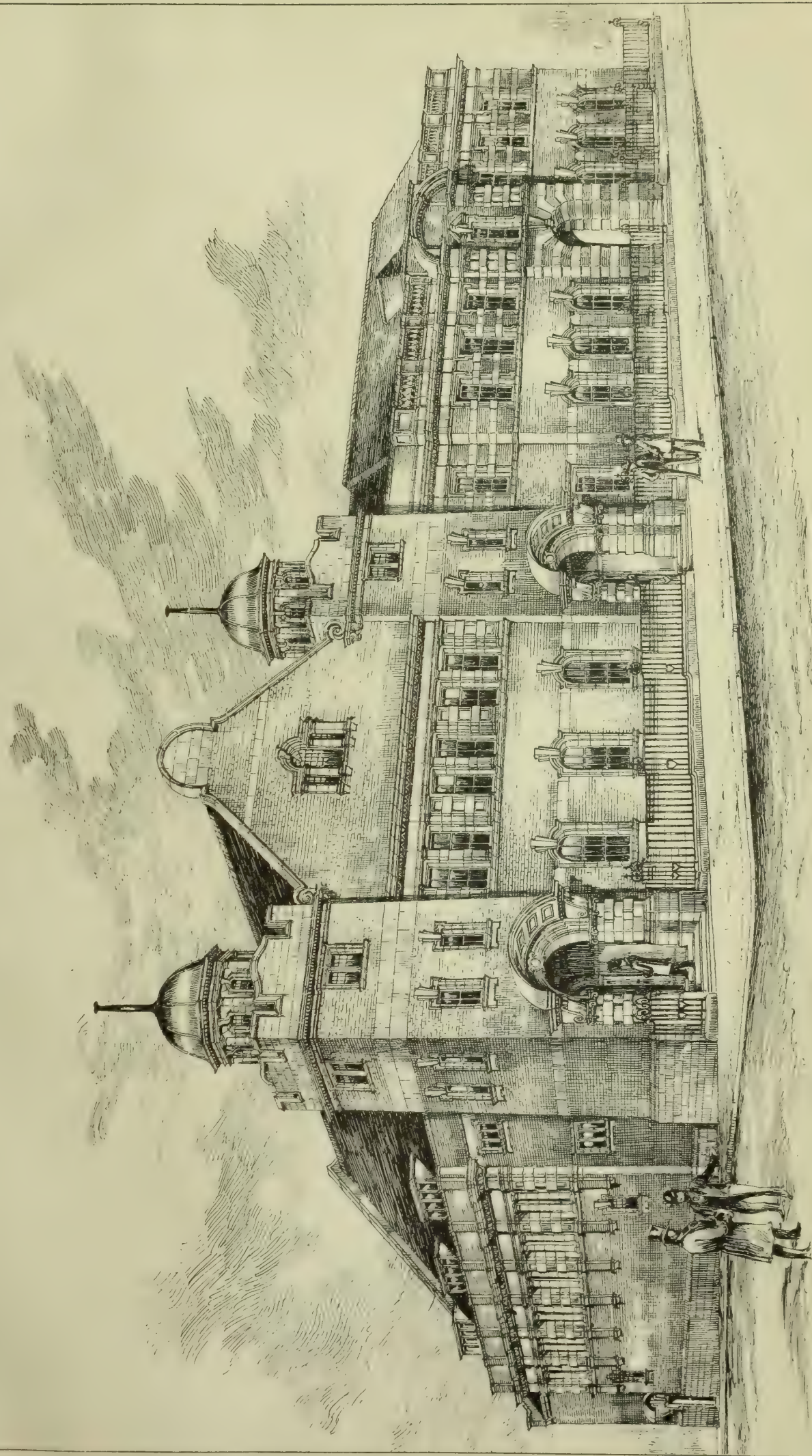
# HOUSE AT APSLEY HEATH

BREWILL & BAILY ARCHTS





ROYAL INSTITUTION LIVERPOOL SELECTED DESIGN BRIGGS AND WOLSTENHOLME ARCHTS.







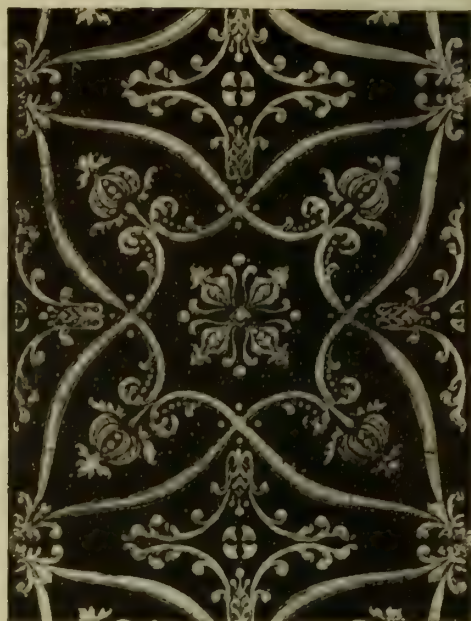








THE "OXFORD" CEILING.



THE "STUD" CEILING IN "RELIEVO."

# ARTISTIC WALL PAPERS.

by JEFFREY & Co.,

THE "ADAM"



THE "RHODODENDRON."

BY HEYWOOD SUMNER.



EACH BREADTH RE





THE "PEONY" CHINTZ.



THE "CARDIFF."

CEILING.



IN HANGING.



THE COCKATOO AND POMEGRANATE. BY WALTER CRANE.









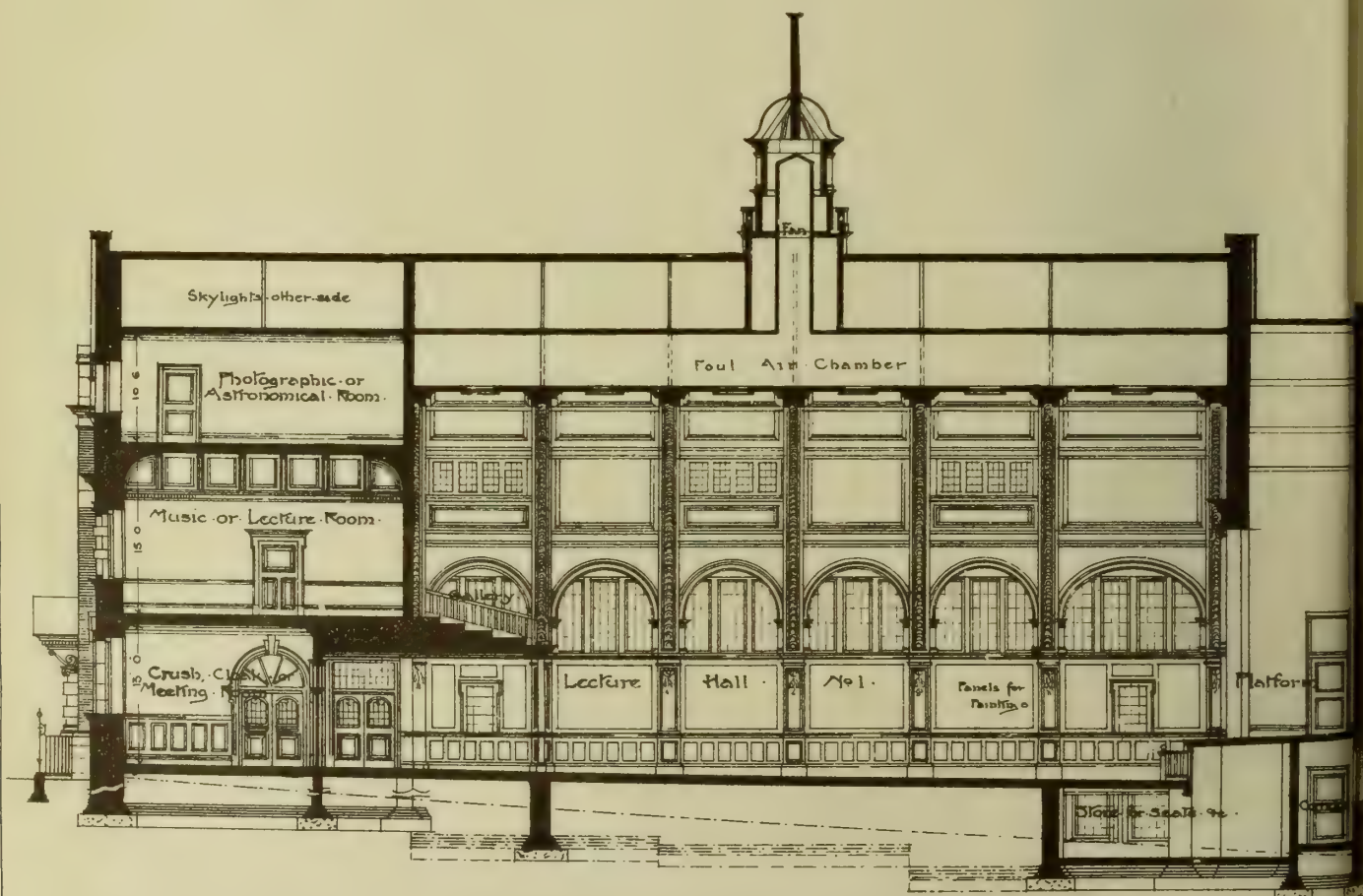


# ROYAL INSTITUTION LIVERPOOL SELECTED DESIGN

BRIGGS AND WOLSTENHOLME ARCHT.

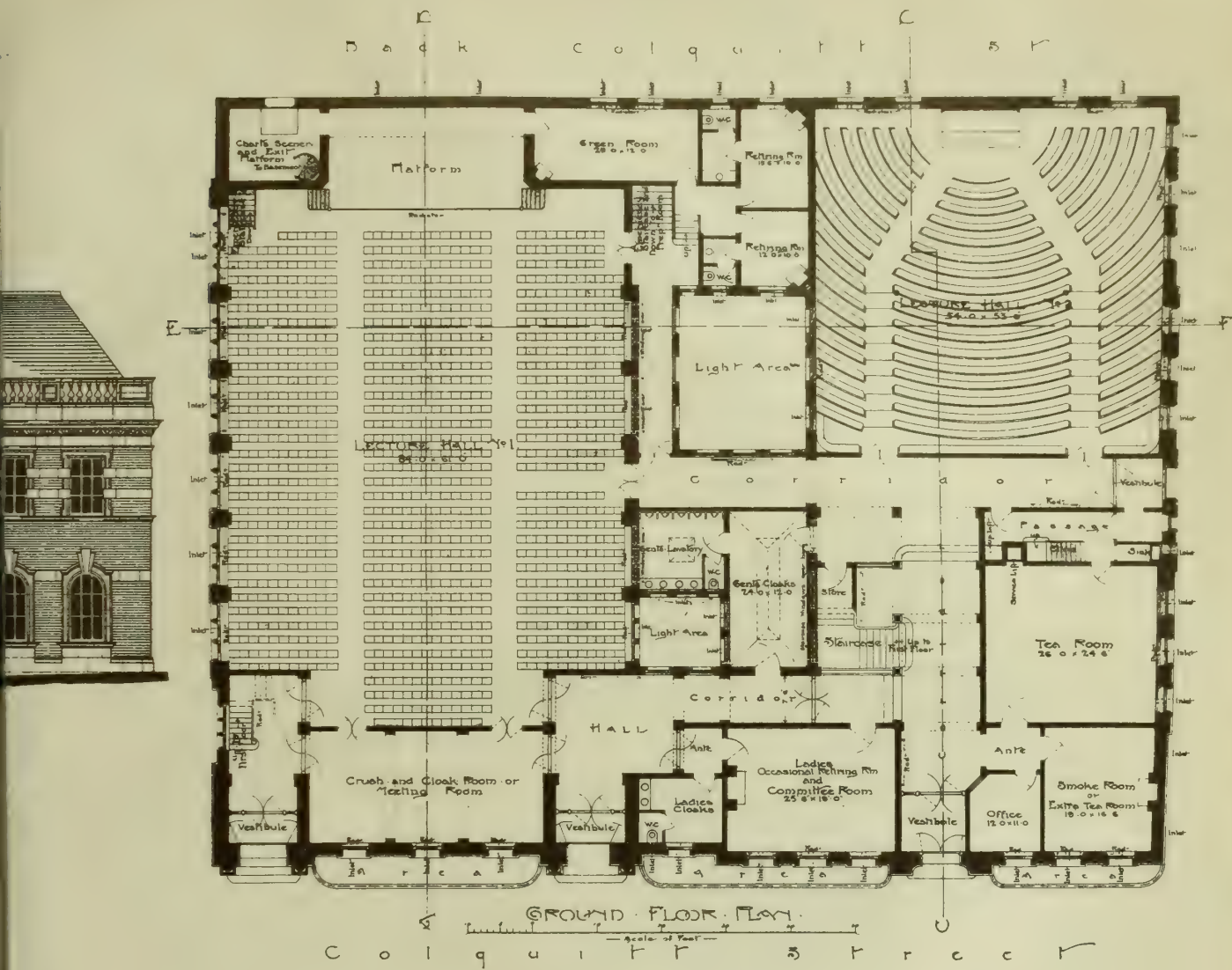


ELEVATION TO COLQUITT ST.



SECTION ON LINE A.B.



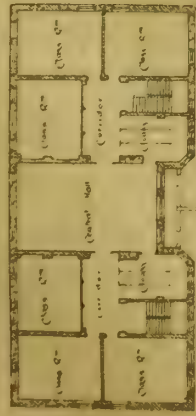


ELEVATION TO SEEL ST.

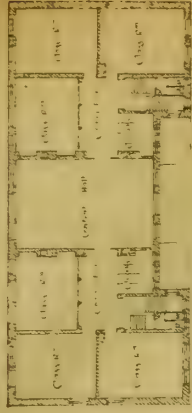




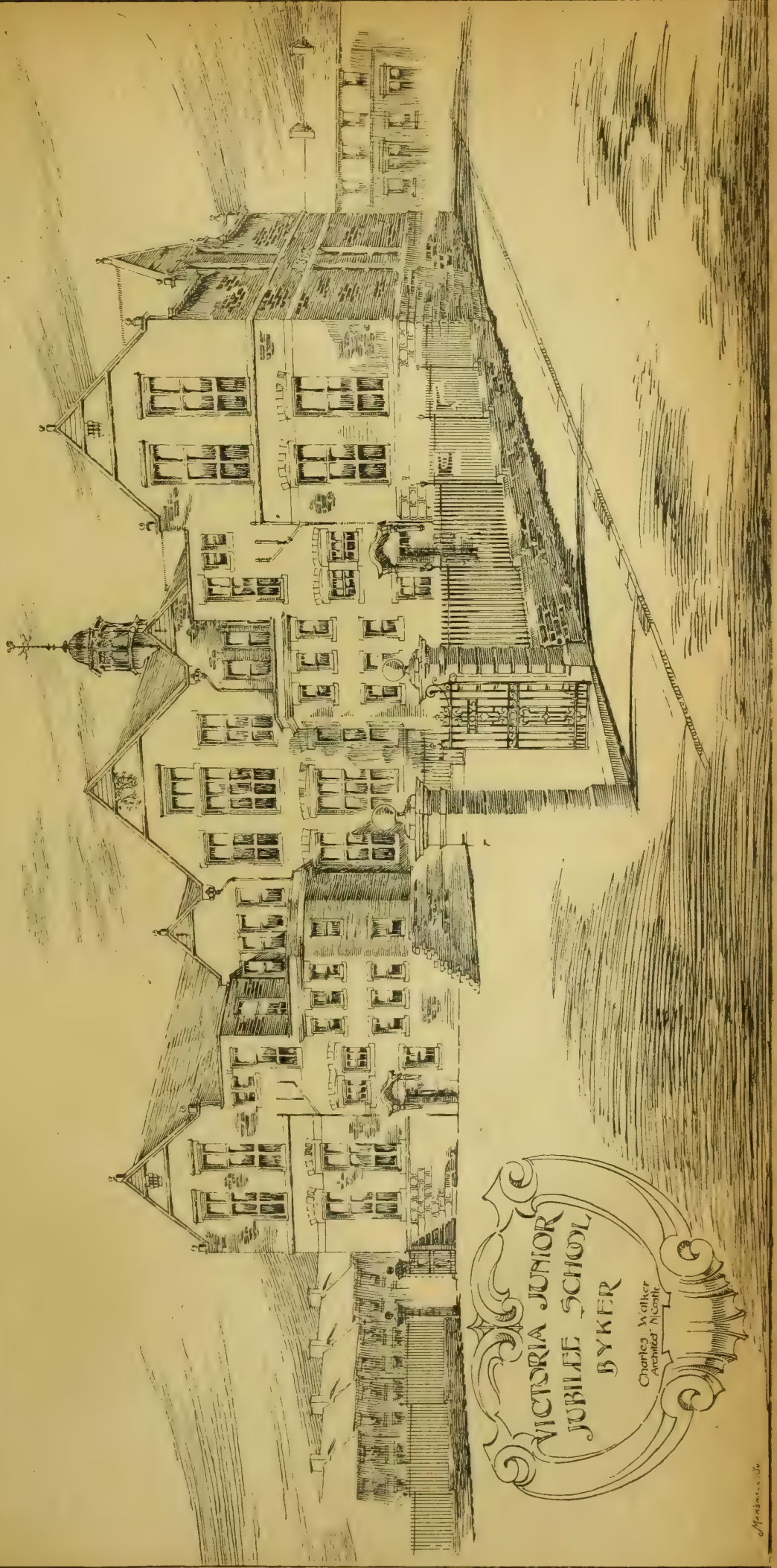




Plan of Ground Floor



11000 11000 11000



VICTORIA JUNIOR  
JUBILEE SCHOOL  
BYKER

Charles Walker  
Architect - Newcastle

Maximilian. . . . .



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLV., XLIX., LI., LII., LIV., LV., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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RECEIVED.—D. G. J.—A. S. M.—G. G. and Co.—W. L. (Salford).—R. B. G.—N. R. Z.—G. T. L. Co.

## "BUILDING NEWS" DESIGNING CLUB.

## NINTH LIST OF SUBJECTS.

I.—A pair of semi-detached Suburban Villas in brick and stone on 28ft. frontages, each suitable to let at £60 a year, and carry a £10 ground-rent. Depth of land 100ft. The two parlours to be commodious, the larger of the two to be used as the dining-room; five bed-rooms, box-room, bath-room, and w.c. inside the house, besides servants' w.c., good kitchen, scullery with copper, larder, small store, and offices. The staircase is not to front the main entrance, and the hall must be 6ft. wide. Pitch of ground floor 9ft., upstairs 8ft. 6in. Two or three rooms may be on second floor. The problem has often been solved, but still ever-varying chances of distinction are afforded. Plain, simple, and picturesque treatment desirable. Adapted to the materials used and object of the buildings. Tiles for roofs set out to 45° slope. Plans, two elevations and section, also sketch. Frontage 15ft. from footway. Scale 8ft. to the inch; but, if necessary, plans may be smaller, say 1/16th scale. Economy and spaciousness to be considered. State price and cubing. View necessary.

DRAWINGS RECEIVED.—"Cantab," "Lucky Star," "Swan," "Speys," "Astragal."

## Correspondence.

## VAUXHALL BRIDGE AND OTHER THINGS.

To the Editor of the BUILDING NEWS.

SIR,—When I read the report of Mr. Statham's paper in the Institute Journal and looked at the "copyright" design for the proposed Vauxhall Bridge, I was astounded that any architect, even an "eminent" architect, could have the daring to present such a design, aided also, be it said, by another design by his assistant, whose name, by the bye, he has the candour to publish.

Before I saw Mr. Woodward's admirable letter to you on the subject, I had compared the

designs advocated by Mr. Statham, and, indeed, had made two rough sketches, one showing Mr. Statham's arrangement of the voussoirs, and also the proper method of arranging them both constructionally from a mason's point of view as to satisfy the eye of an ordinary onlooker.

The "copyright" design is wrong in every point; and, finally, to cap the whole thing, the lamps are placed on the piers of the bridge! instead of being placed over the centre of the arches, so as to guide the navigation of craft. I should hardly think the author of this "copyright" design had ever been upon our crowded "London river" (as the sailors term it) by night. If so, he would know that the arch lights on the bridges enable lightermen and others in charge of craft to "shoot" the bridges with safety—a pier or buttress light would mean destruction to them in a river. If this is the architects' idea of a bridge, then I say, Pray leave such things to our friends the engineers.

Another point I must refer to in Mr. Statham's valuable paper is that he said he did not know who designed the Tower Bridge. Many of us do not know who really designs public monuments; but I think it is "common knowledge" to whom the design of this bridge is accredited—viz., the late Sir Horace Jones. This point was cleared up by Mr. Henry Lovegrove informing the meeting of this fact; but, of course, mere practical architects are not known to persons who dub themselves "eminent architects," for, referring to Mr. Statham's paper on page 393, he says, speaking of this handsome bridge: "It is stated that the exterior clothing was designed by an architect; he cannot have been a very eminent one as we never hear his name (!)" O! wise young judge—"We never hear his name"—this in one sentence sums up all the actions of the Institute. "We never hear his name": he cannot therefore be either eminent or gifted, as he is unknown to that small family party.

I cannot understand why Mr. Statham finds such fault with the Tower Bridge; doubtless, like his own elegant design for Vauxhall Bridge, it is in many points false in construction; but I can assure Mr. Statham that this bridge commands much appreciation by the public, and especially by foreign visitors, and will continue to do so long after Mr. Statham and all his "educating" designs are forgotten—if, indeed, they were ever known publicly.

The Tower Bridge should be seen from a vessel coming up the river, or moored alongside a wharf, about four or five o'clock on a fine summer's morning; then, indeed, it is a picture for an artist's—not necessarily an architect's—eye; the whole of the upper part of the eastern side of this commanding bridge lighted up by the rapidly-rising sun, touching up and glinting upon the bright points, the "atmosphere" still hanging over the river; the mass of craft of all kinds, and, above all, the active human life busily engaged, make up such a picture that might cause any man, even an architect, who don't know quite the reason why, to have some sort of elation, some sort of appreciation of a grand and noble picture.—I am, &c.,

HORACE T. BONNER.

## CIRCULARISING.

SIR,—I inclose herewith a circular which came into my hands to-day, thinking, if you can find room for it in the BUILDING NEWS, it may be of interest to some of your readers.—I am, &c.,

J. BATTYE.

T. J. COUNCELL, P.A.S.I., Architect and Surveyor, Valuer, and Estate Agent, 2, Queen Anne Buildings, Baldwin-street, Bristol, May 29, 1899.

DEAR SIR,—Will you kindly allow me to introduce myself to your notice, as I have a few facts to tell you which I am sure you will be good enough to consider?

I am a young architect and surveyor who has decided to start out in life, and, if possible, to attain to my motto—"Success with Honour."

I shall not charge exorbitant [sic] fees; but I have determined to keep my fees as low as I possibly can, so that all classes of the community can come to me, and they will know that I shall deal fairly and honourably with them.

I have a thorough practical knowledge of my profession, including (as it does) architecture, surveying, road and sewer construction, development and laying out of building estates, valuing all kinds of property for mortgages or other purposes, putting plans on deeds, reporting on existing or proposed buildings, works, &c., and all other professional undertakings.

But in order that the public—which is generally a careful judge—may know that I am qualified, I may state that I have been examined by the Royal Incorporated Institute of Surveyors (London), and I was found to be thoroughly qualified; and I also hold a Certificate for proficiency in Architecture, issued by the Institute of Architects and Surveyors (London).

Mr. James Craik, surveyor, &c., of this city, has kindly permitted me to state that I was articled to him in 1890, and that when he endorsed my deeds of articles, he said I was quite qualified in my profession. Several other Bristol architects and surveyors have also recommended me and my work.

In addition to this I append three testimonials of work done by me which, I think, will speak for themselves.—I remain, dear Sir, yours faithfully,

T. JAMES COUNCELL.

## Intercommunication.

## QUESTIONS.

[12245].—Gloucestershire.—I purpose visiting, for my holidays, for a fortnight, at the end of June, the above county, making Gloucester my headquarters. Is there much 16th-century Domestic work in the neighbourhood? Names and particulars of any interesting places for general architectural sketching of easy access will be welcome, and the name of a good guide-book (archeological) to the county.—NEWCASTLE-ON-TYNE.

[12246].—The Soot Nuisance.—Two flues in a new flat in town give great trouble owing to soot falling and dirtying carpets. Could any reader give a reliable remedy, such as an anti-down-draught cowl or other means? The writer had nothing to do with the erection of the buildings, but has no reason to suppose the work has been badly done in any way, and the fires do not smoke in the least.—PERPLEXED.

## REPLIES.

[12239].—Pitches and Roofs.—"Excalibur's" question is almost a satire on the average textbook of construction. He asks, Why are the pitches of roofs shown so flat in textbooks, like that of Newland's "Carpenter's and Joiner's Assistant," and other handbooks? Why, indeed? The answer seems to be simply because such handbooks borrow so much from one another. There is scarcely one building textbook I know (English, I mean) that is not a compilation. Newland's useful work is too much based on Nicholson, Tredgold, and the earlier authorities, who wrote their admirable treatises when flat-roofed buildings, or the Classic Pseudo-Greek style was in vogue, hence their examples of roofs are all flat-pitched, such as one-fourth or one-fifth. More recent writers, like Newland and several new editions based on Tredgold, have adopted the same examples, and have neglected entirely the higher pitches of Gothic and Renaissance roofs. What is quite as misleading, the newer manuals give few, if any, examples of high-pitched or Gothic roofs; the old "King" and "Queen" post truss are repeated. The French handbooks are better. If we take the examples in Viollet le Duc, or in other recent treatises on construction, we find many good examples of Medieval or Renaissance timber roofs. The advice of many of the modern textbook writers is not often supported by the best examples, and "Excalibur" remarks that in both Newland's and Mitchell's excellent works, the authors recommend one-third pitch and illustrate flatter pitches. These things are misleading to students; they are attributable chiefly to good theory supported by bad examples. Textbooks reflect our modes of instruction. The illustrations given are often extremely poor, and in this matter our neighbours are much in advance.—G. H. G.

[12242].—Reservation of the Communion.—Tabernacles that can be, and probably are, used are made with many altars for Anglican churches; mostly of oak, but oftentimes lined with metal, and with a wrought-brass door. As a matter of absolute fact, I have made more of these for the Episcopal Church of Scotland than for that of England. The Holy Sacrament in the Established Church, when reserved in both kinds, is generally so applied with the object of giving Communion to the sick. As soon as the service in church is ended, the reserved Sacrament is taken direct to their bedside. Where tabernacles exist, the Sacrament may be locked up until a convenient time occurs to take it to the homes of the sick—some later hour of the day than that of the service, but on the same day. Often we made "dummy" tabernacles. These stand in their proper place in the midst of the ratable or super-altar, and have a front panel, which is really a sham door. At the same time, they are so constructed that at any future season, if deemed desirable, the front panel may readily, by means of hinges and a lock, be made into the real door of an actual repository, in which the Blessed Sacrament is reserved when necessary.—HARRY HEMS.

[12243].—Casements.—Wood casements can be made watertight if proper provision is made by means of check mouldings along the bottom rail or water-bar, and the meeting and hanging stiles are furnished with joints with tongues in the frame, which effectually check the entrance of water. I prefer hanging the casements to open outwards; they are safer. Some useful sections will be found in "Model Specifications," given in the BUILDING NEWS. Metal casements are more likely to exclude driving rains, especially when the casement opens inwards. Messrs. Burt and Potts, Westminster, and the Crittall Manufacturing Company, Baintree, make very excellent metal casements. The metal casements can be screwed to the wood mullions and frame. With outward-opening casements a weather-bar or board should be fixed over the sill, forming a drip, which prevents the water entering.—ARCHITECT.

[12244].—Outlet of Closet.—Too often the short arm or outlet which goes through the wall is connected to a common 4in. cast-iron R.W. pipe, and the joint is made in red-lead in the wall. The L.C.C. regulations, I believe, require the iron soil-pipe to weigh 5lb. to the length of 6ft., and to be 3in. thick at least. There should be a caulked lead joint between outlet and iron soil-pipe. The connection should be outside the house.—A. M.

[12246].—Rates of Insurance for Fireproof Buildings.—By the adoption of improved fire-resisting floors and ceilings, will the fire offices make any reduction in the premiums for insurance, and if so, what? An answer will oblige.—T.



## Our Office Table.

"THE Act seemed to have been drawn by a person who had strayed into the land of topsyturvydom, and there acted upon his recollection of the great composition, 'the House that Jack built,' but also with the disadvantage of not knowing what he meant." This judicial obiter dictum regarding the Workmen's Compensation Act, which Mr. Chamberlain a few days ago seemed to claim as a masterpiece of constructive legislation, was delivered in the City of London County-court on Friday by Deputy-Judge Pitt Lewis, Q.C., who dismissed an action for compensation brought by an employé against the owners of the London and India Docks, on the ground that the warehouse where the man was working at the time he sustained his injuries was not a warehouse within the meaning of the Workmen's Compensation Act. This "extraordinary tangle of legislation," as Mr. Pitt Lewis termed it, has been drafted with a total disregard of the plain meaning of the English language, with the result that nearly every day injured workmen, although in the included trades, are debarred from any benefit under the new law.

The Plans Committee of the Leeds Corporation are determined to put an end to "jerry" building in the city so far as inferior mortar is concerned. At their last meeting they passed a resolution requiring all mortar used for building purposes to be of a minimum quality of one part of lime to two parts of good engine ashes or clean river sand. This decision on the part of the committee is the outcome of a report by Mr. Fairley (the City Analyst), which document showed that numerous samples of mortar recently analysed by him had been very inferior stuff indeed. In future, whenever one of the building inspectors finds mortar being used by contractors which is of a doubtful strength, he will submit a sample to Mr. Fairley.

In a lecture on the Scenery of the Greek Stage given before the Hellenic Society last week, Professor Percy Gardner urged that there was at all periods in the Greek theatre a raised stage, and proceeded to consider what kind of a background it had. He accepted the tradition that the first painted background was that made for *Æschylus* by *Agatharchus*, of Athens, but maintained that this background was not a canvas scene, but a wooden erection painted to resemble the front of a temple or palace. This scene, like the other stage arrangements due to *Æschylus*, became stereotyped, and was not altered according to the requirements of particular plays. Those requirements were met, partly by the use of perfect, three-sided prisms which turned on a pivot and presented to the audience different paintings which conventionally represented different localities, partly by the use of stage properties, curtains, and the like. But in all periods stage scenery was very simple and not realistic. These views were enforced by an examination of the statements of *Vitruvius* and *Julius Pollux*, and in particular by setting forth the testimony offered by inscriptions from Delos, which prove that the painting of the front of the stage building was permanent, and paid for, not out of the cost of producing plays, but out of the cost of construction.

The Rev. S. Gillson, rector of Ithen Abbas, Acreford, has raised a discussion in the *Standard* on the age and size of yew trees by asking if any correspondent can name a yew of larger size than the one in his churchyard, which measures at 2ft. 6in. from the ground a girth of 2ft. 7in., with a spread from the extreme ends of opposite branches of 66ft. Mr. Henry Spring, of Woodford, Essex, replies that the one in that churchyard is 15ft. in girth at 2ft. 6in. from the ground and 18ft. girth at 5ft., while in 1816, when Woodford Church was rebuilt, the spread of the branches was said to have been 180ft. Another correspondent, dating from Southampton, gives the following list of big old yews: *Basildon*, Berks, two planted 1726, in 1889 (163 years) one was 9ft. 2½in., the other 9ft. 6in.; *East Woodhay*, Bishop Ken's, planted 1660 (219 years old in 1888), 7ft. 7in.; *Aldworth*, known to be 1,000 years old, 27ft. cir.; *Selborne*, 25ft. 2in. at 4½ft. from ground; *Lockerby*, 23ft. 4in.; *Hurstborne Priors*, 23ft. 10in.; *Darley Dale*, Derbyshire, 32ft., foliage 80 yards in cir., supposed 2,000 years (!); *Corhampton*, a beauty, 22ft.; *Breamore*, near Fordingbridge, 23ft. 4in.; *Brockenhurst*, 17ft., supposed 700 years; *Fortingal*,

*Perth*, 56ft. (now very little left); *Ithen Abbas*, 27ft. 6in.; *Dovebridge*, Derbyshire, 22ft., spread 212ft. diameter; *Tisbury*, Wilts, 37ft.

Mr. WILLIAM BRADBROOKE, of Bletchley, writes: "The yew at Selborne, which Gilbert White describes as 25ft. in girth, was found in September, 1897, to measure 25ft. 8in., 4ft. from ground, with a spread 180ft. diameter, and a height of 60ft. In Steep churchyard, Hants, are two yews, one 12ft. in girth, and the other 19ft. 7½in., with branches shading a circle about 50 yards round. The well-known Ifley yew is very difficult to measure, as the trunk has numerous young offshoots; it is about 18ft. to 20ft. round. At Alvechurch, Worcestershire, the yew in the churchyard girthed 23ft. 4in. at 4ft. Broughton Hacket, Worcester, has a yew with a girth of 15ft. 3in.; the branches cover a circle of 108ft. round, and is held together with a chain (1892). In Weethly churchyard, Warwickshire, is a yew 17ft. round, and shading a circle about 150ft. in circumference." Mr. C. B. Sparrow calls attention to the Church Preen yew-tree which measured in August, 1897: Umbrage, 230ft.; girth at ground, 37ft. 2in.; 1ft. from ground, 32ft. 7in.; 7ft. from ground, 23ft. 3in.

## MEETINGS FOR THE ENSUING WEEK.

SATURDAY (TO-MORROW).—Architectural Association. Visit to Cobham Hall, Kent. Train for Sole-street from Victoria 11.45 a.m., or Holborn Viaduct 11.40 a.m.  
St. Paul's Ecclesiastical Society. Visit to Blackmore Church, where a paper by F. Chancellor, F.R.I.B.A., will be read. Train from Liverpool-street for Ingatstone. 2 p.m.  
Northern Architectural Association. Excursion to Chester-le-Street and Lumley.  
Edinburgh Architectural Association. Excursion to Arbroath Abbey. Train from Waverley Station. 9.35 a.m.

THURSDAY.—Royal Architectural Museum, Tufton-street, Westminster. Annual Meeting. Address by Sir Wyke Bayliss on "The Bogie in the Studio." 4 p.m.

## Trade News.

### WAGES MOVEMENTS.

NEWPORT, MON.—In replying to an inquiry made by the secretary of the Newport Building Trades' Federation, the secretary of the Newport Master Builders' Association states that the latter are offering employment at the following wages:—8d. per hour till Dec. 1, 1899, when the figure will be 8½d. per hour, and there will be a new code of rules. Labourers to receive 5½d. on the same date. The bricklayers alone have accepted these terms.

SCARBOROUGH.—The Master Builders' Association on Saturday decided to lock out 25 per cent. of the Union men in each branch of the building trade.

NORWICH.—The dispute with the builders' labourers has been settled, the men having accepted the offer of the masters to pay 5s. per hour, as from June 1.

### CHIPS.

The Thornbury Board of Guardians have adopted plans by Mr. Oatley, of Bristol, for a new workhouse infirmary.

Mr. Harry Martin, of Acock's Green, Birmingham, has been appointed building inspector to the Stoke-on-Trent town council from among 41 candidates.

The Constitutional Club in Weaver-street, Winsford, was formally opened on Wednesday week. It has been built at a cost of £1,600, from plans by the late Mr. Waring. The contractors were Messrs. A. and H. Halse, of Winsford.

Alterations are being made to the Board School, Merthyr Tydfil, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

The rebuilding of the premises of the Surveyors' Institution in Great George-street being now complete, the offices of the Tribunal of Appeal have been removed from the temporary premises in Savoy Hill to the new premises of the Surveyors' Institution.

The proposed legislation to limit the height of all buildings within 1,000ft. of the Boston State-house to the level of the main cornice of that venerated structure is likely to fail, the Committee on Cities having reported the petition for such legislation unfavourably; but a substitute Bill has been reported, limiting the height of all buildings within the State of Massachusetts to 100ft. This latter measure has since been rejected.

## LATEST PRICES.

IRON, &c.		Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£6 0 0	to	£8 10 0
Rolled-Steel Joists, English.....	6 10 0	"	7 0 0
Wrought-Iron Girder Plates.....	5 15 0	"	6 10 0
Bar Iron, good Staffs.....	7 5 0	"	8 5 0
Do., Lowmoor, Flat, Round, or Square.....	17 0 0	"	17 5 0
Do., Welsh.....	5 15 0	"	5 17 8
Boiler Plates, Iron—			
South Staffs.....	7 17 6	"	8 5 0
Best Suedish.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £8 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20.	No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge.....	£10 15 0	to	£11 0 0
Best ditto.....	11 5 0	to	11 10 0
Cast-Iron Columns.....	£8 10 0	to	£9 0 0
Cast-Iron Stanchions.....	6 10 0	"	9 0 0
Rolled-Iron Fencing Wire.....	8 5 0	"	9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	"	9 5 0
" " Galvanised.....	11 10 0	"	12 10 0
Cast-Iron Sash Weights.....	4 12 6	"	4 15 6
Out Clasp Nails, 3in. to 6in.....	9 0 0	"	10 0 0
Out Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12.....	13 14 15	to	B.W.G.
9/8 10/- 10/6 11/3 12/- 13/-.....	14/- 15/9 17/9	per cwt.	
Cast-Iron Socket Pipes—			
3in. diameter.....	£6 7 6	to	£6 12 6
4in. to 6in.....	6 2 6	"	6 7 6
7in. to 24in. (all sizes).....	5 12 6	"	5 17 6
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Fig Iron—			
Cold Blast, Lilleshall.....	105s.	to	110s.
Hot Blast, ditto.....	57s. 6d.	to	62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. :—			
Gas-Tubes.....	6 1/2 p.c.		
Water-Tubes.....	6 1/2		
Steam-Tubes.....	5 1/2		
Galvanised Gas-Tubes.....	5 1/2		
Galvanised Water-Tubes.....	4 1/2		
Galvanised Steam-Tubes.....	4		
10cwt. casks. 5cwt. casks.			
Per ton.			
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 3lb. per sq. ft. super.....	16 2 6	"	17 2 6
Pig Lead, in lwt. pigs.....	15 7 6	"	16 7 6
Lead Shot, in 28lb. bags.....	19 0 0	"	20 0 0
Copper Sheets, sheathing and rods.....	85 0 0	"	86 0 0
Copper, British Cake and Ingots.....	80 0 0	"	81 0 0
Tin, Straits.....	118 10 0	"	119 10 0
Do., English Ingots.....	121 0 0	"	122 0 0
Spelter, Silesian.....	27 0 0	"	28 10 0
T I M B E R.			
Teak, Burmah.....per load	£13 10 0	to	£16 10 0
" Bangkok.....	11 10 0	"	15 10 0
Quebec Pine, yellow.....	4 7 6	"	6 10 0
" Oak.....	4 10 0	"	6 5 0
" Birch.....	3 10 0	"	5 10 0
" Elm.....	4 12 6	"	5 15 0
" Ash.....	4 0 0	"	5 5 0
Dantaic and Memel Oak.....	3 5 0	"	4 0 0
Fir.....	1 7 6	"	3 7 6
Wainscot, Riga p. log.....	3 15 0	"	6 5 0
Lath, Dantaic, p.f.....	4 10 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	8 0 0	"	8 5 0
Box.....	4 0 0	"	15 0 0
Sequoia, U.S.A. per cube foot	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5	"	0 0 7 1/2
" Honduras.....	0 0 4 1/2	"	0 0 6
" Mexican.....	0 0 3 1/2	"	0 0 4
Cedar, Cuba.....	0 0 4 1/2	"	0 0 4 1/2
" Honduras.....	0 0 3 1/2	"	0 0 4 1/2
Satinwood.....	0 0 10	"	0 1 9
Walnut, Italian.....	0 0 8	"	0 0 7
Deals, per St. Petersburg Standard, 120—12ft. by 1½in. by 1½in. :—			
Quebec, Pine, 1st.....	£19 0 0	to	£25 10 0
" 2nd.....	14 0 0	"	17 5 0
" 3rd.....	6 15 0	"	10 0 0
Canada Spruce, 1st.....	8 5 0	"	10 5 0
" 2nd and 3rd.....	7 0 0	"	8 5 0
New Brunswick.....	7 0 0	"	7 15 0
Riga.....	8 5 0	"	9 5 0
St. Petersburg.....	9 15 0	"	14 5 0
Swedish.....	9 15 0	"	16 15 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	10 15 0	"	18 0 0
Battens, all sorts.....	5 0 0	"	16 0 0
Flooring Boards, per square of lin. :—			
1st prepared.....	£0 11 9	"	£0 15 0
2nd ditto.....	0 10 3	"	0 12 0
Other qualities.....	0 5 3	"	0 6 6
Staves, per standard M :—			
Quebec pipe.....	—		—
U.S. ditto.....	£35 0 0	"	£42 10 0
Memel, cr. pipe.....	210 0 0	"	220 0 0
Memel, brack.....	180 0 0	"	190 0 0
O I L S.			
Linseed.....per ton	£19 0 0	to	£19 7 6
Rapeseed, English pale.....	22 5 0	"	22 10 0
Do., brown.....	21 0 0	"	21 5 0
Cottonseed, refined.....	15 6 0	"	16 15 0
Olive, Spanish.....	30 0 0	"	32 0 0
Seal, pale.....	18 0 0	"	18 5 0
Cocconut, Cochinchina.....	29 0 0	"	29 5 0
Do., Ceylon.....	25 10 0	"	25 15 0
Palm, Lagos.....	24 0 0	"	24 5 0
Oleum.....	18 15 0	"	19 15 0
Lubricating U.S.....per gal.	0 6 8	"	0 7 6
Petroleum, refined.....	0 6 8	"	0 6 6 1/2
Tar, Stockholm.....per barrel	1 0 0	"	1 6 6
Do., Archangel.....	0 18 0	"	1 0 0
Turpentine, American.....per ton	£3 15 0	"	£9 0 0



## LIST OF COMPETITIONS OPEN.

Salford—Public Hall, Shops, and Model Cottages on Site of Infantry Barracks.....	£31 (merged), £20, £10 .....	The Borough Engineer, Salford .....	June 6
Wakefield—Central Premises .....	£50, £30, and £20.....	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	" 30
Buckie—Bridge over Buckie Burn (£1,600 limit) .....	25gs. ....	J. L. Naughton, Clerk to Commissioners, Buckie, N.B. ....	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75.....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate.....	July 3
Lichfield—Grammar School .....	£20 .....	H. H. Brown, Clerk to Grammar School Governors, Lichfield .....	" 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor) .....	£100, £75, £50 .....	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead .....	" 27
Edinburgh—Midlothian County Buildings, Parliament-square.....	£75, £50, £25 .....	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh .....	"
Clacton-on-Sea—Laying-out Cliff Frontage (900ft.) .....	£30 (merged), £10 .....	G. T. Lewis, Clerk, Town Hall Buildings, Clacton-on-Sea.....	"
Totnes—Cottage Hospital .....		The Chairman, Cottage Hospital Committee, Totnes .....	"
Aldershot—Masonic Hall (£2,500 limit) .....		John Youd, Secretary, The Triangle, Aldershot .....	"
Hawick—Houses and Cottages .....		W. Haddon, Solicitor, Sec. Building Co., Hawick .....	"

## LIST OF TENDERS OPEN.

## BUILDINGS.

Leith—Roof, &c., at New Central Station .....	North British Railway Co. ....	Blyth and Westland, Civil Engineers, 135, George-street, Edinburgh .....	June 3
Bury—Base, &c., for Bandstand, Clarence Recreation Ground .....	Industrial Co-op. Society, Ltd. ....	J. Cartwright, Boro' Eng., Corporation Offices, Bank-street, Bury .....	" 3
Anfield Plain—Pothouse .....	Improvement Committee .....	Geo. Thos. Wilson, Architect, 121, Durham-road, Blackburn .....	" 3
Birmingham—Labourers' Dwellings, Milk-street .....	Rural District Council .....	J. Tart, Manager, Improvement Dep., Council House, Birmingham .....	" 3
Usk—Extensions to Higher Grade School .....	Urban District Council .....	Fenton Geo. Harris, Agent for Managers, Usk, Mon. ....	" 3
Lisnaskea—Twelve Labourers' Cottages .....	Midland Railway Company .....	J. O'R. Hoey, Clerk, Lisnaskea .....	" 3
Houghton-le-Spring—Converting Dwelling-houses into Hospital .....	School Board .....	Vincent Smith, Newbottle-street, Houghton-le-Spring .....	" 3
Pontypridd—Additions to County School .....	School Board .....	A. O. Evans, Architect, Post Office Chambers, Pontypridd .....	" 3
St. Pancras, N.W.—Tank-House .....	School Board .....	The Company's Architect, Cavendish House, Derby .....	" 3
Boat of Garten—Villa .....	School Board .....	J. Grant, The Hotel, Boat of Garten, N.B. ....	" 3
Morley—Mixed School and Infants' School, Victoria-road .....	School Board .....	T. A. Buttery and S. B. Birds, Architects, Queen-street, Morley .....	" 3
Dublin—Four Cottages, Victoria Bridge Station .....	School Board .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	" 3
Nottingham—Four Villas, Sherwood-rise .....	School Board .....	F. Parkin, C.E., Architect, Prudential Buildings, Nottingham .....	" 3
Bristol—School at Luckwell-lane .....	School Board .....	H. C. M. Hirst, A.R.I.B.A., 80, Broad-street, Bristol .....	" 3
Cefn Mawr—Additions to Ebenezer English Baptist Chapel .....	School Board .....	J. W. Jones, Architect, Brooklea, Acrefair, Ruabon .....	" 3
Whitehaven—Enlarging St. James's Infant School .....	School Board .....	J. S. Moffat, M.S.A., Architect, 53, Church-street, Whitehaven .....	" 3
Pontypridd—Mixed Classroom, George-street .....	School Board .....	Lansdowne and Griggs, Architects, Newport, Mon. ....	" 3
Whitehaven—Building and Enlarging Schools .....	School Board .....	J. S. Moffat, M.S.A., Architect, 53, Church-street, Whitehaven .....	" 3
Morley—Schools, Victoria-road .....	School Board .....	T. A. Buttery and S. B. Birds, Architects, Queen-street, Morley .....	" 3
Dublin—Station Building (Timber), Laytown Station .....	School Board .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	" 3
Whitehaven—Infants' School at Trinity Schools .....	School Board .....	J. S. Moffat, M.S.A., Architect, 53, Church-street, Whitehaven .....	" 3
Barking—Eighty-Three Cottages, Creeksmouth-lane .....	School Board .....	C. J. Dawson, F.R.I.B.A., Public Offices, Barking .....	" 3
Kingswood—Extension of Boot Factory, Park-road .....	School Board .....	John Mackay, Architect, Kingswood .....	" 3
Bruckless, Co. Donegal—Improvements to Church .....	School Board .....	Edward J. Toye, Architect, Strand, Londonderry .....	" 3
Wicklow—Bathing Shed, &c. ....	School Board .....	John Pansing, Town Surveyor, Wicklow .....	" 3
Edinburgh—Raeburn Brewery, Duddingston .....	School Board .....	R. H. Paterson and Watson, Architects, 10A, George-st., Edinburgh .....	" 3
Jedburgh—Public Hall .....	School Board .....	James P. Alison, Architect, Hawick .....	" 3
Bristol—School at Moorfields, St. George .....	School Board .....	John Mackay, Kingswood, Bristol .....	" 3
Keighley—Board Schools, &c. ....	School Board .....	W. and J. B. Bailey, Architects, 9, Bradford-street, Bradford .....	" 3
Highgate, N.—Forty-Eight Houses at North Hill .....	School Board .....	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N. ....	" 3
Yarmouth, I.W.—Tollhouse on Yar Bridge .....	School Board .....	Francis Newman and Cox, Surveyors, 5, St. Thomas's-st., Ryde, I.W. ....	" 3
Bristol—School at Wells-road, Knowle .....	School Board .....	H. Dare Bryan, 38, College Green, Bristol .....	" 3
Lightlife—Five Houses and Shop .....	School Board .....	Raymond Berry, Archt., Arcade Chambers, Commercial-st., Halifax .....	" 3
Avon, Middlesex—Station .....	School Board .....	The Engineer's Office, Paddington Station, London .....	" 3
Keighley—Re-erecting Fronts of Two Houses and Shop .....	School Board .....	John Judson and Moore, Architects, York Chambers, Keighley .....	" 3
Carlisle—Stables and Loose Boxes .....	School Board .....	T. Taylor Scott, F.R.I.B.A., Architect, Carlisle .....	" 3
Portadown—Alterations to Iron Roof at Portadown Station .....	School Board .....	The Company's Engineer-in-Chief, Amiens-street Terminus, Dublin .....	" 3
Sandal—Four Through Houses, Belle Vue-road .....	School Board .....	F. H. Prince, 3, Station-terrace, Sandal, Yorks .....	" 3
Buxton—Chimney Stack at Generating Station .....	School Board .....	J. Cartwright, Quantity Surveyor, 22, High-street, Sheffield .....	" 3
Winchester—New Room at Pumping Station .....	School Board .....	W. Gamon, City Surveyor, Guildhall, Winchester .....	" 3
Cardiff—Carriage Shed at Canton .....	School Board .....	The Resident Engineer's Office, Theatre Royal Chambers, Cardiff .....	" 3
Argoed, Mon.—Eighteen Houses .....	School Board .....	Norman T. Price, Architect, 32, High-street, Argoed .....	" 3
Tending—Infirmary Wards (91 beds), at Union House .....	School Board .....	F. Whitmore, Architect, Chelmsford .....	" 3
Fisherford—Additions to Steading .....	School Board .....	James Duncan and Son, Architects, Turfiff, N.B. ....	" 3
Wooler—Two Houses, Glendale-road .....	School Board .....	Wm. Robson Hindmarsh, jun., Architect, Wooler .....	" 3
Halifax—Laundry Buildings at Hospital, Stoney Royd .....	School Board .....	E. R. S. Escott, C.E., Borough Engineer, Town Hall, Halifax .....	" 3
Shrivensham—House at Station .....	School Board .....	The Office of the Engineer, Reading Station .....	" 3
Winchester—Firebrick and Brickwork for Destructor .....	School Board .....	W. Gamon, City Surveyor, Guildhall, Winchester .....	" 3
Barnstaple—Flour Mill .....	School Board .....	A. Lauder, Barnstaple .....	" 3
Londonderry—Dwelling Houses and Bakery, Strand-road .....	School Board .....	Daniel Conroy, Architect, 2, Bishop-street, Londonderry .....	" 3
Winchester—Police Cottage, Morn Hill .....	School Board .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	" 3
Rugby—Classrooms at Wood Institute .....	School Board .....	D. C. Macdonald, A.M.I.C.E., Surveyor, Rugby .....	" 3
Somerton—Premises, Broad-street .....	School Board .....	Bowring & Hawkins, Architects, Post Office Chmbrs., Glastonbury .....	" 3
Abercynon—Calvinistic Methodist Chapel .....	School Board .....	W. Kenwick, Junction Stores, Abercynon, Wales .....	" 3
Townhead—Workmen's Dwellings, St. James-road .....	School Board .....	The City Engineer, 64, Cochrane-street, Glasgow .....	" 3
Ipswich—Alterations to Borough Asylum .....	School Board .....	E. Buckham, Borough Surveyor, Town Hall, Ipswich .....	" 3
Great Horton—Shop and House, Draupn Estate .....	School Board .....	E. Spencer, Architect, 344, Great Horton-road, Bradford .....	" 3
Aberaman—Nine Houses on Powell-Duffryn Estate .....	School Board .....	J. Llewellyn Smith, Architect, 20, Commercial-street, Aberdare .....	" 3
Penarth—Clubhouse .....	School Board .....	John W. Rodger, Quantity Surveyor, 14, High-street, Cardiff .....	" 3
Quaker's Yard—Office and Stores at Gasworks .....	School Board .....	Geo. Davis, Manager, Gasworks, Quaker's Yard, Trebarris .....	" 3
Highgate, N.—Repairs, &c., at Infirmary, Dartmouth Park Hill .....	School Board .....	Browett and Taylor, Surveyors, 9, Warwick-court, Holborn, W.C. ....	" 3
Marsden—Converting Property into Shop, &c. ....	School Board .....	John Kirk and Sons, Architects, Huddersfield .....	" 3
Halifax—Liberal Club Premises, Dyson-road .....	School Board .....	Medley Hall, Architect, 29, Northgate, Halifax .....	" 3
Annan—Business Premises, High-street and Bank-street .....	School Board .....	T. Taylor Scott, F.R.I.B.A., Architect, Carlisle .....	" 3
Dewsbury—Classrooms, Conveniences, Boundary-Walls, &c., .....	School Board .....	Holtom and Fox, Architects, Westgate, Dewsbury .....	" 3
Brownhill National Schools .....	School Board .....	J. W. Cockrill, Borough Surveyor, Municipal Bldgs., Gt. Yarmouth .....	" 3
Great Yarmouth—Destructor Buildings and Chimney Shaft .....	School Board .....	F. R. N. Haswell, F.R.I.B.A., Architect, Tyne-st., North Shields .....	" 3
North Shields—Schools at Percy Main .....	School Board .....	Henry Seaver, Architect, 128, Royal Avenue, Belfast .....	" 3
Portrush—Rectory .....	School Board .....	Hon. Reginald B. Brett, Sec., H.M. Office of Works, Storey's Gate .....	" 3
Balham, S.W.—Branch Post Office .....	School Board .....	The Director of Works Dept., 21, Northumberland-avenue, London .....	" 3
Portsmouth—Coastguard Buildings .....	School Board .....	W. V. Gough, Architect, 24, Bridge-street, Bristol .....	" 3
Bristol—Library, Cheltenham-road .....	School Board .....	J. W. Cockrill, Borough Surveyor, Municipal Bldgs., Gt. Yarmouth .....	" 3
Gorleston—Shelter Hall, Refreshment Rooms, &c. ....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Slackend—Stable and Loose-Box .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Corskie—Repairs to House .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Packington—Farm Buildings .....	School Board .....	J. B. Everard, M.I.C.E., 6, Millstone-lane, Leicester .....	" 3
Braes of Enzie—Additions to Offices .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Lower Mill of Tynt—Repairs to Offices .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Workington—Alterations to Shop, Station-road .....	School Board .....	W. G. Scott and Co., Architects, Victoria Buildings, Workington .....	" 3
Upper Allaloth—Barn .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Cwmaman—Thirty Houses .....	School Board .....	L. Smith, 20, Commercial-street, Aberdare .....	" 3
Upper Mill of Tynt—Additions to House and Offices .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Montrose—Villa at Sunnyside .....	School Board .....	John Sim, Architect, 160, High-street, Montrose .....	" 3
Fochabers—Repairs to Offices at Castlehill .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Keswick—Rebuilding the Woolpack Inn, Main-street .....	School Board .....	D. N. Pape, Surveyor, Lake-road, Keswick .....	" 3
Oxhill—Alterations to Offices .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Bogs of Enzie—Additions to Offices .....	School Board .....	The Estates Office, Fochabers, Scotland .....	" 3
Gloucester—Cattle-Shed at Field House Farm .....	School Board .....	Thos. Cadle, Lynwood, Denmark-road, Gloucester .....	" 3
Whitby—Two Houses and Shops, Brunswick-street .....	School Board .....	R. Lennard and Sons, Architects, Cliff-street, Whitby .....	" 3
Brothcroft—Enlargement of Barley Sheaf School .....	School Board .....	J. H. Tooley, Clerk, 6, Bridge-street, Boston .....	" 3
Newbury—Rebuilding the Cock Inn, Shaw .....	School Board .....	J. H. Money, Architect, Newbury .....	" 3
Grays, Essex—Four Pairs Semi-detached Houses .....	School Board .....	C. M. Shiner, Architect, 3, Bond-court, Walbrook, E.C. ....	" 3
Barry—Refuse Destructor Buildings .....	School Board .....	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry .....	" 3
Gloucester—Piggeries and Boiling-House at New House Farm .....	School Board .....	Thos. Cadle, Lynwood, Denmark-road, Gloucester .....	" 3
Hartley Row, Hants—Police Cottages and Cells .....	School Board .....	W. J. Taylor, County Surveyor, The Castle, Winchester .....	" 3
Cwmaman—Extensions to Jersey Arms .....	School Board .....	J. Cook Rees, Architect, Neath .....	" 3
Wolsingham—Two Cottages at Tunstall Reservoir .....	School Board .....	J. Askwith, C.E., South-road, Bishop Auckland .....	" 3
Herne Common—Alterations at Union Workhouse .....	School Board .....	The Master, Workhouse, Herne Common .....	" 3
Bury—Chimney Stack for Refuse Destructor .....	School Board .....	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry .....	" 3
Cadoxton—Green Dragon Hotel and Five Houses .....	School Board .....	J. Cook Rees, Architect, Neath .....	" 3



## BUILDINGS—continued.

Thornton Heath—Schools, Ecclesbourne-road	Croydon School Board	H. Carter Pegg, A.R.I.B.A., Archt., 6, Sudbury-rd., Thornton Heath	June 13
Kidderminster—Lodge near Infirmary Hospital	Town Council	Arthur Coomber, Borough Surveyor, Town Hall, Kidderminster	" 13
Lurgan—School Building, Victoria-road	Asylums Sub-Committee	Young and Mackenzie, Architects, Donegal-square East, Belfast	" 14
Wells—House on Asylum Estate	Guardians of West Ham Union	G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-st., Westminster	" 14
Crews—Chimney Stack, &c., for Electricity Works	North-Eastern Railway Company	The Borough Engineer, Earle-street, Crewe	" 14
Leytonstone—Water-Tower at Workhouse	District Gas Co.	J. Sturdy, 44, Finsbury Pavement, E.C.	" 14
Hull—Quay and Shed, St. Andrew's Dock	Watch Committee	T. M. Newell, Engineer, Dock Offices, Hull	" 14
Shotley Bridge—Excavating for a Steel Gas-holder Tank	Commissioners	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester	" 14
Warrington—Police Buildings, &c.	W. P. Eglish	E. B. Dick, Architect, 55, Northumberland-st., Newcastle-on-Tyne	" 15
Clydebank—Burg Buildings	Corporation	Jas. Müller, Architect, 223, West George-street, Glasgow	" 15
Sowerby Bridge—Foundry, Victoria-road	Androsan & Saltcoats Jnt. Hospital	A. Clement Williams, Architect, 29, Southgate, Halifax	" 15
Chartham Downs—Alterations, County Lunatic Asylum	Trinity House Corporation	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	" 16
Tunbridge Wells—54 Cottages and Five Blocks of Tenements	St. Marybone Guardians	The Borough Surveyor's Office, Town Hall, Tunbridge Wells	" 19
Springdale—Hospital	Urban District Council	Fryers and Penman, Architects, Largs	" 19
Peaslee Point—Fog-Signal House, &c.	City Hospitals Committee	Chas. A. Kent, Secretary, Trinity House, London, E.C.	" 19
Southall, W.—Infirmary and Cottages at Schools	Isle of Thanet Union Guardians	A. Saxton Snell, F.R.I.B.A., Archt., 22, Southampton Bligs., W.C.	" 19
Beckenham—Technical Institute and Swimming-Baths	Visiting Committee	J. A. Angell, Surveyor, Council Offices, Beckenham	" 19
Sheffield—Infectious Diseases Hospital, Lodge Moor	Coast Development Co., Ltd.	Flockton, Gibbs, & Flockton, Archts., 15, St. James's-row, Sheffield	" 20
Manstone—Cottage Homes Buildings		Leonard Grant, Architect, High-street, Sittingbourne	" 21
Lawrence Cove, Co. Cork—Coast-guard Station		The Office of the Carpenter-in-Charge, Queen's College, Cork	" 21
St. Alban's—Isolation Hospital, &c., Hill End		G. T. Hine, F.R.I.B.A., Archt., 35, Parliament-st., Westminster	" 27
Walton-on-the-Naze—Hall and Buildings in Round Garden		Chas. H. M. Milham, Architect, 1, Lincoln's Inn Fields, W.C.	" 28
Carlisle—Alterations to Business Premises, Devonshire-street		T. Taylor Scott, F.R.I.B.A., Architect, Carlisle	July 10
Brighton—Alterations and Additions to Public Library, Museum, and Art Gallery			
Pentraeth—Farmhouse		Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton	" 27
Nottingham—Improvements to Schools	School Board	I. Taylor, Estate Office, Colehill, Holywell	" "
Peebles—Volunteer Drill Hall	William Grandage	A. N. Bromley, Prudential Buildings, Queen-street, Nottingham	" "
Manningham—Twenty-two Terrace Houses	W. H. Kirkland	E. S. Anderson, C.E., County Buildings, Peebles	" "
Bradford—House and Workshop off Manningham-lane	McIlroy Bros., Reading	Fairbank and Wall, Architects, Craven Bank Chambers, Bradford	" "
Gedling—House	Mrs. Cohen	James Young and Co., Architects, 62, Market-street, Bradford	" "
London, N.—Alterations to Premises, Caledonian-road	United Presbyterian Synod	John Kirkland, A.R.I.B.A., 19, Caldervale-road, Clapham, S.W.	" "
High Wycombe—Business Premises and Residence	Chas. Edwards	Mallett, Porter, and Dowd, 465, Caledonian-road, N.	" "
Blackburn—Extension of St. John's Church	Co-operative Society, Ltd.	Thos. Thurlow, Architect, High Wycombe	" "
Cardiff—Alterations to Theatre Royal Hotel	Crowley and Co., Alton	T. H. Duerden, Architect, 32, Richmond-terrace, Blackburn	" "
Hook Norton—Infants' School	Guardians	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff	" "
Burntisland—Tenement, Somerville-street	School Board	Walter E. Mills, A.R.I.B.A., Architect, 12, Horse-fair, Banbury	" "
Duffield—Villa Residence, King-street	James Wright and Son	R. and A. K. Smith, Ordained Surveyors, 1, Albyn-place, Edinburgh	" "
Lancilly Hill—Alterations to Jolly Collier's Inn, &c.	School Board	Sands and Walker, Architects, Angel-row, Nottingham	" "
Harrogate—Two Semi-Detached Houses & Stable, South Drive	Edwin Ogden	B. J. Francis, Architect, Abergavenny	" "
Dalston—Shop, Dwellings, Stabling, &c.	Ind. Coope, and Co.	Bland and Bown, Architects, North Park-road, Harrogate	" "
Blackburn—Rebuilding 3rd L.A.V. Barracks		W. Pogson, Architect, 24, Devonshire-street, Carlisle	" "
Holybourne—Rebuilding White Hart Inn		Stones and Gradwell, Architects, 10, Richmond-terrace, Blackburn	" "
Melrose—Alterations at Roxburgh District Asylum		Reginald A. Crowley, A.R.I.B.A., 22, High-street, Croydon	" "
Rochdale—New Infirmary at Dearnley		Sydney, Mitchell, and Wilson, 13, Young-street, Edinburgh	" "
Thornaby-on-Tees—Church		S. Butterworth and Duncan, Architects, 4, South Parade, Rochdale	" "
Woodford, Essex—School Buildings, Cowslip-road		Hicks and Charlewood, Architect, 67, Westgate-road, Newcastle	" "
Nottingham—Three Villas, Wiverton-road		E. Tidman, Architect, 34, Victoria-street, Westminster, S.W.	" "
Crouch End, N.—Sixteen Semi-detached Villas		Collier and Slater, Architects, 8, Bridlesmith Gate, Nottingham	" "
Woodford—School Buildings, Cowslip-road		Macer and Co., 39, Cheapside, E.C.	" "
Utoxeter—Twenty Houses, &c.		Edward Tidman, Architect, 34, Victoria-street, Westminster, S.W.	" "
Bradford—Three Houses, Newark-street		C. H. Cowlishaw, Solicitor, Utoxeter	" "
Market Drayton—New Crown Brewery		F. Moore, Architect, 40, Sunbridge-road, Bradford	" "
Walton-on-Thames—Cottage		T. Tindal, Architect, Longton, Staffordshire	" "
Duffield—Villa Residence, King-street		George L. Crickmay, 13, Victoria-street, Westminster	" "
Sheerness—Schools, &c., at Broadway		Sands and Walker, Architects, Angel-row, Nottingham	" "
Hemsworth—Workshops, Offices, &c.		Leonard Grant, Architect, Sittingbourne	" "
Brynawr—Premises		The Hemsworth Collieries, near Wakefield	" "
Deepcar—Eight Cottages		J. Watkins, Beaufort-street, Brynmawr, Wales	" "
Exeter—Alteration of Premises, Wade-street and Wade-lane		J. Dobson Townend, Surveyor, 21, Fargate, Sheffield	" "
Exeter—Two Residences, Summerland Hill Estate		J. E. Preston, Architect, Chapel-Allerton, Leeds	" "
Cardiff—Repairs to British Volunteer Hotel, The Hayes		J. Archibald Lucas, F.S.I., Architect, Guildhall Chambers, Exeter	" "
Middlesbrough—Five Shops, Ormestry-road		Veall and Sant, Architects, Cardiff	" "
Leeds—Engine House		T. H. Bulmer, Atlas Works, Ormesby-road, Middlesbrough	" "
		J. Routledge, Waterloo Main Colliery Offices, Pontefract-lane, Leeds	" "

## ENGINEERING.

Manchester—Electric Installation at City Art Gallery	Committee	The City Surveyor, Town Hall, Manchester	June 3
Cork—Sinking Wells, &c., at Rathpeacon and Ballinurrig	Union District Council	John Cotter, Clerk, Cork	" 3
Glastonbury—Excavating and Refilling Trenches (3,000 yards)	Gas and Coke Co., Ltd.	John Bishop, Secretary, 17, High-street, Glastonbury	" 5
Egremont—Pier Works at New Brighton Ferry Pier	Wallasey Urban District Council	The Ferry Manager, Egremont	" 5
Burgess Hill—Pipelining (4,270 yards of 6 in. and 12 in.)	Urban District Council	The Secretary, Burgess Hill Water Co., Sussex	" 5
Tottenham—Surface-Water Culvert in Broad-lane and West Green-road, and 6 in. Water Main in West Green-road	Great Western Railway Co.	P. E. Murphy, Engineer, 712, High-road, Tottenham	" 6
Newbridge—Subway under Railway Station	Barton-u.-Irwell Union Guardians	The Resident Engineer, Theatre Royal Chambers, Cardiff	" 6
Patricroft—Wiring, Lamps, and Fittings, Workhouse Infirmary	Union Guardians	G. R. Peers, A.I.E.E., Electrical Engrs., 96, Deansgate, Manchester	" 6
Billerica—Sinking Well	Urban District Council	The Master of the Workhouse, Billerica, Essex	" 6
Tottenham—Surface-Water Culvert, &c., Chestnuts Estate	Rural District Council	P. E. Murphy, Engineer, 712, High-road, Tottenham	" 6
Plymouth St. Mary—Water Supply to Sparkwell	Crawley & District Waterworks Co.	F. A. Clark, Surveyor, New Town Chmbrs., Old Town-st., Plymouth	" 6
Crawley—Laying Spigot and Socket Pipes & Valves (8,000 yds.)	High Welywn, Ltd.	C. O. Blaber, M.I.C.E., 64, Ship-street, Brighton	" 7
Harmer Green—Deepening and Enlarging Well	Lanark District Committee	R. E. Middleton, 17, Victoria-street, Westminster	" 7
Cambuslang—Waterworks	Commissioners	J. and A. Leslie and Reid, C.E.'s, 72A, George-street, Edinburgh	" 7
Saltcoats—Sea Wall, &c., Montgomerie-crescent (510 Yards)	Blackwell Rural District Council	J. and H. V. Eaglesham, Engineers, Ayr	" 7
Pinxton—Water-Supply Works	District Committee	H. Walker, A.M.I.C.E., Newcastle Chambers, Nottingham	" 7
Larkhall—Additional Filters and Tank at Strutherhill	Rural District Council	J. and A. Leslie and Reid, C.E.'s, 72A, George-street, Edinburgh	" 7
Stroud—Steam Road-Roller (10-ton)	Vestry of St. Mary, Battersea	J. E. Haynes, C.E., Surveyor, Union Offices, Stroud	" 7
Battersea, S.W.—Electric Lighting Works	Guardians	Prof. Alex. B. W. Kennedy, 17, Victoria-street, Westminster	" 7
Stoke-on-Trent—Vertical Boiler	Guardians	C. Daniel, Clerk, Stoke-on-Trent	" 7
Halifax—Electric-Lighting, Workhouse and Union Offices	Cuckfield Rural District Council	Shepherd & Watney, Consulting Engineers, Greek-st. Chmbrs, Leeds	" 8
Balcombe—Sinking Well and Heading	Rugby Rural District Council	Jas. Mansergh, Engineer, 5, Victoria-street, Westminster	" 8
Newbold-upon-Avon—Cast-Iron Water-Mains (1½ mile of 3 in.)	Margam Urban District Council	T. W. Willard, Surveyor, Rugby	" 10
Port Talbot—Main (930 yards of 6 in.) in Cwm-Werndref Valley	District Committee	Taylor, Sons, & Santo Crimp, Engrs., 27, St. George-st., Westminster	" 12
Blaenavon—Hot-Water Heating Apparatus at Horeb Chapel	Corporation	Benj. Davies, Annie-street, Blaenavon	" 12
Lanark—Waterworks	Committee of Visitors	Warren and Stuart, Civil Engineers, 115, Wellington-st., Glasgow	" 12
Huddersfield—Electric Equipment Steam Tram Service	Cowal District Committee	The Borough Engineer, 1, Peel-street, Huddersfield	" 12
Denbigh—Concrete Dam, &c., at Llyn Bran	Corporation	J. T. Wood, M.I.C.E., 3, Cook-street, Liverpool	" 12
Leighouthead—Concrete Service Tank, &c.	Lancashire and Yorkshire Ry. Co.	Alexander Frew, Engineer, 176, Hope-street, Glasgow	" 12
South Shields—Two Cast-Iron Tanks	Vestry	The Borough Electrical Engineer's Office, West Holborn, S. Shields	" 12
Bolton—Widening Line through Bolton and Construction of New Goods and Passenger Stations	London County Council	The Engineer's Office, Hunts Bank, Manchester	" 13
Hackney—Electricity Supply Mains	Gas Co.	Robert Hammond, M.I.C.E., 64, Victoria-street, S.W.	" 13
London, S.W.—Twin-Screw Fire-Float	North-Eastern Railway Co.	The Clerk's Department, County Hall, Spring Gardens, S.W.	" 13
Shotley Bridge—Gas-holder Tank and Single-Lift Gas-holder	Asylums Committee	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester	" 14
Co. Durham—Deviation of Redheugh Branch Railway	Public Health Committee	Charles A. Harrison, Engineer, Central Station, Newcastle-on-Tyne	" 14
Chartham Downs—Drainage Works, Reservoirs, &c., at Kent County Lunatic Asylum	Electric Lighting Committee		
Belfast—Destructor at Lagan Bank-road	Municipal Council	W. J. Jennings, 4, St. Margaret-street, Canterbury	" 15
Dudley—Electric-Lighting Plant		The City Surveyor's Office, Belfast	" 15
Southampton—Widening Quayley's Bridge, Christchurch		Wilson and Story, 66, Victoria-street, Westminster	" 17
Shanghai—Electric Trolley Tramways (23 miles)		W. J. Taylor, County Surveyor, The Castle, Winchester	" 19
Naples—Harbour and Docks (estimated cost £162,400)		Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	" 30
Blackpool—Electric Lighting Fittings, Masonic Hall		The Public Works Department, Rome	July 10
		J. A. Nuttall, Architect, Birley-street, Blackpool	" "

## FENCING AND WALLS.

FENCING AND WALLS.			
Trory—Wall to Inclose Graveyard		J. Wilson, Ballycassidy	June 3
Bristol—Boundary Walls, &c., Rodney-place, Clifton	City Council	T. H. Yabbicom, M.I.C.E., Engineer, 63, Queen-square, Bristol	" 5
Carlisle—Wall at Harbary Hill House	Guardians	George Armstrong, Architect, 24, Bank-street, Carlisle	" 5
Bradford—Rebuilding Walls at School Board Office	School Board	C. H. Hargreaves, Architect, Exchange Buildings, Bradford	" 5
Tottenham—Boundary Wall Fencing and Convenience, Chestnuts Estate			
London, S.W.—Walls, &c.	Urban District Council	P. E. Murphy, Engineer, 712, High-road, Tottenham	" 6
Cardiff—Boundary-Wall at Workhouse	Wandsworth Burial Board	The Office of the Board, Town Hall, Wandsworth	" 6
Baconbe—Boundary Walling, Shelter, &c., St. Paul's-road	Guardians	E. Seward, F.R.I.B.A., Architect, Queen's Chambers, Cardiff	" 10
London, S.W.—Fencing Materials	Wallasey Urban District Council	W. H. Travers, Surveyor, Public Offices, Egremont	" 12
Ilverston—Raising Stone Wall at Hospital	Southern Mahratta Railway Co.	E. Z. Thornton, Sec., 45, Queen Anne's-gate, Westminster, S.W.	" 13
Ilverston—Corrugated Iron Fence at Hospital	Joint Hospital Board	Chas. W. Dean, Clerk, 3, Benson-street, Ilverston	" 14
Ilverston—Unclimbable Railing at Hospital	Joint Hospital Board	Chas. W. Dean, Clerk, 3, Benson-street, Ilverston	" 14



## FURNITURE AND FITTINGS.

Stoke-upon-Trent—Furnishing Vagrant Wards at Workhouse	Guardians	C. Daniels, Clerk, Union Offices, Stoke-upon-Trent	June 7
Tottenham—Fitting-up Kitchen Department, North-Eastern Hospital, St. Ann's-road	Metropolitan Asylums Board	H. and C. Harston, Architects, 15, Leadenhall-street, E.C.	21

## PAINTING.

Pontypool—Board School, George-street	Trevethin School Board	H. Blythway, Clerk, Pontypool	June 3
Cockermouth—Memorial Clock and Monument Rails	Urban District Council	The Surveyor, Council Offices, Cockermouth	3
Littleborough—Five Shops and Sixty-three Cottages	Co-operative Society, Ltd.	The Society's Offices, Hare Hill-road, Littleborough, Lancs.	3
Abersychan—Board School	Trevethin School Board	H. Blythway, Clerk, Pontypool	3
Totnes—Workhouse	Guardians	W. F. Tollit, Surveyor, Gate House, Totnes	3
Cwmfrwdor—Infants' Board School	Trevethin School Board	H. Blythway, Clerk, Pontypool	3
Kingstown—Main Passage of Town Hall	Urban District Council	The Clerk's Office, Town Hall, Kingstown, Ireland	5
Southall—Schools	St. Marylebone Guardians	H. T. Dudman, Clerk, Northumberland-st., Marylebone-road, W.	5
Brotherton—Schools, &c.	School Board	John Roberts, Ferrybridge	7
Leeds—Municipal Buildings, Art Gallery, &c.	Improvements Committee	The City Engineer's Office, Municipal Buildings, Leeds	9
London, E.C.—Artisans' Dwellings, Stoney-lane	Guardians	The Engineer to the Corporation, Guildhall, E.C.	9
Cardiff—Ely Schools	Guardians	A. J. Harris, Clerk, Queen's Chambers, Cardiff	10
Lisnakea—Workhouse Buildings	Guardians	J. O'R. Hoey, Clerk, Lisnakea Union, Ireland	10
Blaenavon—Horeb Chapel	Select Vestry	Benj. Davies, Annie-street, Blaenavon	12
Liverpool—Workhouse, Brownlow Hill	Guardians	H. J. Hagger, Vestry Clerk, Brownlow Hill, Liverpool	12
Chelsea—Infirmary, Cale-street	Town Council	W. Miller, Clerk, 250, King's-road, Chelsea	13
Dover—Portion of Connaught Hall	Guardians	Henry E. Stilgoe, A.M.I.C.E., Town Hall, Dover	13
Paddington, W.—Infirmary, Harrow-road	Gas Committee	E. Howley Sim, Architect, 8, Craig's-court, Charing Cross, S.W.	21
Macclesfield—Two Gasholders at Tytherington	Cricket Club	J. Newbigging, Engineer, Town Hall, Macclesfield	27
Batley—Methodist Free Church and Sunday School, Talbot-st.		A. Shaw, 69, Commercial-road, Batley	—
Harrogate—Pavilions, Cricket Stands, &c.		T. Hindell, Sec., 13, Market-place, Harrogate	—
Ferrybridge—Byram Hall		J. Cole-Hamilton, Estate Office, Byram, Ferrybridge	—

## PLUMBING AND GLAZING.

Bedminster—Luckwell School	Bristol School Board	H. C. M. Hirst, A.R.I.B.A., 30, Broad-street, Bristol	June 5
Bristol—Plumbing Work at Moorfields School, St. George	School Board	John Mickey, Kingswood, Bristol	5
Stoke Gabriel—Laying Iron Water-Piping (300ft.)	Parish Council	J. J. Baker, Clerk, Stoke Gabriel, near Totnes	5
Bristol—Wells-road School, Knowle	School Board	H. Dare Bryan, 28, College-green, Bristol	5
Egham—Gas Supply to Schools, Egham Hythe and Station-road	School Board	J. A. Engall, Clerk, Clarence-street, Staines	13

## ROADS AND STREETS.

Chelmsford—Kerb, &c.	Essex County Council	Percy J. Sheldon, A.M.I.C.E., Surveyor, County Offices, Chelmsford	June 3
Adrossan—Forming Streets	Gas Co., &c.	Allan Stevenson, 14, Cathcart-street, Ayr	3
Tonbridge—Opening Roads for Laying Gas Mains	Urban District Council	James Donaldson, Secretary, Gas Co., Tonbridge	3
Shipley—Paving, &c., Westcliffe-road and Wilmer-road	Urban District Council	J. S. Rhodes, Clerk, Manor House, Shipley	5
Wimborne—Road Works	Urban District Council	C. Munckton, Surveyor, Council Offices, Wimborne	5
Armagh—Footpath (1,070ft.)	Urban District Council	J. C. Boyle, C.E., Town Surveyor, Armagh	5
Whitworth, Lancs.—Paving, Sewering, &c., Tong-lane	Urban District Council	T. Biker, Surveyor, Facit, Rochdale	5
Bootle—Private Improvement Works in Cranworth-street	Corporation	The Borough Engineer, Town Hall, Bootle	6
Tottenham—Repairing Tar and Asphalt Paving	Urban District Council	P. E. Murphy, Engineer, 712, High-road, Tottenham	6
Old Hill, Staffs.—Forming and Draining Banister-street	Rowley Regis U.D.C.	Daniel Wright, Clerk, Old Hill, Staffs.	7
Cardiff—Forming and Metalling Carriageways	Corporation	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	7
Kettering—Completion of Twenty-Two Private Streets	Urban District Council	Thos. R. Smith, Surveyor, Market Hill, Kettering	7
Stoke-upon-Trent—Footpath near the Workhouse	Guardians	C. Lynam, Architect, Stoke-upon-Trent	7
Cardiff—Kerbing Footways on Main Roads	Glamorgan County Council	The County Surveyor's Office, Town Hall, Bridgend	7
Plumstead—Paving Part of Ennis-road and Boydene-road	Vestry	W. C. Gow, C.E., Surveyor, Vestry Hall, Maxey-road, Plumstead	7
Cardiff—Paving, Kerbing, and Channelling Footways	Corporation	W. Harpur, M.I.C.E., Borough Engineer, Town Hall, Cardiff	7
Southampton—Tar-Paving Footpaths in Public Parks	Corporation	W. B. G. Bennett, Borough Engineer, Southampton	8
Dorking—Making-up Rother-road	Urban District Council	G. Somers Matthews, A.M.I.C.E., 35, High-street, Dorking	8
Elland—Forming New Streets off Victoria-road	District Council	C. F. L. Horsfall and Son, Architects, Lord-st. Chambers, Halifax	10
Keighley—Making-up Goulbourne and Kensington streets	Vestry of St. Mary, Islington	Barber, Hopkinson, and Co., Architects, Keighley	10
Carriack-on-Suir—Repairing Roads (Six Months)	West Ham Town Council	J. Mullins, Clerk, Workhouse, Carriack-on-Suir	12
London, N.—Wood Paving Duncan-street and Hornsey Rise	Metropolitan Asylums Board	J. Patten Barber, Vestry Hall, Islington, N.	12
Stratford—Private Street Works	Streets Committee	Lewis Angell, Borough Engineer, Town Hall, Stratford, E.	13
Stockwell, S.W.—Asphalting Works at S.W. Fever Hospital	Seulcoates Rural District Council	T. Duncombe Mann, Clerk, Norfolk House, Norfolk-street, W.C.	15
Wolverhampton—Making-up Griffin-street		J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton	19
Cheriton, Kent—Roads (1,320ft.), &c., Ashley Grange Estate		Marler and Co., Surveyors, 95A, Gloucester-rd., South Kensington	26
Preston, Hull—Kerbing, &c.		A. Greaves, Surveyor, Hesele	—
Harrogate—Making and Draining Road (24ft.)		Bland and Bown, Surveyors, Harrogate	—

## SANITARY.

Princes Risborough—Sewers, &c.	Wycombe Rural District Council	Taylor, Sons, and Santo Crimp, Engineers, 27, Gt. George-st., S.W.	June 3
Slough—Sewer, &c.	Urban District Council	W. W. Cooper, Surveyor, 1, Mackenzie-street, Slough	3
King's Norton—West Heath Sewerage Scheme	King's Norton & Northfield U.D.C.	A. W. Croes, Engineer, 23, Valentine-rd., King's Hth., Birmingham	3
Pembroke Dock—Sewerage Works	Town Council	Beesley, Son, and Nichols, Engineers, 11, Victoria-st., Westminster	3
Halifax—New Conveniences at Siddal School	School Board	W. H. Ostler, Clerk, 22, Union-street, Halifax	5
Ellesmere Port—Sewer, Elm-street (75 yards of 9in.)	Wirral Rural District Council	Alfred Hughes, Surveyor, 5, Birch-road, Bebbington	5
Brierfield—Sewering and Flagging Mount and Hill Streets	Urban District Council	Jas. T. Landless, A.M.I.C.E., Station Buildings, Nelson	5
Leith—Pipe Sewer in Netherby-road and Lennox-row	Magistrates and Council	The Burgh Surveyor's Office, Town Hall, Leith	6
Winchester—Alterations to Lavatories at Guildhall	Town Council	W. Gamon, City Surveyor, Guildhall, Winchester	6
Port Talbot—Stoneware Pipe Sewers (1,000 yards)		Frank B. Smith, C.E., Architect, Port Talbot	7
Hurstpierpoint—Sewer (1,851ft. of 12in.)	Cuckfield Rural District Council	H. E. Cripps, Holly Cottage, Sydney-road, Haywards Heath	8
Lisnakea—Concrete Channel in Infirmary Yard	Guardians	J. O'R. Hoey, Clerk, Lisnakea Union, Ireland	10
Market Harborough—Sewers, &c. (2,395 yards)	Rural District Council	J. B. Everard, M.I.C.E., Engineer, 6, Millstone-lane, Leicester	13
Hurst—Sewers, &c.	Urban District Council	E. Garside, A.M.I.C.E., Town Hall Chambers, Ashton-under-Lyne	14
Ryton-on-Tyne—Sewer from Crookhill to Stargate (912 yards)	Urban District Council	John P. Dalton, Engineer, Council Offices, Ryton-on-Tyne	14
Halstead—Altering Drains &c., at Workhouse	Guardians	Clare and Ross, Architects, 68, Duke-street, Chelmsford	15
Berkhamstead—Reconstruction of Pipe Sewer, &c. (1,900ft.)	Joint Sewerage Committee	James Lemon, M.I.C.E., 9, Victoria-street, Westminster	15
Hamstead—Redrainage at Workhouse, East End	Guardians	Keith D. Young, Architect, 17, Southampton-st., Holborn, W.C.	16
Carlton—Sewerage Works	Barnes Rural District Council	Walter J. Lomax, Engineer, 11, Fold-street, Bolton	16
Tunbridge Wells—Sewering and Making-up Roads	Corporation	The Borough Surveyor's Office, Town Hall, Tunbridge Wells	19
Tottenham—Fixing Urinals within District	Urban District Council	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham	21
Dover—Surface Drains and Sewers	Town Council	Henry E. Stilgoe, Borough Engineer, Town Hall, Dover	21
Croydon—Sewering Parish of Coudon	Rural District Council	R. M. Chart, Surveyor, Union Bank Chambers, Croydon	21
Edmondstown—Stoneware Pipe Sewers (1,053 yards of 9in.)	Llantrisant, Llantrwit Fardre R.D.C.	Gomer S. Morgan, Surveyor, School-street, Pontyclun	—

## STEEL AND IRON.

Whitworth—Portable Galvanised Iron Ashbins	Urban District Council	T. Biker, Surveyor, Whitworth, Lancs.	June 3
Exeter—Cast-Iron Pipes (1,700 tons)	Corporation	Donald Cameron, City Surveyor, 18, Bedford-circus, Exeter	3
Christiania—Raw Iron, &c.		The Commercial Dept. of the Foreign Office, Whitehall, S.W.	3
London, W.—Steel Girders, &c. (715 tons)	Great Western Railway Co.	The Engineer's Office, Paddington Station, London, W.	3
Trichinopoly, India—Pipes, Specials, and Fittings for Water-works Extension		Henry S. King and Co., 65, Cornhill, London	7
Crawley—Cast-Iron Spigot and Socket Pipes (230 tons)	Crawley & District Waterworks Co.	C. O. Blaber, M.I.C.E., 64, Ship-street, Brighton	7
Battersea Park-road, S.W.—Steel Joists for Baths	Vestry of St. Mary	W. Wilkins, Clerk, Municipal Buildings, Lavender-hill, S.W.	9
London, S.W.—Galv. Eye Bolts and Strand Wire for Fencing	Southern Mahratta Railway Co.	E. Z. Thornton, Sec., 46, Queen Anne's-gate, Westminster, S.W.	11
Hurst—Cast-Iron Pulleys, Manhole Covers, Step-irons, &c.	Urban District Council	E. Garside, Engineer, Town Hall Chambers, Ashton-under-Lyne	11
Windsor—Cast-Iron Water-Mains (25 tons)	Urban District Council	H. Hulse, County Surveyor, Market-place, Windsor	15
Mat ock—Steel Girders for Cable Tramway (One Year)	Urban District Council	Albert M. Clarke, Surveyor, Town Hall, Matlock	17
Wadebridge—Cast-Iron Pipes (350 tons of 6in., 4in., and 3in.)	Urban District Council	Geo. H. Harris, Engineer, Wadebridge	—

## STORES.

Levenshulme—Limestone Chippings, Artificial Flags, &c. (1 Yr.)	Urban District Council	James Jepson, District Surveyor, 8A, Tiviot Dale, Stockport	June 3
Cockermouth—Sewer Pipes (12in. and 6in.)	Urban District Council	The Surveyor, Council Offices, Cockermouth	3
Leeds—Granite, Limestone, Flags, Bricks, &c.	Rural District Council	H. H. Hodgson, Surveyor, 46, Frankland-place, Leeds	3
Beccles—Broken Granite (650 tons)		The Town Clerk's Office, Beccles	5
York—Permanent-Way Materials (Six Months)	North-Eastern Railway Co.	John Snowden, Central Station, Newcastle-on-Tyne	5
Mountsorrel—Granite (Nine Months)	Rural District Council	J. J. Fairfax Scott, Clerk, Union Offices, Mountsorrel, Leicester	5
Hythe—Kerb and Broken Stone (Nine Months)	Roads and Bridges Committee	Arthur S. Butterworth, A.M.I.C.E., Borough Surveyor, Hythe	5
Pershore—Stone for Repair of Highways (One Year)	Rural District Council	Arthur E. Baker, Clerk, Pershore, Worcestershire	6
Genoa—Firebricks	Urban District Council	The Commercial Dept. of the Foreign Office, Whitehall, S.W.	6
Branksome—Granite (275 tons)		J. Newman, Surveyor, 3, Tennyson Bldg., Ashley-rd., Branksome	6
Halifax—Oils, Paints, Wrought-Iron Tubes, Cast-Iron Pipes, &c. (One Year)	Gasworks Committee	Thos. Holgate, Engineer, Gasworks, Halifax	7
Enfield—Granite (4,700 tons)	Urban District Council	Richard Collins, Surveyor, Court House, Enfield	9
Brighton—Portland Cement (One Year)	Town Council	F. J. C. May, M.I.C.E., Borough Engineer, Town Hall, Brighton	10
Ely—Granite (1,215 tons)	Urban District Council	Wm. McKelvie, City Surveyor, Ely	19
Wolverhampton—Granite Kerbing (3,000ft.)	Streets Committee	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton	19
Wolverhampton—Granite Setts (6,700 tons)	Streets Committee	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton	31



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### SPECIALISED PLANNING.

AS the athlete only by a rigid physical training and by mastering a number of apparently impossible positions is able to achieve success, so the architect can only successfully combat the difficulties of plan by repeatedly attacking the problems which encounter his path. There are vital questions of official requirements, departmental routine, hygiene, which interfere with the planning of certain buildings, that do not conflict with other branches of the designer's work. It is on this ground the architect has to struggle the hardest if he wishes to become an expert, or to reach a position of success. He may be ever so good as a designer in a particular phase of style, or as an expert artist and draughtsman; unless he can show he has made himself acquainted with the absolute requirements, official or otherwise, of the building he has in hand, he can never attain success in any particular class of construction. We are not now speaking of the general practitioner's work, but of the designers of our best schools, baths and washhouses, and technical institutes—men who have achieved their reputation by dint of hard work in mastering the details of plan, of Blue-books, of medical expert evidence, the requirements of the Education Department, and the Local Government Board.

The useful and suggestive paper read on "The Planning and Construction of Board Schools," by Mr. T. J. Bailey, F.R.I.B.A., at the Institute the other day, and reported in our last issue, exceedingly well illustrates the subject of these remarks. The architect to the School Board for London may be regarded as a specialist of a very important class of building. His large experience of the varied requirements of employers, of the numerous systems that successive School Boards have adopted, and his practical knowledge of the results of these systems entitle his remarks to the most attentive consideration. In other departments of official architecture, we have had acknowledged leaders of bath and washhouse design, public libraries, giving us also their acquired personal practical experience of each of these branches of arrangement. In each case we find there have been several problems to solve, old conventions to be laid aside as wrong or out of date, old prejudices of employers and committees to overcome. The requirements of large and growing populations have suggested modified arrangements often simpler than the old ones, provision for holding large assemblies, or modes of arranging entrances and exits to suit individuals or large groups of people. To take the London School Board planning, we find the requirements more complex and varied than in many other buildings. There is the question of site; it should, as Mr. Bailey said, have a western street frontage; it should be large enough to secure immunity from noise of traffic, and give ample light and air, playground room of at least 30ft. superficial for each child, and to be of a shape to suit football and other games. The absorption of valuable sites for these schools in London is often a matter for regret, but space has to be provided in the centre of crowded districts. The school raised on arches or vaults to allow of a covered space beneath, for the younger pupils, with a roof flat paved with asphalt over the whole building for the girls, are details of planning which were unheard of by our

predecessors. Then there was the equally important matter of the plan of the schools. After many years of experimental school building, the London School Board adopted the centre hall, with its grouping of classrooms, as the type that gave the best results, and upon this plan most of the London schools are arranged. The author of the paper described the "three-story school" building as that most adopted, in which the ground story is occupied by the infants, the first story by the girls, and the top story by the boys. This arrangement is found to work best; also, that the maximum size of a group should not exceed 1,548—i.e., in three departments of 516 each, further accommodation being provided by a separate mixed department. The size of the hall is 54ft. by 30ft.; each department has ten classrooms, accommodating from 60 to 40, and these are better placed facing the playgrounds behind the hall, and having an east light. The hall serves as a reservoir of air on the west side, and makes a better feature in the elevation to the street, as its series of windows, and the external treatment of the staircases and cloak-room, &c., can be made to present a good front, varied in treatment and skyline. We do not say many of the schools erected in London and suburbs are good examples of design; in some cases of new schools, like those in Lyham-road, Brixton, at Kennington, at Clapham, and other suburbs, these divisions of the plan have not been made the best of; there is also an attempt to introduce ornamental turrets or cupolas of a somewhat flimsy or pretentious kind on some of these schools. In others the roof-planning or the grouping of hall, staircases, or classrooms is not satisfactory, and the roofs came together awkwardly instead of being made to lend a picturesque outline to the buildings. But we rather dwell now on the more perfect development of plan. For a number of years the building of these schools was experimental; foreign types were adopted without being suited to the site or surroundings; but the schools put up to-day are perhaps as perfect as it is possible, under the circumstances, to make them. Many experts have spent years over the problem; there has been an enormous expenditure of money; many buildings have been overhauled in the past, but there is at length some hope of success. A few questions of importance have yet to be determined, and first that of warming and ventilation, which has been discussed for 20 years. Mr. Bailey approved of the low pressure, hot-water system, with pipes round the walls above the floors, where the desks are placed, supplemented by a few ventilating radiators admitting fresh, warm air. He has tried trunks opening from the ceiling levels, gathered into one single outlet, with a coil of hot pipes to produce an upcast, but without success for schools of more than one story, as they conveyed sound; and he recommends the "Plenum" system, which admits fresh filtered air above the breathing level, extracted at the floor level on the same side as the inlet. The question is an open one as to whether purity of air can be secured by drawing off the vitiated air at the floor level, or whether the plenum system is desirable in warm weather, with cold air forced in. Another question is the distance of side light from the pupil. Classrooms are often made 22ft. or more in width, so that the scholar is placed that distance from the light. The earlier schools had large classrooms for 80 scholars; but the smaller ones are found better and easier for working, and 50 is considered a more reasonable number; then there was the question of flooring, whether they should be graded or not. A further point is the acoustical properties of the rooms. The experience learned by those who have gone through the ordeal of school planning

is that the earlier plans were utterly wrong in principle, and the London School Board buildings, although costly and experimental, have done much to teach the right principles. There is a great deal yet to learn about other kinds of building which have a briefer history, such as technical schools and institutes. These are still passing through their experimental stage, and there may be yet much still to unlearn before we discover the real and economic solution of the problems they present.

### ESTIMATES.—IX.

#### MASONS' WORK.

FROM calculations based on the cube stone and labour of certain kinds of work, such as window-sills, mullions, string-courses, and cornices, the student will soon be able to compare the prices or amount of stone and labour in them. Thus he will see that a chamfered sill 12in. by 12in. and 1ft. in length, containing 1c.ft. of stone, will cost less in proportion than 3ft. run of stone mullion, also containing a foot cube chamfered at each corner, 6in. by 8in., because the labours in the latter are greater. But if we take them both by the foot run, the sill will price out more, because it contains a cube foot of stone as against 4in., or a third of a foot cube, in the mullion. In short, the quantity of stone in a large scantling will cost more per foot run than a smaller scantling with more labour in it, except when there is circular or moulded work, as in a richly-moulded mullion or jamb. The quantity of stone and the quantity of labour both affect the cost of the work, and hence in judging the price of any item the proportion of the latter to the former must always be considered. A good rule is to compare the sectional area in inches of the scantling, as we have before said. Sections of the same area, and having similar labours, like a chamfered mullion or a weathered sill, will be about the same in price.

The prices of the following items or elements of a foot cube of Portland stone may admit of variation according to local circumstances.

	£	s.	d.
Portland stone, 20ft., average at depôt	0	2	8
Including waste and delivery within four miles of depôt	0	3	6
Hoisting and setting	0	0	6½
Cleaning down	0	0	4
Mortar	0	0	0½
1½ft. beds and joints at 5d.	0	0	7½
	0	5	1½

As priced in 1891, the foregoing items gave a total of 3s. 8d. per foot cube, the stone at depôt being priced at 1s. 10d. For ordinary work materials and labour as in sills, quoins, jambs, or Portland is often priced at 7s. 6d. to 8s. 9d. per foot cube.

Referring to our remark last week that the builder often underlets, the stonework of a building contract to a local mason or stone merchant, a well-known firm of stone merchants state, correctly, "a very large proportion of the stone trade is done through merchants, and several large quarry owners look to merchants only for their trade." We are anxious to be able to correct any wrong impression that any readers may have gained from our observations, and we gladly admit that a large part of the stone trade is done through the merchant; what we intended by our remark was simply that the ordinary building contractor is not always competent to undertake the stonework, and that it is better for him to let the work to a firm of stone merchants. All large quarry owners and merchants have offices in London, who are prepared to furnish price for any quantity of stonework, including delivery on the works; they have, therefore, the advantage over the ordinary contractor.

The merchant or quarry owner is also able



to make better terms with the railway company than the builder. These considerations ought to be taken into account before pricing items of stonework on any large transaction.

We now give a few items of Portland stone which can only be correctly priced by roughly taking out the quantities of stone and labour. The prices we append are, in some cases, rather high for large quantities, and therefore they can only be taken as approximate valuations.

6ft. 6in. run. 11in. by 3½in. sill as before, but in one length.

Put this sill at 4d. more than the previous one, 10in. by 4in. (page 736); say, 3s. 6d. There is more risk to large stones.

No. 12. Fair ends, stopped to weathering of sill.

These ends are rubbed, and form hollow stops to weathering. These are worth about 1s. each end.

18ft. run. 6in. by 8in. mullions, splayed according to detail.

To price this correctly it is necessary to take out the quantities. Let us say there are three mullions, 6ft. long each.

3 6 0			
8			
6			
—	6 0	Cube scantling, including waste, hoisting, and setting, at, say, 3s. 6d. ....	£ s. d. 1 1 0
60 8			
6			
—	2 0	Bed at 5d. ....	0 0 10
32 4			
6 0			
—	42 0	Plain face at 8d. ....	1 8 0
12 4			
6 0			
—	24 0	Sunk face at 1s. ....	1 4 0
		Slate dowels, mortices, and cement ....	0 6 0
			3 19 10

This would be equal to 4s. 8d. per foot run. According to the scantling and length of each mullion, 6ft. long by 8in. by 6in., there is just 2ft. cube in each mullion, or 1ft. cube in 3ft. run; equivalent to 13s. 2d. per foot cube.

18ft. run. 12in. by 6in. stone head to two windows.

	£ s. d.
This would equal about 6in. cube stone per foot, and would cost, including waste and setting, at 3s. 6d., say .....	0 1 9
Add 3ft. super. half sawing on four sides	0 0 10
1ft. 6in. plain face, rubbed extra, say ...	0 0 8
Sunk face, 4in. wide, 3ft., say .....	0 0 4
Eight stopped ends, 6d. each per foot ...	0 0 3
	0 3 10

Or, say, 7s. 8d. per foot cube.

We have supposed the head to be in one stone, more probably it would be in two stones.

50ft. run. Portland stone moulded plinth, 2ft. 6in. high, and average depth 1ft. 6in., joints, averaging 3ft. apart.

To price this, take out quantities for a 3ft. length.

3 0			
2 6			
1 6			
—	11 3	Cube stone, including waste, hoisting, and setting, at, say, 3s. 6d. ....	£ s. d. 1 19 0
3 0			
1 6			
—	4 6	Bed at 5d. (average bed) ...	0 1 10½
2 6			
1 6			
—	3 9	Joint at 5d., say .....	0 1 8
3 0			
2 6			
—	7 6	Half-joint back at 2½d. ...	0 1 6½
3 0			
0 6			
—	1 6	Plain face at 8d. ....	0 5 0
		Moulded work, 6in. girt, at 2s. 6d. ....	0 3 9
		3ft. run rough sunk face, 6in. wide, at 10d. ....	0 2 6
		Cost of 3ft. ....	2 15 4½

Equal to about 18s. per foot run, or, say, 6s. per foot cube.

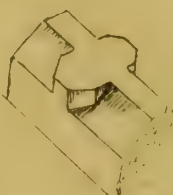
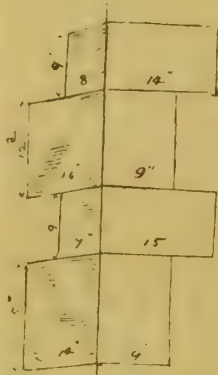
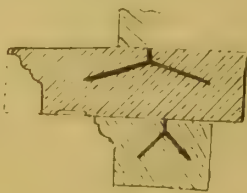
60ft. run. Portland stone quoins in courses averaging 1ft. 1in., and 10in. on face alternately, and 12in. in depth.

The quoin stones by this description vary

in face and depth on alternate sides. To take four courses (as sketch), obtain average of width and depth. The quantities for four stones would be

3 9			
1 1			
0 10			
—	3 5	Cube Portland stone in four quoins, at say, 3s. 6d. ....	£ s. d. 0 12 2
4 1 1			
0 10			
—	3 8	Hoisting, setting, and cleaning down 9d. ....	0 2 7
1 11			
3 9			
—	7 0	Bed at 10d. ....	0 3 0
		Half joint and plain face to face and back 10½d. ....	0 6 1
			1 3 10

works out at about 5s. 3d. a foot run.



40ft. run. Portland stone cornice, 2ft. 6in. on bed, 9in. deep, and in stones averaging 3ft. in length, joggled together, run with cement.

Take two stones or a 6ft. length.

6 0			
2 6			
0 9			
—	11 3	Cube Portland in two stones, hoisting and setting, at 4s. 3d. ....	£ s. d. 2 7 9
6 0			
2 6			
—	15 0	Bed at 10d. ....	0 12 6
2 6			
0 9			
—	3 9	Joint at 5d. ....	0 1 6
6 0			
1 6			
—	9 0	Sunk bed underside 1s. ....	0 9 0
6 0			
0 8			
—	4 0	Plain face back 8d. ....	0 2 8
6 0			
1 2			
—	7 0	Sunk face to weathering 1s. ....	0 7 0
6 0			
1 10			
—	11 0	Moulded face 2s. ....	1 2 0
3 2 0			
—	6 0	Joggle and cement 1s. 3d. ....	0 7 6
			5 9 11

Equal to about 18s. per foot run, or say 9s. per foot cube.

This price is rather low for a small quantity, and may be taken at 12s. per foot cube in some cases.

40ft. run. 12in. by 6in. moulded string (see sketch), 10in. girt, weathered on top in stones 9in. and 4in. on bed alternately.

Here we take the cube stone and labours as before.

3 0			
1 0			
0 6			
—	1 6	Cube stone, hoisting and setting, 3s. 6d. ....	£ s. d. 0 5 3

Taking two beds 12in. each, and joint 6, we have:—

3 0			
2 6			
0 6			
—	7 6	Half-bed and joint, 5d. ....	0 8 1
3 0			
0 6			
—	1 6	Sunk face for weathering, 10d. ....	0 1 3
1 0			
0 6			
—	0 6	Joint, 5d. ....	0 0 2½
3 0			
0 10			
—	2 6	Moulded face, 2s. 3d. ....	0 5 7
		Joggle and cement, 1s. ....	0 0 1
		Cost of 3ft. ....	0 15 5½

Equal to say 5s. per foot run, or 10s. per foot cube.

#### ST. SIDWELL'S, EXETER.

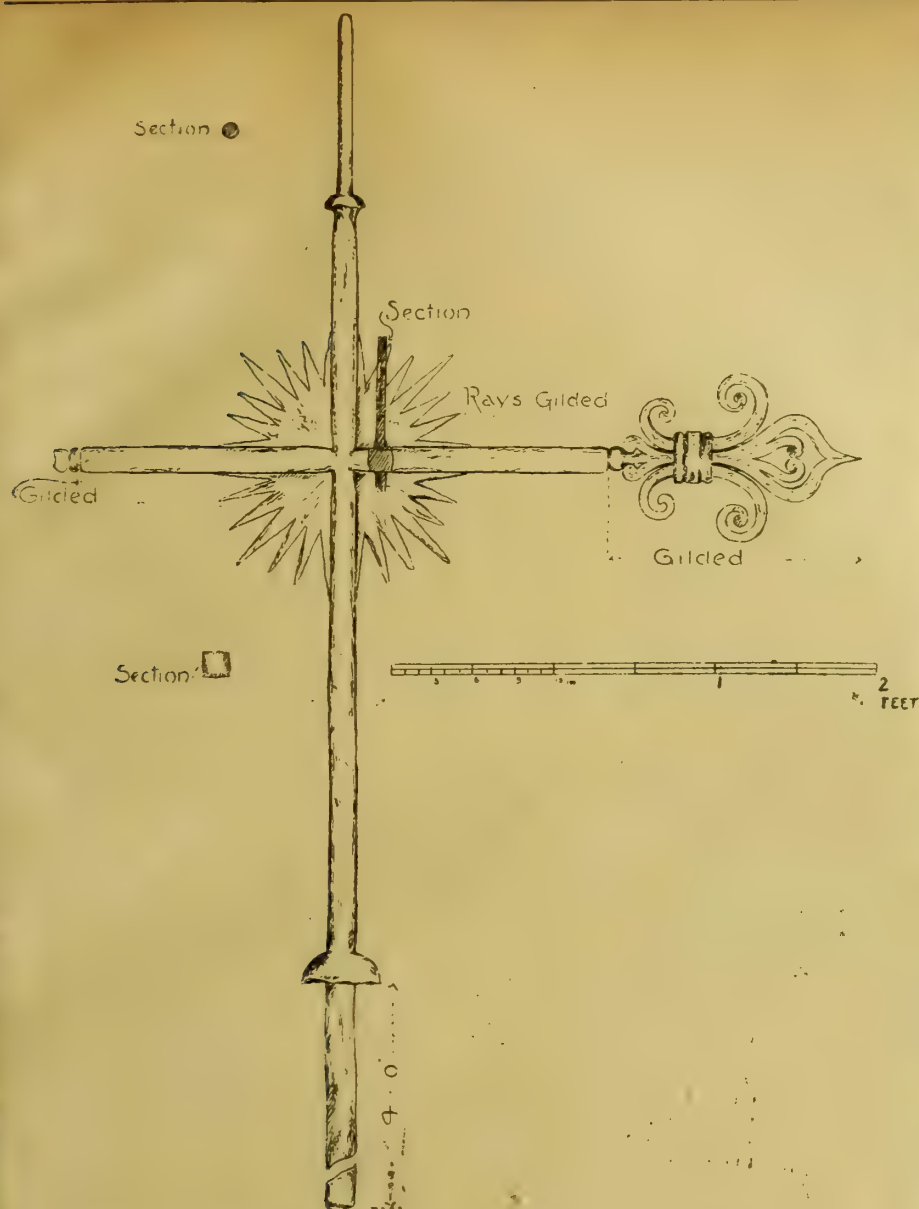
REFERRING to the notes in the BUILDING NEWS for May 26 upon the late spire and ancient 15th-century weathercock appertaining to this church the following may be deemed a continuation. The wrought-iron vane (see accompanying sketch) undoubtedly dates from the same time as the bird itself (A.D. 1484). It crowned the apex, successively, of both the cathedral and St. Sidwell's spires—seen to the eye its full length, save the lower four feet (below the projecting amulet). This bottom part was let into the solid woodwork forming the capping to the upper portion of the framing of the spire. One of the horizontal ends is missing, all save a fragment of its necking. It represented a Tudor rose, and seemed to have practically rusted off; of the other, a larger illustration than the actual sketch allows is given through the friendly medium of my son, H. Turner Hems's, camera. Why one terminal should have corroded so fatally, whilst the rest of the vane bears no suggestion whatever of oxidation, is as inexplicable a problem as is at present the query how the steamship *Paris* came to get on to the Manacles when it had so wide a waterway to steer through ere reaching the Atlantic. Save where shown as gilded, no signs of paint exist upon the metal-work.

Here is a photo-litho. of one of the nave arcade capitals. Each is 1ft. 10in. square by 11½in. deep of actual carving; there are eight of them and four responds. They are all carved upon the same motif. The patron saint is represented forty times, facing four ways on each full capital, but in only one capital with her head off and in her left hand (the view herewith shown). Every figure, however, has the scythe in the same position; these scythes have shorter blades than are those in use nowadays. Exactly the same shaped implements, held by a triplet of mowers, may be seen upon one of the thirty-seven 15th-century carved oak miserères in the choir of Worcester Cathedral. Of course, St. Sidwell is by no means the only virgin saint and martyr who carries her own head in her hand. According to examples left us by ancient sculptors and illuminators, SS. Winifred, Valeria, Flora, Regula, Grata, and Adelaide were addicted to the same practice, and so was St. Oystin, the 2nd-century Queen-Abbess, who, it will be remembered, is thus represented upon the ancient seal of her church at Chick. Further, there are at least half a dozen saints of the sterner sex, besides the namesake of our own proto-martyr St. Alban (A.D. 303), who did the same thing. The St. Alban in question was a 7th-century German bishop, and he is represented with his own head in his hands in several churches in Cologne and Metz. The others are SS. Clarus, Cheron, Lucanus, Dionysius, Mitrius, Proculus, Piat, Denis, and Nicasius.

Note the winged arms and plate-armour treatment of the angle shield-bearing angels. They seem to represent respectively archangeli and virtues. There are other instances in the county of 15th-century angel capitals treated much as are those of St. Sidwell's, and, like the latter, without abaci.

As stated in my last, the arcades—arches and piers alike—are of Beer stone. Beer is the most romantically-situated fishing village on the whole South Devon coast. The hamlet is in the bosom of a deepcombe that dips away from the heights, down between the cliffs to the very edge of the ever-restless water of the English Channel. Beer is about 19 miles, as the seagull flies, from the sturdy Norman towers of Exon's cathedral church. In the rearing of these towers, and of the rest of the cathedral later on, Beer stone was largely used. According to the Chapter Rolls, hundreds of years after the erection of





VANE, ST. SIDWELL'S, EXETER.

the towers, Bishop Stapeldon (A.D. 1325-30) procured stone from the Beer quarries for building the Choir and Lady-chapel. These quarries have been worked from the remotest period, and

to 18ft. deep, and is in four distinct beds. In the old workings the pick marks of the Norman quarrymen, made by them when raising stone for the first Norman cathedral, are as fresh as



ST. SIDWELL'S, EXETER.—ONE OF THE NAVE CAPITALS (Fifteenth Century).

are still in use, the supply being quite inexhaustible. The old workings are tunnelled curiously beneath the cliff. The stone runs 12ft.

if only chiselled yesterday. These 11th-century workings have their roofs finished quite level and flat; but, in the still earlier excavations,

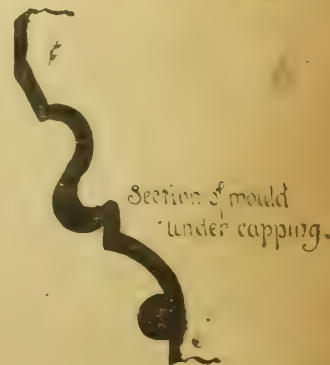
the tops are left round-headed. The ancient quarrymen seem to have used much the same kind of picks as are now in vogue; but indications go far to suggest that in Mediaeval times the blocks quarried were not nearly so large as are



ST. SIDWELL'S, EXETER.—TERMINAL OF CROSS OF FIFTEENTH-CENTURY VANE.,.

those nowadays. Blocks may now be procured of any size up to 120 cube foot (16ft. to a ton).

The rood and parclose screens at St. Mary's Church, Totnes, in this county, the finest stone screens in Devonshire, and perhaps (as 15th-century work) in any parish church in England, are of this stone. They were made in Henry VI.'s time (erected A.D. 1459-60). Stone screens are not common in Devon, but examples of more or less interest may still be seen in the parish churches of Awliscombe, Bideford, Colyton,

Plan of  
PillarSection of mould  
under capping.

Culmstock, Hemyock, Ottery, and Paignton. They are all of Beer stone, and appertain to the Perpendicular period.

In a former article it was mentioned that Sir Walter Raleigh's father was imprisoned in St Sidwell's western tower. An old historian records the circumstances connected with this arrest—



he environments suggesting that our church has had more than one "crisis" before to-day! This is what the writer in question says:—

"One day (July, 1549) a gentleman named Walter Raleigh, overtaking an old woman, going to St. Mary's Church to mass (a village four miles from Exeter, and situated between Sir Walter's residence and the city), remonstrated with her, and endeavoured to dissuade her from her purpose, but without effecting his end. The woman went to the church, and loudly misrepresented his conversation, by saying he had threatened that they should be burnt out of their dwellings unless they gave over holy bread and holy water. This enraged the inhabitants. . . . So some of their party, having overtaken Mr. Raleigh, greatly misused him, and threatened to murder him, so that he was obliged to take shelter in Topsham Church, from whence he was rescued by some mariners of Exmouth. Yet though he escaped this time, he afterwards fell into the hands of the rebels, and was imprisoned in the tower of St. Sidwell's church, until the commotions were ended. The tower being much injured by the rebels, was soon afterwards nearly rebuilt."

Exeter.

HARRY HEMS.

### THE CANTILEVER BRIDGE: ITS DESIGN AND CONSTRUCTION.—IX.

IT is to a great extent immaterial, as has been already stated, in analysing the stresses upon the different parts or spans composing a cantilever bridge, whether we commence with the anchor arm, the cantilever arm, or with the central independent trussed girder. There is, nevertheless, some advantage gained by beginning the computation of the stresses with the determination of those to which the central girder is subjected. It is true that this advantage does not become particularly apparent until the calculation of the stresses upon the cantilever arm comes into question. But then, as will be subsequently pointed out, it will be found that the *a priori* knowledge of the loads and stresses transferred to the cantilever arm by the central truss very much facilitates the whole of the future mathematical and arithmetical operations required. An elevation of the central girder of the design we have selected for calculation is given in Fig. 1, and the manner of lettering the diagram and the reasons for so doing must be first explained. The single letters do not represent by themselves any members of the truss, but apply to the spaces outside the whole elevation of the truss, as well as to the triangular spaces inclosed by the separate members. Thus the whole space outside of the upper boom or chord, and the ends of the girder is lettered A, and the similar space outside the lower chord is marked B. The reason why it is necessary to make a distinction between these spaces will be apparent as we proceed. In addition, each triangular space formed by the attachment of the bracing in the web to the booms or flanges at the successive apices is marked by a letter of its own. The reading of this description of lettering, or the mode by which the individual members of the truss are identified and distinguished from each other is as follows:—Let us take the second panel length from the left-hand end of the truss, the separate members of which consist of a certain part of the upper and lower booms respectively, a pair of vertical and a single diagonal brace.

First, for the upper flange length. The space outside the whole of the upper chord is lettered A, and the triangular space inside immediately underneath the panel length selected is marked *d*, and this length of the upper chord, or of this particular member of the truss, is distinguished by the letters A*d*. Again, the space outside the lower boom is marked B, and the triangular space or area inside is lettered *e*, so that, by parity of reasoning, the lower flange member of the second panel is designated by the letters B*e*. For the vertical member on the left-hand side of the panel length, the triangular spaces on each side of it are marked *c* and *d* respectively, so the vertical is known as *c.d*. It will be easy now to distinguish the diagonal bar in the panel as *d.e*, and the right-hand vertical by the letters *e.f*, and so on for any other different members of the whole truss. It is very usual in textbooks on the subject of stresses upon bridge and roof trusses as determined by the elegant method of graphic statics and stress diagrams, to notice that separate letters are assigned to the member composing each panel length of the boom upon which the load is placed. This is quite unnecessary, as will

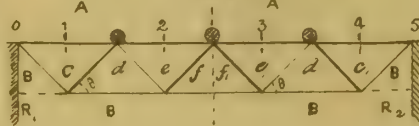
be subsequently pointed out, and only leads to a superfluous multiplicity of letters which only bewilders the reader, and is as useless as it is confusing.

The system of notation employed in the example in Fig. 1 is that known as Bow's, and was introduced by the late R. H. Bow, a well-known engineer of Edinburgh. In order to thoroughly prove its advantages, especially in connection with the use of the graphic method and of stress diagrams, it will be advisable, before

FIG. 1.



FIG. 2.



proceeding with the determination of the stresses upon our central truss, to apply the principle to a more simple example than that shown in Fig. 1. A skeleton elevation of a small truss of the Warren type is shown in Fig. 2, and loaded uniformly throughout the whole span, although, for the purposes of determining the stresses upon it, the loading is regarded as being divided into three equal parts which are situated respectively one upon each apex of the upper boom. The truss is suitable for a deck bridge, and, as such, the end members of the lower chord, shown in the diagram by the dotted line, are superfluous, or otherwise termed redundant. There is another and more theoretically accurate method of subdividing a load uniformly distributed over the upper flange of the Warren girder in Fig. 2, which may be thus stated. Commencing with the first bay or panel length at the left abutment extending from 0 to the first weight, it is evident that, with a load uniformly distributed over it, one half will be carried by the left abutment and the other half by the apex where the first weight is placed. Passing on to the second bay, one-half of its load will, under the same conditions, be transferred to the first apex, and the other half to the central apex where the second weight is placed, and the repetition of the process for the other half of the truss will give similar results. Let *W* equal the value of each of the three weights in tons, or in any other suitable unit; then the total load affecting the stresses on the girder will, under

FIG. 3.

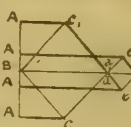
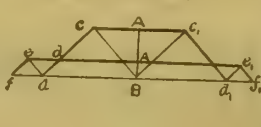


FIG. 4.



the assumption that the total is placed as in Fig. 2, be equal to three times *W*. The reactions *R*<sub>1</sub> and *R*<sub>2</sub> will be given by the equation

$$R_1 = R_2 = \frac{3 \times W}{2} \dots\dots\dots (1)$$

An inspection of the diagram will indicate that the distance 0 — 1, 1 to the first weight, and from that point to 2, and continuing in the same manner to the right abutment at 5, divide the length of the girder into eight equal parts, and the total load also into similar subdivisions. Consequently the part of the total load which is transferred to the two abutments which produces no stress upon any members of the girder is equal to—

$$3 \times W - \frac{9 \times W}{4} = \frac{3 \times W}{4} \dots\dots\dots (2)$$

This result may be reasoned out as follows: Since there are four bays or four panel lengths in the upper chord of the truss, and a total uniformly distributed load of three times *W* upon it, the uniform load upon each panel length will be equal to  $\frac{3 \times W}{4}$ . Half of this covering the two end panels, and extending from 0 to 1, and from 4 to 5, is directly supported by the abut-

ments, and exerts no stress upon any member of the truss. But this half is equal to  $\frac{3W}{8}$  upon each point of support, so that by doubling this amount, it becomes as before equal to  $\frac{3 \times W}{4}$ .

The important detail to be borne in mind with respect to this comparatively small percentage of saving in the uniform load upon the whole girder, is that it can never exceed altogether the amount of the load upon one panel's length, presuming, as is generally the case, the panels are of the same constant length. But as it sometimes happens that they vary in length, the saving must be computed for each half of the girder or truss, as equal to the load covering or uniformly distributed over each half of the end panels, whether they are equal to each other or not.

The advantage of Bow's notation, when stress diagrams are employed, as they very generally are now for determining the stress upon a certain class of structures, consists in the fact that the same letters used for designating any member of the truss in the skeleton or frame diagram, can be also used for indicating the line in the stress diagram whose length measured by scale will give the stress upon that member. There is no other system of notation which can compare with it in this respect, although many writers on the subject decline to avail themselves of its incontestable merits. The spaces and areas in the elevation of the truss in Fig. 2 are lettered in a similar manner to those in Fig. 1, and therefore require no further explanation. On the line of loads in the other diagram in Fig. 3 for the Warren truss, in Fig. 2, let the distances A*A*, A*B*, B*A*, A*A* represent in amount the three loads, each equal to *W*, on the upper flange of the girder, bearing in mind that A*B* and B*A* are each equal to  $\frac{3W}{2}$ , so

that the three weights in the frame diagram are really equal to the distances A*A*, A*A*, and A*A* in the stress diagram. It results from using the space letters A and B of the frame diagram to mark the divisions of the load line in the stress diagram, that we are enabled to dispense with the complicated lettering of every individual member of the upper loaded chord of the truss. Having constructed the stress diagram according to the ordinary rules which have been previously enunciated in our columns, and assigned letters to the line of loads, the next point to be determined is, upon what principle is the rest of the lettering to be arranged, so that the same letters may represent both the members in the frame diagram and the corresponding stresses upon them in the stress diagram. In the first place, it should be mentioned that the stress diagram in this instance—although it is not absolutely necessary in all cases—is a reciprocal diagram. When possible, a reciprocal diagram should always be employed, as it renders the whole process of ascertaining the stresses considerably simpler and clearer. It follows from the reciprocity of the two diagrams that the lines in the one which inclose an area meet at one point in the other, and *vice versa*. This is the most important and very valuable feature in reciprocal diagrams, and one which is of the greatest possible assistance in discriminating between the various directions and characters of the different stresses upon the members of any structure. In conformity with this rule, therefore, let us consider the first bay at the left abutment, where the three members A*c*, B*c*, and *c.d* form the closed triangular space *c*. These members must, in the stress diagram in Fig. 3, meet in a common point, which, it is obvious from the conditions of the case must be lettered *c*. On referring to the diagram the point is so lettered, and the stresses upon the three members A*c*, B*c*, and *c.d* are given by the length of the lines distinguished by the same letters. For the next panel, since the three members inclose the area *e*, the lines representing the stresses on them in Fig. 3 must also meet at a common point which is marked *e*, and the stresses upon them will be equal to the length of the lines A*e*, *d.e*, and *e.f*. The same process will give the line B*f* in the diagram equal to the stress upon the central bay B*f* of the lower chord of the truss. As the total load is taken up as uniformly distributed over the upper chord, the stresses upon the other half of the girder can be obtained in a similar manner, and will be equal to those already found for the corresponding members of the left-hand half of the truss. It is clear



that half of the stress diagram in Fig. 3 would be sufficient to determine the stresses upon all the members of the truss, but it is usual to plot the diagram for both halves, so as to see whether the two halves will "close" at the point *f*. There is a great deal too much importance laid upon this "closing" of diagrams, as there are several simple methods by which the accuracy of the half-diagram can be checked without reduplicating it in delineation. In fact, when there are a large number of panel lengths, as in trusses of magnitude, a good deal of confusion and inconvenience is apt to attend the plotting of both halves of the stress diagram, as is apparent to a comparatively small extent in Fig. 3. In the diagram it will be seen that some of the same points are marked with two letters, *d, d', f, f'*—for instance, in order that the corresponding numbers of each half of the truss may be readily identified. This inconvenience of lettering the same point in the diagram twice may be avoided by plotting the diagram as shown in Fig. 4—that is, upon each side of the line of loading in a horizontal instead of a vertical direction. It is true that in this method the stress diagram will not close; but, as already remarked, that is not by any means a matter of primary importance. It will not be necessary to check all the stresses arrived at in the diagram in Figs. 3 and 4 by an independent method. One or two examples will be quite sufficient, so we will select the members *A c*, *B c*, and *e f*. The reaction at either abutment is equal to  $\frac{3 \times W}{2}$ . Let *S* equal

the stress upon the panel-length *A c*, *S*<sub>1</sub> that upon the bar of the web *B c*, and *S*<sub>2</sub> for that upon the central bar *e f*. There is a detail in connection with the members or bars of all open-web girders which should be noticed, and that is that certain bars are what are termed pairs, which are subjected to stresses of equal amount, but of opposite character. A reference to the diagrams in Figs. 3 and 4 will show that the stresses upon the bars *B c* and *c d* fulfil these conditions, and are consequently pairs. The manner in which the load is distributed over the truss will determine which members of the web are pairs and which are not. If in the elevation in Fig. 2 the load be uniformly distributed over the lower flange or chord, the arrangement of the pairs is at once changed. The bars which now become pairs are those lettered *c d*, *d e*, *e f*, and *e f*. Were the diagram in Fig. 3 drawn to satisfy the requirements of a uniform load covering the lower chord, this equality of stress would be equally apparent as it is for the other distribution of the load. It should be borne in mind that this rule does not apply to bowstring, polygonal, or any description of girder or truss in which the angle between the different bars of the web and the horizontal or the vertical is not a constant quantity.

Referring to Fig. 1, the value of *S* is—

$$S = R_1 \times \tan. \theta \dots\dots (3)$$

and for that upon the bar of the web *B c* we obtain—

$$S_1 = R_1 \times \operatorname{cosec}. \theta \dots\dots (4)$$

The stress upon either of the central bars *e f* and *e f*<sub>1</sub> is obtained from the equation—

$$S_2 = W \times \sin \theta \dots\dots (5)$$

Put *W* = 1 ton, or for any other unit of weight, and let  $\theta = 45^\circ$ , then, since  $R_1 = \frac{3 \times W}{2}$ , we have

$$S = 1.5, S_1 = 2.121, S_2 = 0.7071.$$

If, in the diagram in Fig. 3, the distances *A - 1*, *A - B* on the load line be made equal to one ton and one half-ton respectively on any convenient scale, the lengths of the lines *A c*, *B c*, and *e f* will give the stresses upon the similarly-lettered members of the truss in Fig. 2 with an amount of accuracy quite sufficient for all practical purposes. If the stresses upon the remaining members be analytically investigated, an equally close agreement will be obtained, as in the case of those already investigated. Having now fully explained and illustrated the mode of procedure to be adopted in calculating the stresses upon the different members of the cantilever bridge, we shall apply it to the example selected, and tabulate the results, so that the structure may be designed, the working drawings made, the specification written, and the steelwork of the bridge ready to be placed in the hands of the contractor for construction and erection.

St. Michael's Church, Shap, has been reopened by Bishop Bardsley after restoration and extension.



#### TEST OF A FIREPROOF SKYSCRAPER.

THE recent fire at the Windsor Hotel on Fifth Avenue, as well as the fire at Rogers, Peet, and Co.'s clothing establishment on Broadway, New York, has brought the subject of fireproof buildings once more in a prominent manner before the general public, as well as the architectural profession. The fire at the Windsor Hotel created a sensation from the rapidity with which the building was totally consumed and the sad loss of life occasioned thereby. The interest, from a fireproofing point of view, however, was slight, as the building had no pretensions to being a fireproof structure.

In the Broadway fire, however, the case is different, and there are several lessons, from a fireproof standpoint, to be learnt. The fire occurred in the block on Broadway between Warren and Murray streets. On the Warren-street corner stood the five-story clothing establishment belonging to Rogers, Peet, and Co. Next to this store was the seventeen-story fireproof building owned by the Home Life Insurance Co., and next to this, and on the corner of Murray-street, stood the Postal Telegraph Co.'s building, a fireproof structure also, of fourteen stories. Therefore, it will be seen that the block consisted of three buildings—a five-story non-fireproof structure, in the first story of which the fire originated, a seventeen-story fireproof building, and a fourteen-story fireproof building. At the time the fire started, on December 4, 1898, there was a very strong N.E. gale blowing, and it was not long before the clothing establishment was one mass of flames and smoke. Shortly after the flames burst through the roof, when the wind caught and drove them with the fury of a furnace against the main party wall of the Home Life building. In this wall there was a recessed well, which was used as a light shaft about the centre of the building, which was almost entirely pierced for windows. Besides this light shaft there were two windows on each floor in the main wall above the roof of the Rogers, Peet, and Co.'s building. These windows, as well as those in the light shaft, were entirely unprotected from fire, either in respect of shutters or wire-glass in the sashes. If these windows had been protected in some manner, there is little doubt that the harm done

to the building would have been slight, as these shutters would have checked the flames and thus allowed the firemen into the several floors of the Home Life building. However, as the windows were unprotected, and the fire did take place, let us see what lessons can be learned therefrom.

In the first place, let us take the exterior of the building. The walls were of steel-frame, encased on the front with marble, the remainder of the walls being encased with brick. This marble front above the seventh story has been severely damaged by fire, smoke, and water, and will have to be replaced. This proves, however, what is now undisputed, that marble is entirely unreliable in the case of fire. Had this front been of brick or terracotta there is little doubt that, with the exception of a good cleaning and re-pointing, there would have been little to do. This was further proved both by the very satisfactory condition of the north party-wall, which withstood the chief force of the flames, and the terracotta tiling and cresting of the roof, which is almost as good as the day it was erected.

Now, let us enter the building and see what the interior has to show, and what lessons can be learnt therefrom. The floors were constructed of 9 in. and 12 in. I beams, about 4 ft. 6 in. apart, having 9 in. hard tile terracotta side-construction arches between beams; these arches had show-backs with protecting lip. Above these beams there were sleepers 4 in. by 3 in. every 16 in., with two thicknesses of 3 in. flooring nailed thereto. But—and mark this item—there was no concrete or other filling in this space under the flooring, leaving an air-space between each sleeper, which formed a flume for the flames. This accounts for the almost entire destruction of the flooring above the sixth story. The terracotta arches, however, were almost all in perfect condition, and in one or two instances where failure did occur, the damage was caused by a heavy safe dropping down this 3 in. or 4 in. air-space after the flooring had been burned through. The plate girders, where exposed below the arched floors, were covered at each side with terracotta blocks, but the lower flange was covered in most cases with wire lathing nailed to the blocks and carried under the flange. The mortar and lathing were destroyed in many cases, and it is a wonder that the girders have not been damaged. The girders



should in all cases have their flanges covered with terracotta slips, or, at any rate, even if wire lathing is used, it should be most carefully fastened. In many cases, at the Home Life building, the porous terracotta partitions, which were of 4in. material, ran alongside the girders where they joined the ceiling, and in these cases the wire lathing was nailed to the block on the girder on one side, and to the side of the partition on the other side. And as the partitions were constructed (in the passages especially) often-times only 5ft. high, and a sash up to the ceiling, these partitions fell in many cases, carrying these strips of wire lathing attached to these girders with them, and thereby exposing the flange of the girders. It should also be borne in mind that, in the event of wire lathing being used, there should be an air-space of about 1in. between the lathing and the flange of the beam, so as to allow a good key for the plaster or mortar. In many cases the lathing is fastened tight to the flange, thereby destroying any chance of a firm key to the plaster, which therefore falls far sooner than it otherwise would do. The columns were all covered with 2in. porous terracotta tile, and there does not appear to be any damage to this material or to the columns.

These notes give some idea of the condition of the building after the fire, and the lessons to be drawn therefrom may be summed up as follows:—(1) That one of the chief dangers a fireproof building has to contend against is a severe fire in an adjoining non-fireproofed structure; (2) that marble is useless to contend against fire, as demonstrated by the front of the Home Life Insurance building; (3) that the space above the terracotta arches between the steel beams should have been filled with terracotta blocks, concrete, or some incombustible material; (4) that wire lathing and mortar is not to be recommended as a covering for steel construction, and, if used, should be very carefully fastened with an air-space of 1in. between the iron and the lathing, so as to allow space for a good key to the mortar.

J. RAWSON GARDINER.

Temple Building, Montreal, Canada.

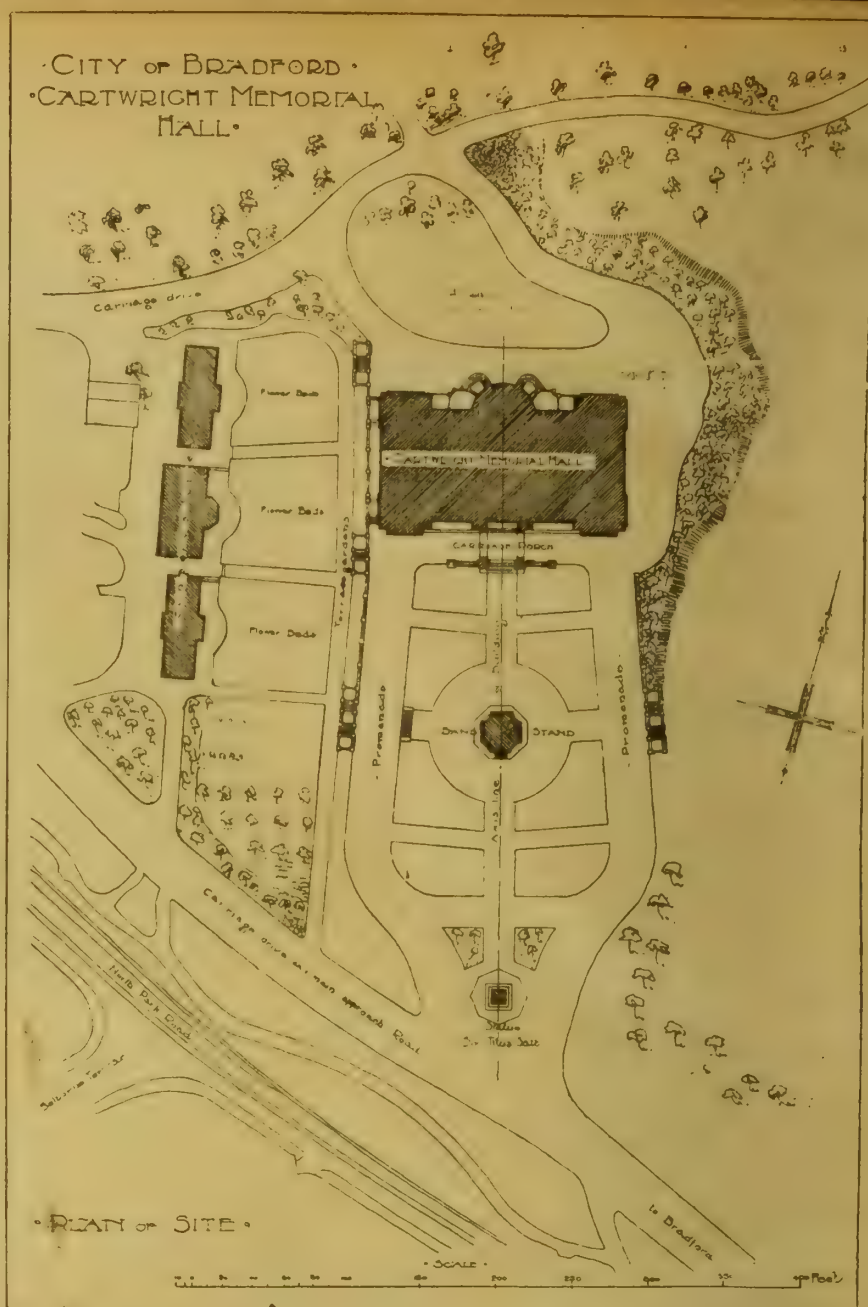
#### THE DISPUTE IN THE BUILDING TRADE.

A JOINT meeting of representatives of the National Association of Master Builders and of the several trade unions in the building industry was held at the Midland Hotel, Derby, on Monday, to consider a suggested basis of discussion at a conference to be held for the settlement of the matters in dispute. The meeting was attended by three members only from either side, with the secretaries, namely, Messrs. B. I. Greenwood (London), R. Neill (Manchester), W. Nicholson (Leeds), and J. A. S. Hassal, secretary, employers; and W. T. Wilson (Amalgamated Society of Carpenters and Joiners), W. Matkin (General Union of Carpenters and Joiners), J. Batchelor (Operative Bricklayers' Society), and G. B. Cherry (Operative Plumbers' Association), secretary. No basis was agreed upon; but it was decided that the representatives of the trade-unions should submit proposals for a basis of discussion for the consideration of the National Master Builders' Association within the next fourteen days. The representatives of the trade-unions will meet in Manchester on Monday next to prepare a "basis" for any conference between them and the Master Builders' Association. The basis will probably take the simple form of a proposal for a Joint Central Conciliation Board, composed of an equal number of representative employers and members of the trade-unions, with such other small additions as may be deemed advisable. Meanwhile, the lock-out is continued in Yorkshire.

#### CARTWRIGHT MEMORIAL HALL, BRADFORD.

[WITH LITHOGRAPHIC ILLUSTRATIONS.]

WE publish full illustrations of the chosen design selected by Mr. Alfred Waterhouse, R.A., the assessor for the Bradford Town Council. The architects thus commissioned to do this important undertaking are Messrs. J. W. Simpson and E. J. Milner Allen, of New Inn, Strand. The block plan given with the text shows how the authors have devised the general scheme on the site. They took advantage of the liberty given to competitors to adjust the transverse axis line so as to bring the site into line with the statue



of Sir Titus Salt. This will form the centre of the main approach to the new building, the intermediate space being laid out as a formal garden with bandstand and spacious promenade. The differences of level allow an upper terraced garden flanking the hall, and agreeably connecting its severe lines with those of the gardens immediately surrounding it, and of the undulating park beyond. The area occupied by the building is 14,162ft., rather less than the limit fixed by the conditions. The whole of the first-floor galleries are grouped *en suite* so as to form one continuous range of reception-rooms, with the hall and grand staircase in the centre. The cloak-rooms are located right and left of the entrance, thus avoiding the mingling of cloaked and uncloaked guests upon the staircases and rendering ante-rooms needless. The grand staircase in duplicate leads directly into the reception-hall, giving a fine spectacular effect. The drawing-room is placed between the reception-hall and banqueting-room. Royal and distinguished guests would use the black-and-white rooms. Double top lights, as recommended by the late Sir John E. Millais, P.R.A., are used for the galleries; the central hall has north windows for sculpture. The museums and curator's rooms are on the ground floor. The secondary entrances being placed at the half-level, between the basement and ground floor, give convenient access both to the central hall and refreshment room. This latter is equally accessible both from within and without the building as desired, so as to encourage its use as a "café"

with separate tables rather than a "bar." The kitchen department immediately adjoins it. Discreet entrances to the public conveniences to both sexes are provided from the park. The building is designed in a simple style of the Italian Renaissance, based on an order of coupled Ionic columns and pilasters, with an appropriate entablature. An open carriage porch, surmounted by a stone lantern, supplies a relieving vertical composition without interfering with the proper and economical lighting of the galleries or breaking the lines of the roof lights over them. White stone is to be used for the faced work, and slates and lead for the roof covering; the whole to be as far as possible fireproof. Hardwood is to be used for the best joinery. The cost is estimated at £37,073 8s. 3d. The total picture-hanging area is given as 6,948ft. super. The work is to be put in hand at once. Our illustrations from the architects' originals are authorised copies specially made for the BUILDING NEWS, and include the two principal plans and three main elevations, as well as a sheet of details to a good scale.

Lord George Hamilton will unveil to-morrow (Saturday) the memorial to the forty-one Protestant martyrs of Kent, who were burned at the stake at Canterbury during the reign of Queen Mary. The memorial takes the form of a granite obelisk, surmounted by a Canterbury cross, with an inscription recording that by their heroic fidelity, they helped to secure for succeeding generations the priceless blessing of religious freedom.





FIG. 1.

#### OLD CLOCKS AND WATCHES AND THEIR MAKERS.\*

THE work of Mr. F. J. Britten describes in a convenient and popular form the development of the art of clock and watch making. Few were better able to collect the materials for such a book than the secretary of the Horological Institute, who writes *con amore*. As we scan over the 500 pages and its four hundred illustrations, many of them from actual photographs, we are astonished at the remarkable variety of external forms which have been given to these valuable instruments for measuring time. Every conceivable shape that artistic taste could devise has been given, and all who admire the old examples to be found in our museums and private collections will find Mr. Britten's work of much value. The author begins from the earliest time in the history of horology; the sun-dials, water and weight clocks, and wick time-keepers, many remarkable examples being illustrated of those earlier forms of time measurers. The invention of clocks moved by weights is uncertain, and the term "horologium" seems to have been used indiscriminately for sun-dials and clepsydræ or water clocks. The earlier clocks were bells sounded at regular intervals by hand. Illustrations are given of the clock at Rouen, the dial of Glastonbury, of Wimborne, of the Palais de Justice, Paris, the famous Strasburg clock, the Venice clock, the dial at Hampton Court Palace.

One of the illustrations (Fig. 1) we are enabled to give, shows a hexagonal table clock from the collection of Prince Soltykoff, of the middle of the 16th century. "The movement is arranged in stories, the watch part being at the bottom, and the striking work above. The six doors or panels between the fluted columns are of steel damascened with arabesques of elegant design." The dial occupies one panel, with a band of blue steel engraved with the hours. Planetary and other motions occupy the horizontal dial at the top. The upper part is in the style of Henri II., six caryatides support the angles of the upper story, and each of the panels has a medallion

with head of a Roman Emperor in high relief, surrounded by a gilt border. A few very unique examples of table clocks and early watches are illustrated belonging to the 16th century. Table clocks or watches of this date are very rare. Some of these are octagonal. One peculiar example in the Soltykoff collection represents a mediæval hexagonal fortress of German make. Our second illustration shows a "Nef" or ship clock, a peculiar fancy of the 16th century. This is a singularly quaint nautical design; the mechanism actuating astronomical movements. Many of the examples are to be seen in the South Kensington Museum and the British Museum. Some of them are in the form of temples, with columns and domical tops, the latter pierced; the bases are often beautifully chased with figures, masks, and cartouched ornaments, as seen in pages 79 and 80. The medallion clock is also a common form, and these have, in some cases, a rock-crystal case on a richly chased stem, with crystal plaques on the base. Timepieces with horizontal dials were another form which found favour, and of these several examples are given. The "Memento Mori" watches of cruciform shape were much in vogue at one time, and two or three interesting examples, engraved with Scriptural scenes and emblems of the Passion, are illustrated. The watches are of various forms—square, octagonal, oval, tulip-shaped, olive-shaped, cockle-shell, and some choice specimens of enamelled French and English watches are represented. Of these, some of the most elegant are of the Louis XVI. period, in which the cases are enriched with plaques, enamel, repoussé, and chased work. The list of makers of old clocks and watches is of interest. Mr. Britten's remarks on dials and hands are sensible. The hour numerals, as he says, are now too long, and the old stumpy figures were easier read. The dial maker now regards his work without reference to the hands. There are many points in the old designs of dials and hands that the modern maker may imitate with advantage. The old "Atlas" clocks, as that of M. Grollier, in which the movement is within the globe, a horizontal band marked by numerals revolving a fixed arrow indicating the time, was a favourite device that admitted of much artistic invention. Many of

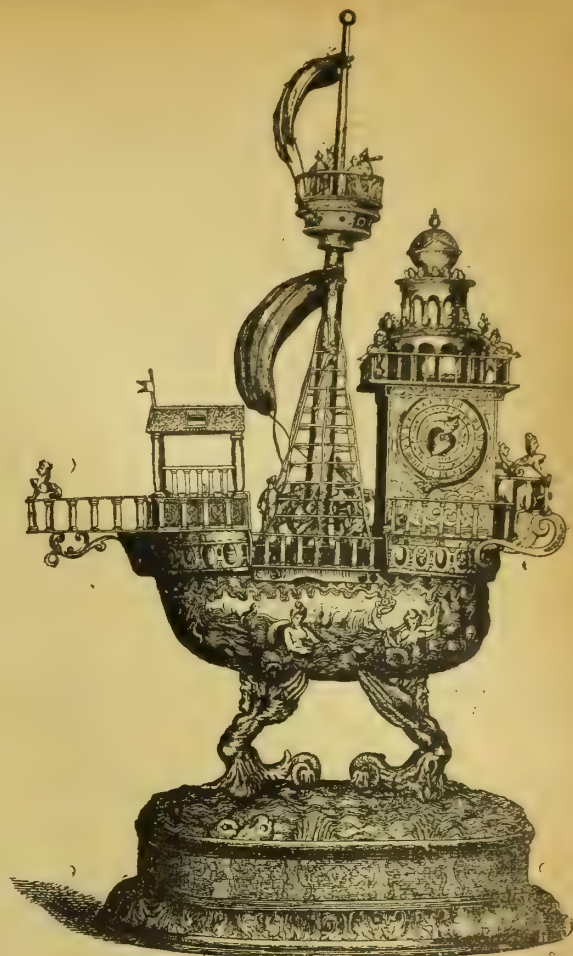


FIG. 2.

the 18th century clocks are interesting as designs, and the Windsor Castle collection is said to be a fine one. In the Palace of Versailles are to be seen also a few unique examples of this date. Various "grandfather" or Chippendale cases are illustrated, and these have now an interest for all collectors. All interested in this phase of art ought to purchase Mr. Britten's work.

#### HEXHAM ABBEY CHURCH.

THE rector of Hexham and the committee appointed to carry out the restoration of Hexham Abbey Church, have received the joint report of the architect, Mr. C. C. Hodges, and of the consulting architect, Mr. Temple Moore, upon the present state of the church, with proposals for its repair and a scheme for its extension and refurnishing, so as to materially increase its accommodation. It is proposed to begin by building again the nave in the style of the 15th century. The nave or body of St. Wilfrid's Church appears on various evidences to have occupied part of the ground used as a churchyard, immediately to the west of the present church, and which was closed for burials on May 31, 1859. St. Wilfrid's nave stood, in whole or in part, till April 8, 1296, when it received such damage at the hands of the Scots that it was not repaired to any great extent, if at all, in its then form. Its re-erection in the Gothic style was postponed from continual wars and want of means until the latter part of the 14th century, when an effort was made to complete it in a plain and heavy phase of Perpendicular peculiar to the North. How far the work proceeded is not now discoverable, but the south and west walls were standing to a height at least of 20ft. in 1795; as Carter shows a portion of the walking gallery in the south wall, and the jamb of a Perpendicular window above it. At present the south and west walls are about 16ft. high, and though ruined at the top, are in good condition for a portion of their height. The south wall is 6ft. and the west wall 7ft. 3in. in thickness. In 1881 some small excavations were made on the wall faces inside, and the base of the respond at the west end of the arcade was found to be still *in situ*. In

\* Old Clocks and Watches and their Makers, &c. By F. J. BRITTEN. London: B. T. Bateford.



plan the nave consisted of a main span 26ft. 3in. in width, and 95ft. 4in. in length, having an arcade of six bays on the north and a solid wall on the south. It had a single aisle on the north side, the total width of nave and aisle being 46ft. A new pulpit and reading-desk will be put where the entrance to the crypt is now, and a thousand to twelve hundred persons will be able to see the preacher. The large panels on the west side of the rood screen will be hung on hinges, so that they will fold inwards like doors, and then the screen will be an open one during service, and can be closed at other times. In the transepts chairs will be placed. It is in the choir itself that the greatest improvement will take place. All the old stalls will be put back into their old place at the west end of the choir, on a raised platform with seats for the choir-boys in front. Further east the shrines of Prior Rowland Leechman and Sir Robert Ogle will be placed where they were in 1858. These will then become objects of extreme interest, and will also add to the beauty of the choir. The old sedilia will occupy the second bay from the east on the south side. The altar will be a new one of full size. It will have a screened inclosure, and be brought west to the extent of half a bay. The reredos will be carved, painted, and gilded. The grand paintings of the seven canonised bishops will be placed at the sides of the altar, and will be supplemented with similar work to complete the inclosure. The Frith Stool will stand on the north side of the altar, and become again the bishop's seat. The fine old Mediaeval painted pulpit, a rare relic, will have a position of honour on the north side of the choir, and be used as the pulpit for services held in the choir. Three of the effigies will be laid between the columns of the choir as in some cathedrals. The old font, with its ancient carved cover reconstructed, will stand in the south transept. There will be a vestry in the aisle of the south transept. The total estimated cost without heating apparatus is £9,050. This scheme will increase the accommodation from 600 to 1,200, and will obviate the erection of a new church in Hexham.

#### STREET NOMENCLATURE IN LONDON.

THE London County Council have just promulgated a new series of regulations under the London Building Act, 1894, relating to the naming of new streets and the numbering of houses. According to these regulations, which will come into operation on Sunday, October 1, no name is to be used for a street unless with the approval of the Council, and it must be a name consisting, if possible, of one word, with the addition of "street," "road," or other like term, and not already in use within the county. Only such streets as are leading thoroughfares of considerable length can be designated "roads," and no street under 50ft. in width can be called an "avenue." The names "gardens" and "grove" will only be permitted to be used when the terms seem "appropriate." Another regulation states that names in some way associated with the locality are preferred. Names for terraces or places, or other blocks of houses and sections of streets, usually known as subsidiary names, are not recognised.

With regard to the numbering of houses, St. Paul's Cathedral is recognised as a central point; and the numbering of houses begins at the end or entrance of the street nearest to that building, except where a street leads from a main thoroughfare to a less important street, and then the numbering must start from the main thoroughfare. Taking, therefore, the sides of the street as left and right (assuming that the back is towards St. Paul's) the odd numbers will be assigned to the left-hand side and the even numbers to the right-hand side.

The Kings Norton Board of Guardians decided, last week, not to institute a competition for the proposed extension of the workhouse, but to engage the services of Messrs. Whitwell and Son, architects, to report on the requirements and to prepare plans and estimates. The estimated outlay was stated to be about £30,000.

At the Bootle Town Hall, the other day, Major-General Crozier, R.E., held an inquiry with regard to an application made by the Bootle Town Council for sanction to borrow £7,620 for the reconstruction of a sewer in Strand-road. Mr. J. Crowther, borough surveyor, explained the proposals. There was no opposition to the application.

#### THE BUILDER'S WHERE IS IT?

MESSRS. GEORGE M. CALLENDER AND CO., of 11, Victoria-street, Westminster, have issued a very handy shilling booklet, comprising a comprehensive index of the specialities used in the building trades, and the names and addresses of their manufacturers. About one thousand specialities are named, and 500 separate addresses are given. The book is of a handy size, and the classification is compact and easy of reference.

#### OHIPS.

Mr. W. F. D. Smith, M.P., will lay the foundation-stone of new municipal buildings at Henley-on-Thames to-day (Friday). Mr. Henry T. Hare, F.R.I.B.A., is the architect of the town-hall, which was illustrated, from the author's drawing now hung at the Royal Academy, in our issue of the 5th ult.

At the Manchester Town-hall, on Friday, Mr. E. A. Sandford Fawcett held an inquiry for the Local Government Board into an application by the city council for sanction to borrow £30,000 for repairing and strengthening the Moston Brook culvert between Green Mount and the river Irk, in accordance with plans by Mr. Wilkinson, C.E., and £3,000 for the equipment of the Harrison-street lodging-house. Mr. T. de Courcy Meade, the city engineer, explained the proposals.

The town council of Bridgnorth received 46 applications for the appointment of borough surveyor, rendered vacant by the death of Mr. W. F. de Wend Fenton, and have elected Mr. Samuel Trevor, son of the borough treasurer.

The Ruabon School Board have resolved to erect a new school at Johnstown, Ruabon, at a cost of £3,800. Alterations and additions are being carried out at the Rhos Board School at a cost of £634. A new infants' school is about to be built at Rhosyllen at a cost of £1,590.

A special committee of the corporation of Oldham, who have been considering whether the present town-hall in Yorkshire-street should be enlarged or a new building erected on a fresh site, have resolved to seek the advice of Mr. Alfred Waterhouse, R.A., on the whole question.

At Droitwich, on Saturday, a new station on the Great Western Railway system was opened. The erection of the station has been rendered necessary by the increasing number of visitors to the Brine Baths. It has cost nearly £7,000, and the platforms, 500ft. long, are on a level with the floor of the carriages. There are sheltering verandahs, with glass let into the roof, both within and without the station.

The only features of interest to our readers in the commonplace Birthday list of "honours" this year are the knighthoods conferred on Mr. L. Alma-Tadema, R.A., and on Mr. Walter Armstrong, the Director of the National Gallery of Ireland.

A Local Government Board inquiry was held at Teignmouth yesterday (Thursday) relative to the application of the district council to borrow £1,250 for gas undertaking, £150 for a convenience on Shaldon beach, and £60 for street improvement.

The sales at the Mart last week, as registered at the Estate Exchange, amounted to £163,947. The sum in the corresponding week of last year was £86,680.

Colonel A. G. Darnford, R.E., Local Government Board inspector, visited Selby on Friday to hold an inquiry into the application of the Selby Urban District Council for sanction to borrow £5,000 for the purposes of public baths, as well as £540 for water supply to East Common, &c. Mr. Walter Hanstock, of Batley and Leeds, architect to the council, explained the public baths which were proposed to be built in the park, the total cost of which was £5,000.

A new Franciscan convent and chapel were opened at Bocking on Thursday in last week. The new buildings are close to the main road that leads to Bocking and Braintree from Halstead. They are in the Perpendicular style, and have been erected by Messrs. A. Brown and Sons, of Braintree, from designs by Mr. J. F. Bentley.

The foundation-stone of a school for the Roman Catholic blind, was laid on Saturday in Yew Tree-lane, West Derby. The architects are Messrs. Sinnott, Sinnott, and Powell, Harrington-street, Liverpool, and the contractor is Mr. M. Fogarty, Old Swan. The school will be a long two-storied structure, intended for the reception of boys and girls under 16 years of age. The building, which will be of plain Gothic design, in brick, will also embrace kitchen, laundry, and dining-room, one half of which will be used as a temporary chapel, with dormitories for 26 children and an infirmary with six beds. The cost, inclusive of furniture, will be £4,000.

#### OBITUARY.

MR. JOHN SMART, R.S.A., the popular Highland landscape artist, died at his residence in Edinburgh on Friday. He was born in 1838, his father being an engraver, and began art studies in the schools of the Board of Trustees in Edinburgh in 1851 as a designer and engraver. Mr. Smart studied painting under Horatio MacCulloch in 1860, was elected Associate of the Royal Scottish Academy in 1871, and Academician in 1877. He was one of the founders of the Royal Scottish Water Colour Society. His chief works in oil were: "Where Silence Reigns," "Gloom of Glen Ogle," "The Graves of our ain Folk," "The Crofter's Moss," "The Land of MacGregor," "A Glen without a Name," and "The Cradle of Argyll." His water-colours include "Among the Silent Hills," "The Green Island, Loch Shiel," "The Pass of Brauder," and "The Golf Greens of Scotland."

MR. THOMAS TURNER, stone merchant, of Rock-terrace, Lightcliffe, died on Friday, at Dr. Jessop's Hospital, Leeds, after an operation, aged 58 years. He was head of the firm of Thomas Turner and Son, stone merchants, and quarry owners, Lightcliffe and Brighouse, was one of the best-known business men in the Yorkshire stone trade, and occupied a prominent position in the Yorkshire Quarry Owners' Association. His connection with Lightcliffe Congregational Church and Sunday-school was lifelong, he being superintendent of the latter. Twelve months ago Mr. Turner was elected on the West Riding County Council.

The electric tramways at Coventry have been extended along the two main routes on the Stoney Stanton-road from Hales-street to the new depot at Priestley's Bridge, which is to be considered to allow of further extension, and along Ford-street to Gosford Green. Mr. Fielder Smith was the resident engineer, and Messrs. Pauling and Sons, of London, were the contractors.

A memorial window has been placed in the Guildhall, York, as a memorial to the late Sir Joseph Terry, four times Lord Mayor of that city, and the unveiling took place last week. The window is of stained glass, and the subject is King Edward IV. at Walmgate Bar swearing allegiance to the House of Lancaster in order to induce the Lord Mayor of York and citizens to allow him to enter the city in 1471; and illustrates the Yorkist period in the history of the city. The window was designed and made by Messrs. Shrigley and Hunt, of Lancaster and London.

The Croydon Town Council have unanimously elected Mr. G. F. Carter, principal assistant to the Leeds city engineer, as deputy borough engineer of Croydon. The applications numbered 106. The salary is £400, with a prospect of becoming borough engineer.

The town council of Stoke-on-Trent have instructed Mr. J. H. Bockett, architect, to prepare plans and specifications of new offices for corporation officials, alterations to the old police-station for the accommodation of county-court officials, and a mayor's parlour; and also to invite tenders for carrying out the work.

Colonel J. T. Marsh, R.E., an inspector of the Local Government Board, has held an inquiry at the town-hall, Leeds, relative to an application by the Leeds Corporation for the sanction of the Local Government Board order to make certain modifications in their York-street insanitary area scheme, for which a provisional order was obtained in 1896.

The corporation of Southampton have referred to the estates committee a suggestion made on behalf of the Hants Archaeological Society that the historic West Gate should be repaired under the supervision of Mr. Percy G. Stone, A.R.I.B.A. (who will, if appointed, give his services gratuitously), and converted into a public museum.

The newly-erected Wesleyan Methodist Chapel at Rushton, Staffs, was opened on Thursday in last week. The chapel will seat about 200 persons, and the schoolroom will accommodate about 150, and the two rooms can be used together. Mr. Clarke, of Smythamley, was the architect, and Mr. Sampson Salt, of Leek, the builder. The cost of the building has been about £1,250.

You want to read George Griffith's new story, "BROTHERS OF THE CHAIN," in the *Weekly Times* and *Echo*, don't you? Better order that paper for June 18 at once of your newagent, then, or you may miss the first chapter. You remember the demand for his "Angel of the Revolution," "Olga Romanoff," "The Outlaws of the Air," and "The Romance of the Golden Star," and how you couldn't rest till you got *Pearson's* every week to read them. This is as good as the best of them—some say better.



## PROFESSIONAL AND TRADE SOCIETIES.

**THE ARCHITECTURAL ASSOCIATION OF IRELAND.**—A general meeting of the Irish Architectural Association was held at the Grosvenor Hotel on Wednesday, May 31, Mr. J. H. Pentland in the chair. The hon. secretary read the result of the ballot for officers for the ensuing session as follows: President, Mr. G. Sheridan, A.R.I.B.A.; vice presidents, Mr. J. Halloway, Mr. M. J. Tighe; committee, Messrs. Orpen, J. Pentland, R. M. Butler, T. E. Hadman, T. Coleman, L. O'Callaghan, C. H. Ashworth, F. Batchelor, Wm. Scott; hon. treasurer, J. H. Webb; hon. librarian, J. Geoghegan; hon. secs., H. Allberry, F. Hicks; hon. auditors, W. Sandall and J. W. Boucher. Mr. Pentland delivered a short valedictory address. The term of office of Mr. Butler, the hon. sec., having expired, a vote of thanks to him was proposed by Mr. Auberry, and seconded by Mr. O'Sullivan, for the energy and attention with which he had directed the affairs of the Association since its inauguration in 1896. It is proposed that the Association visit Chester for their annual excursion and dinner on Friday, June 30. The following new members were admitted: Messrs. G. G. Lynes, J. Baird, H. J. Lundy, J. M. Mitchell, Wm. Conolly.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—Members of this Association visited Arbroath on Saturday on the occasion of their annual excursion. The president, Mr. James Bruce, W.S., the past president, Mr. Thomas Ross, and the secretary, accompanied by about thirty members, proceeded by train to Elliot Junction, and walked to Kelly Castle, now the country residence of Lord Provost McGrady. The Castle is situated about 2½ miles from Arbroath on the River Elliot. The oldest portions, built about 1442 by Sir William Ochterlony, have been much added to and altered, and the building now is a picturesque house of red stone, having a fine walled-in garden with yew-hedges ½ ft. thick. Under the leadership of Mr. T. S. Robertson the party then visited Hospitalfield, the original of the Monkbarns of "The Antiquary." The parish church and the Abbey were next examined. The well-known Abbey was founded in 1178, and the latest additions were made early in the 15th century. The Rev. W. Duke accompanied the members from the Abbey to his church of St. Vigean, built on the site of a Norman church, and restored 27 years ago by Mr. R. Rowand Anderson, LL.D.

**MUNICIPAL ENGINEERS AT SHEFFIELD.**—The Yorkshire district meeting of the Incorporated Association of Municipal and County Engineers took place at Sheffield on Saturday. Members of the profession from all parts of the country attended in large numbers. The visitors were welcomed to the city by the Lord Mayor (Mr. Alderman Clegg), with whom they afterwards lunched. After a discussion on a paper by Mr. C. F. Wike, on "Ten Years of Municipal Work in Sheffield," the party spent the remainder of the day in visiting various public works under the control of the municipality.

The Metropolitan Asylums Board has referred to an arbitrator the question as to what amount between £230,000 and £176,000 should be paid by them for the property now belonging to the managers of the South Metropolitan School District.

At Kew parish church on Sunday the memorial window to the late Duchess of Teck was formally unveiled. It represents in the upper light Christ in the house of Martha and Mary, and in the lower compartment Dorcas distributing gifts to the poor.

Last week a Local Government Board inspector held an inquiry with reference to the people displaced under the York-street insanitary area, Lambeth. The area covers twenty-five acres, and the death-rate in it during the last few years has been no less than thirty-nine per thousand. The number of people displaced will be 3,119, and it is proposed to rehouse 2,000.

Mr. E. A. Sandford Fawcett, an inspector of the Local Government Board, held a public inquiry at Bramhall on Friday, respecting the application of the Stockport Rural District Council for sanction to borrow £18,500 for the completion of the sewerage scheme of the district. Mr. H. H. Turner, surveyor, stated that the original estimate was £17,300. They had not been able to carry out the work for that amount in consequence of the extraordinary difficulties which had been encountered in the construction of the sewerage way, as the land through which they had had to go was soft, swampy, and set with quicksands.

## LEGAL INTELLIGENCE.

**ARCHITECTS' RESPONSIBILITIES.**—In the Edinburgh Court of Session, on the 2nd inst., Lord Kyllachy disposed of an action in which Miss Mary Hope Jameson, Rosefield Cottage, Cargill Terrace, Warrin, sued Frank Worthington Simon, architect, 36, Hanover-street, Edinburgh, for £80 10s. 4d. damages for breach of contract. Lord Kyllachy found for the pursuer, and assessed the damages at £40, with expenses. The pursuer, he said, lately built a villa in the suburbs of Edinburgh, and the defender was the architect whom she employed. There was, fortunately, no imputation on the defendant's character or attainments, which appeared to be of the highest, but the pursuer's complaint was that as the direct result of want of proper supervision on his part, dry rot was introduced into the building, which had caused a great deal of trouble, and had cost about £30 to eradicate. The pursuer might have proceeded, if she had so chosen, against the defaulting tradesmen, but the responsibility, as it happened, lying between the mason and the carpenter, each of them threw the blame upon the other, and the pursuer sought redress against the architect. The defender seemed, apart from his supervision of the contractors, to have taken a good deal of trouble on the pursuer's behalf, and to have had a good deal of correspondence and a good many meetings with her on minor matters. There could be no doubt about the reality of the dry rot, and his Lordship thought there was none as to its cause. It seemed certain that it was generated in what was called the "bottoming," which immediately underlay the cement floors of the scullery, coal cellar, and w.c., which formed part of the ground floor of the villa. This bottoming ought, as specified, to have consisted of about 2½ ft. of broken stone, the uppermost 3 in. being to be of small stones, and to be supplied by the plasterer; and the rest, which was described as "dry stone filling," to be supplied by the mason. In point of fact, the material used, at least the uppermost 3 in. or 4 in., was miscellaneous rubbish. It consisted, according to the evidence, partly of chips of stone, but to a large extent (about 25 per cent.) of shavings, pieces of wood, plaster, sacking, and general sweepings. It was not surprising that the fungus dry rot soon appeared on pieces of rotten wood which formed a considerable part of the material, and thence it spread to the door posts of the kitchen and scullery, which posts were imbedded in the bottoming, and thus passed into the woodwork of the house. The question was whether the mischief having been thus caused, the defender ought in the course of due supervision to have observed and prevented what occurred? His Lordship was of opinion that the defender had failed to show that as to this part of the work he gave due and reasonable supervision or that the want of such supervision was not a materially contributing cause of the mischief which occurred. The fact was that the defender simply trusted to the contractor, his view of his duty being, as he had frankly enough said, that it was enough for him to pay occasional visits once a week or once a fortnight, and that the employer took her chance of any scamping, however serious, which the contractor might perpetrate in the interval. That was a view of the defender's duty to which his Lordship could not assent; it appeared to him to reduce the architect's supervision to a farce. It was not the view of Mr. Ormiston (the Lord Dean of the Guild), who gave evidence for the pursuer. Accordingly he would find for the pursuer.

**PUBLIC-HOUSES AND THE LONDON BUILDING ACT.**—**CARRITT V. GODSON.**—Judgment was given in the Queen's Bench Division on Monday, by Mr. Justice Day and Mr. Justice Lawrence, in this case, stated by a Metropolitan magistrate on a summons against G. Godson and Sons for that they in erecting a building—namely, the Horse and Groom public-house, No. 137, St. John-street, Clerkenwell—did certain things in contravention of the London Building Act, 1894, and that they had failed to comply with a notice of irregularity served on them by a district surveyor of the London County Council. The respondents were the builders engaged in erecting the public-house. The ground floor consisting of a bar, lavatory, and pot-room; the first floor consisting of a public-room, lavatory, spirit store-room, kitchen, larder, and scullery; the second and third floors consist of bed-rooms and living-rooms. The only means of communication between the floors is a staircase terminating in the lobby on the ground floor. The notice of irregularity required the respondents to construct throughout of fire-resisting materials all passages, staircase, and other means of approach to the part of the building to be used as a dwelling-house under section 74 of the Act. In order to get from the street to the lobby and staircase, it is necessary to enter through the door in the front of the bar, and to cross thence through the bar to the lobby, which gives access to the staircase. The door separating the lobby from the bar is to be and the staircase itself and lobby are constructed of fire-resisting materials; but the floor and other parts of the bar are not of fire-resisting materials. The lobby which

gives access to the staircase also opens into a back yard extending from the whole width of the house, and to a depth of 100 ft. There is no exit from the yard except that which leads into the lobby. It was contended on behalf of the appellant that the building was one used in part for purposes of trade and in part as a dwelling-house, and was so used within the meaning of section 74 (2), and that the way through the bar to the lobby and staircase was under the circumstances a means of approach to the part of the building to be used as a dwelling-house, and that not being constructed throughout of fire-resisting materials it was in contravention of the said Act. It was contended, on behalf of the respondents, that the building was not a building used in part for purposes of trade and in part as a dwelling-house; that it was not within the section; and that even if it were that the way through the bar of the publichouse to the lobby was not a means of approach to the part of the said building to be used as a dwelling-house. The magistrate held that the building was not a building used or intended to be used in part for the purposes of trade and in part as a dwelling-house, and that it was not so used or intended to be so used within the section. He also held that, even if it were, the way through the bar to the lobby was not, under the circumstances, a means of approach to the part of the said building to be used as a dwelling-house, and dismissed the summons. Mr. Avory, for the London County Council, said the question was whether the ordinary means of approach was made of fire-resisting materials. The means of approach was through the bar, and that was not made of any such materials. If this house was not within the section as being partly used for trade and partly for living in, it was difficult to say what house would be included. Mr. Wootton, for the respondents, contended that the building was not within the section. This was not a house used partly for trade and partly for dwelling in. It was used entirely for trade. It was all licensed. In another sense it was all a dwelling-house. He referred to the use of the word dwelling-house as applied to licensed premises in the Licensing Acts and in the Inland Revenue Act, 1890, 43 and 44 Vict., c. 20, section 43. Secondly, upon the point as to whether this was an approach to the dwelling-house made of fire-resisting material, there was a way in from the yard that was a sufficient approach. The section only applied to cases where there was a hard line between the trade premises and the dwelling premises. In this case there was no such line. The whole building was a public-house. The Court upheld the view of the magistrate. Mr. Justice Day said there was great difficulty in applying the section to a building of this description. The only matter in which it came within the section was because it was of the requisite size. He could not see that this was "a building used in part for purposes of trade and manufacture and in part as a dwelling-house." A publican carried on his business all through the licensed premises. In addition, there was in this building a staircase leading to an open space. That staircase was made of fire-resisting material. At any rate, the learned magistrate's decision must be upheld unless the Court were satisfied that he was wrong. He did not see any sufficient reason for interfering with his construction of the section. Mr. Justice Lawrence concurred. The section in question did not apply to a case of a public-house such as this. It applied to the more ordinary case of a shop with living-rooms over it. He thought that the magistrate's decision was correct on that point, and it was not necessary to go beyond that.

**BRADFORD ARBITRATIONS.**—The awards have been made in the arbitration proceeding between the Bradford Corporation and Mr. Tom Twivey, Tennyson-place, and Mrs. S. Lofthouse, of Tennyson-place, in respect of property required for the Tennyson-place improvements. Mr. Twivey's claim was for £496, and Mr. B. W. Jackson, the umpire, has awarded £107 5s. Mrs. Lofthouse claimed £1,360, and has been awarded £522 10s.

**HOW TO IMPROVE WELSH BRICKS.**—His Honour Judge Wynne Ffoulkes was occupied at the North-wich County Court for six hours on Wednesday week in hearing an action brought by Charles Mountain Blades, an analytical chemist, of North-wich, against Charles Wheldon, of the Erith Brick, Tile, and Terracotta Company, Coed Talon, Mold, to recover £50 for special professional services rendered to the company. In opening, Mr. Jackson explained that in November of last year the defendant wrote to plaintiff asking if he was prepared to advise a remedy for the scumming of bricks, with which they were troubled, and what charge would be made. Plaintiff pointed out that it would first be necessary for him to analyse the clay, and after some correspondence he agreed to analyse four samples at £1 1s. each. This analysis had been made, and had been paid for. Correspondence followed, the defendant expressing anxiety to learn how to improve the colour of red and blue bricks. Defendant also had an interview with the plaintiff, who agreed to endeavour to



practically effect an improvement by burning samples in his own furnace as tests, and furnishing samples for the defendant to burn in his own kiln. He stated that for the trials he would make no charge until a successful result was obtained, when it would be a matter of mutual agreement as to the fee. The defendant wrote thanking him, adding that he would at once avail himself of plaintiff's professional assistance. Plaintiff then commenced tests, made brickettes, and sent samples to be burned at the defendant's works. The work extended over ten weeks, and during the whole of the time the defendant expressed the utmost anxiety to obtain a blue brick without dipping, and something equal to a sample Ruabon brick. On Jan. 25 plaintiff had written that, having made his experiments, he would be glad if defendant would make an offer of remuneration for the production of this class of goods, so that there would be no misunderstanding. Defendant replied that he was under the impression that for any discovery in the improvement in colour a charge would be made, and he would be quite pleased to rest upon it being reasonable. On Feb. 25 plaintiff went to defendant's works. He had at that time worked out a process for producing a blue brick by chemical means. When he got to Mold the defendant was extremely anxious to know if he could proceed to the manufacture of the bricks he required. Plaintiff informed the defendant of another scheme which produced the result, upon which they claimed, and mentioned a more costly method than that elaborated, and which would produce successful results. This method enabled the defendant to go on with a big contract for the railway company. In the course of the interview the defendant said he was careful to use his salt dry, and the plaintiff then explained to him how he could get blue colour by using wet salt. The elaborated process which was not revealed would produce a blue colour through the mass of the brick. On the 1st March plaintiff wrote that the process he had worked out would be of great value, as it would obviate dipping, and the effect on the brick was to improve its solidity. Under the circumstances, he thought he was justified in a king defendant for a cheque for £25 on account of £50. Defendant wrote that he could not comply with this request for the reason that he much over-estimated the value of the process. Further letters followed, and defendant finally wrote that he was willing to pay £5 down and a further £5 when the secret process was disclosed. Plaintiff gave evidence to the foregoing effect. His Honour thought there was evidence of a contract, and that the words "a successful result" were very elastic. It might not mean "the most successful," but as long as there was any improvement in the defendant's bricks he thought it might be called a successful result. For the defence Mr. Tobin denied that the plaintiff gave the defendant a disquisition as to the wet salt process. As a matter of fact, defendant had always used wet salt, and plaintiff merely impressed upon defendant the advisability of doing what they had been accustomed to do. James Gavotte, manager for Mr. Edmund Gavotte, railway contractor, Liverpool; Joseph Roberts, brick burner to the defendant; Charles Wheldon, the defendant, and Edward Wheldon, J.P., manager of the defendant's works, gave evidence. His Honour, in giving judgment, said the painful part of the case was the contradictory nature of the statements made with reference to the interview of February. The process of applying wet salt was abundantly proved in his (the judge's) judgment to have been known perfectly well, and to have been observed at defendant's works for a considerable time, and therefore there was no value in whatever the plaintiff recommended. Judgment would accordingly be given for the defendant.

**IMPORTANT APPEAL UNDER THE WORKMEN'S COMPENSATION ACT.—EDWARDS v. GODFREY.**—This appeal from an award of the Wandsworth County-court Judge upon proceedings to assess compensation under the Workmen's Compensation Act, 1897, was heard in the Appeal Court on May 16, by Lords Justices A. L. Smith, Vaughan Williams, and Romer. The respondent, Edwards, was in the employment of the appellant, Godfrey. The respondent was employed on a building over 30 ft. in height, upon the top story of which a studio was being erected. A scaffolding was used in carrying out the work. The respondent was employed in glazing the studio, and on September 12, 1898, he was descending from the outside of the studio when he fell to the ground and was injured. The respondent brought an action against the appellant in the Wandsworth County-court under the Employers' Liability Act, 1880, and this action was tried on January 9, 1899, before a jury, when the jury found that the respondent was guilty of contributory negligence, and judgment was given for the appellant. No application was then made on behalf of the respondent to assess compensation under the Workmen's Compensation Act, 1897. On January 30, 1899, the respondent took proceedings to recover compensation under the Act of 1897, and on March 13 the County-

court Judge made an award in his favour and assessed the compensation at 11s. a week. Mr. Gover, for the appellant, contended that by section 1, subsection 2 (b) and subsection 4, of the Workmen's Compensation Act, 1897, the workman could claim compensation either under the Employers' Liability Act, 1880, or under the Act of 1897. He could not take two independent proceedings. By section 1, subsection 4, of the Act of 1897, if an action was brought to recover damages independently of that Act, and the action was dismissed, the Court might, if the plaintiff chose, proceed to assess compensation under the Act of 1897, and might deduct from such compensation the costs caused by the plaintiff having brought the action under the Employers' Liability Act, 1880. That was in favour of the workman, and if he did not apply for compensation to be then assessed under the Act of 1897, he could not subsequently take proceedings under that Act. If he could take subsequent proceedings, then the employer would be deprived of the advantage of having the costs to which he was put by reason of the plaintiff having wrongly sued him under the Act of 1880 deducted from the compensation. Mr. Colam, for the respondent, contended that the dominant idea of section 1, subsection 2 (b), of the Act of 1897 was to prevent the ordinary right of the workman being taken away, and the latter part of the clause prevented the employer being liable twice over. But neither that subsection nor subsection 4 said that no proceedings should be taken under the Act of 1897 if the action at common law or under the Employers' Liability Act, 1880, failed. Section 1, subsection 2 (b), said that the employer should not be liable to pay compensation twice over, but it did not do away with the double remedy. That subsection only applied to cases where the injury was caused by the personal negligence or wilful default of the employer or of some person for whom the employer was responsible. The County-court Judge was therefore right. The Court allowed the appeal. Lord Justice A. L. Smith said that the workman failed to recover judgment under the Employers' Liability Act, 1880, and in ordinary circumstances that would be an end of the case as between the employer and the workman, and the employer in any subsequent proceedings by the workman for the same cause of action could plead *res judicata*. That finished the action under the Act of 1880. Subsequently the workman took proceedings and obtained an award under the Workmen's Compensation Act, 1897. The question was whether the workman, after having exercised his option of suing under the Act of 1880, could revert back to the Act of 1897. In his opinion section 1, subsection 2 (b), of the Act of 1897 gave the workman, in the circumstances there mentioned, the option of claiming compensation independently of the Act or under the Act. The workman here exercised his option of claiming independently of the Act. If it had not been for section 1, subsection 4, of the Act the matter would then have been *res judicata*. But that subsection gave the workman the advantage, when he had wrongly exercised his option of proceeding independently of the Act and had failed, of having compensation then and there assessed under the Act of 1897 by the Court which had seisin of the case. There was that *locus penitentie* given to the workman. At the same time a benefit was given to the employer by allowing the Judge to deduct from the compensation awarded the costs caused by the workman having wrongly brought the action. If this were not the true construction of the Act, a workman who had failed in an action under the Employers' Liability Act, 1880, would never apply under section 1, subsection 4, of the Act of 1897 for compensation under that Act, but would always take fresh proceedings under the Act of 1897, in which case the judge could not deduct the costs of the former action from the compensation awarded. Lord Justice Vaughan Williams and Lord Justice Romer concurred.

**SPRAGUE v. SPRAGUE and LIHME.—AN ARCHITECT'S PETITION FOR DIVORCE.**—In the Divorce Court, on Tuesday, Wednesday, and yesterday (Thursday), Mr. Justice Barnes and a special jury heard this action, which was a petition presented by the husband, Mr. William George Robert Sprague, a well-known theatrical architect and surveyor, praying for the dissolution of his marriage with his wife, Alice (née Beer), on the ground of her alleged misconduct with the co-respondent, Arthur Lihme. The allegation in the petition was denied by the respondent and co-respondent. There was a claim for damages. Mr. Deane, in opening the case, said that the parties were married on December 11, 1890, at St. John's Church, Brixton, and one child had been born of the marriage. The petitioner, an architect, had been at school in London and Paris with his wife's brother and also with the co-respondent. After the year 1894 the co-respondent, who had always been on terms of intimacy with the petitioner and respondent, came more and more frequently to their house, until it became so noticeable that remonstrance was had recourse to. Matters came to a head in August, 1897, and the co-respondent, in order to allay the

suspensions of the petitioner, wrote a letter to the respondent asking if it was not with her husband's full consent and knowledge that he was at Sandown during part of this holiday. The petitioner replied, as was alleged by him, at his wife's dictation, saying:—"... It is a pity some people have so little to do that they must try to make mischief out of nothing and set about scandalous statements or hint such things. However, we are old friends enough not to take notice of such nonsense. As to your visit to Sandown, this was my invitation, and I feel sorry it should cause 'Mrs. Grundy' to sigh." The incident was then closed until the petitioner was again put on his guard in November of the same year, when it was alleged that they were in the habit of meeting in the woods at Ravensbourne. There at last they were seen on many occasions on such terms of familiarity that on the representations of the lady's brothers the co-respondent agreed to marry her if the petitioner divorced her. On the other hand, the respondent, Mrs. Sprague, was called, and denied that she had ever committed adultery. Yesterday (Thursday) Mrs. Sprague was severely cross-examined, and her brother, Albert Ernest Beer, and other witnesses were heard on her behalf. Sir Edward Clarke, Q.C., M.P., had opened his address on behalf of the respondent, when the case was adjourned until to-day (Friday).

#### ORRIPS.

Messrs. Langridge and Freeman, of Tunbridge Wells, and Queen-street, London, E.C., have been appointed surveyors to the Isle of Sheppey Light Railway Co., and they are already taking steps for acquiring the land required for the line to be constructed from the present Queenborough Station to Leydown, a distance of about eight miles.

Colonel Durnford, Local Government Board Inspector, held an inquiry at the Guildhall, Beverley, on Friday, with reference to an application of the corporation to borrow £10,000 to enlarge the gasworks. Mr. J. Gibson, gas manager, explained the plans and the nature of the proposed enlargement of capacity. There was no opposition.

The ceremony of cutting the first sod of the proposed new road and railway on the north bank of the Tees opposite Middlesbrough was performed on Friday by Sir Lowthian Bell, and later in the day Sir Joseph Pease, M.P., laid the foundation-stone of the new Tees Conservancy Offices in Queen's-square, Middlesbrough, now being erected from plans by Messrs. J. Mitchell Bottomley and Edward A. Whigham, joint architects. The road and railway are for the purpose of developing the large areas of land on the Durham side of the Tees, and will extend from Port Clarence to Greatham Creek, and from Haverton-hill to Billingham, thus covering the vast salt deposits of south-east Durham.

Wednesday in last week was a gala day at Bury St. Edmunds, for three new institutions were then publicly opened—the ancient building on the Cornhill known as Moyses's Hall, formerly a police-station, and now converted into a museum; a school of art in a building which has successively been a corn exchange and a provision market; and thirdly, the new fire-brigade station.

At St. Anne's Park, Bristol, the memorial stones of a United Free Methodist school-chapel was laid on Monday. The building measures 40 ft. by 28 ft., with seating accommodation for 200 to 250, and in the rear of this is a vestry, with kitchen and lavatory accommodation. The style is Perpendicular, the walls being built of red Pennant with freestone dressings and tiled roofs. The large room will have an open boarded roof and pitch-pine dado. The floor will be of pitch-pine blocks, and the windows glazed with leaded lights. The cost will be about £900. The work is being carried out by Mr. E. C. Norris, and the architects are Messrs. La Trobe and Weston, F.R.I.B.A., all of Bristol.

The Duke of Connaught, Ranger of Epping Forest, paid a ceremonial visit to the forest on Saturday, the occasion being the opening of the new Cottage Hospital, at Woodford, erected in celebration of the Diamond Jubilee, and the dedication of the 28 acres of land which Mr. Edward North Buxton has presented to the Corporation as an addition to the 6,000 acres already under the jurisdiction of the City. The hospital, which faces Woodford-green, is of red brick, with half-timbered gables, and is Queen Anne in style. There are two wards to accommodate six patients in each. The first floor contains two wards for paying patients, and on the lower floor is a day-room for convalescents.

The Sewage Committee of the Blackburn Corporation have issued a report recommending the bacterial treatment of sewage by Dibdin's process. They recommend the laying down of five acres of bacteria beds at a cost of £21,000, and estimate that an actual saving can be effected on the method now in use. Experimental bacteria beds have been in use at the Samlesbury sewage works for twelve months, with the most satisfactory results.



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## ILLUSTRATIONS.

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CRESWELL SCHOOLS.—VICTORIA INSTITUTE, WADHURST.  
—GROVE PARK WORKHOUSE.—PULPIT, ST. ALPHEGE,  
GREENWICH.—MISSION HOUSE, DALSTON.

## Our Illustrations.

CARTWRIGHT MEMORIAL HALL, BRADFORD:  
SELECTED DESIGN.

For description and plan of site see page 772.

## CRESWELL SCHOOLS.

THESE schools are situated on a plot of land close upon an acre in extent, near where the old buildings stood at Creswell Crag, and given for the purpose by the Duke of Portland, who, together with the proprietors of the Bolsover Colliery Company, has undertaken to defray the cost of the scheme, which will amount to upwards of \$5,000. The opening ceremony was performed by the Duke of Portland on Whit Tuesday. The work of erection, extending over a period of twelve months, has been carried out by Mr. J. R. Simken, of Bolsover, to the designs of Messrs. Brewill and Baily, architects, of Nottingham, and the perspective is now hanging in the Royal Academy. The school, which will accommodate 450 children, consists of a large central hall, seven spacious classrooms, cloakrooms, and lavatories, with master's and mistress's rooms all ranged over the projecting stone-pillared porches to the separate entrances for the boys and girls commanding the respective playgrounds. The central hall has an open roof, and is surmounted by a bell and ventilating turret, the architecture being of the Gregorian period, and carried out in red sand-faced bricks, with stone dressings, white wood cornice, and green slate roof. The heating apparatus, which is by low steam pressure, was put in by Messrs. Ashwell and Nesbit, Limited, of Leicester and Nottingham, and in the preliminary trials has acted excellently.

## PROPOSED VICTORIA INSTITUTE, WADHURST.

OUR illustration shows a proposed institute to be erected at Wadhurst. It is planned for a site eloping rapidly from the main road, and contains, in the basement, billiard-room, gymnasium, lavatories, &c., and caretaker's rooms; on the ground floor, entrance-hall, with cloak-room, &c., library, kitchen, and bar, with servery; also play-room and reading-room, the latter rooms divided by a movable screen, so as to form one large hall for entertainments. The drawing is now on exhibition at the Royal Academy. The architect is Mr. J. Bartlett, M.S.A.

## NEW WORKHOUSE FOR GREENWICH UNION.

THIS new workhouse, illustrated from the designs of Mr. Thomas Dinwiddy, of Greenwich and Parliament-street, S.W., is now in course of erection at Grove Park, Kent, at a contract cost of £175,020, for the Guardians of Greenwich Union. The building is planned to provide accommodation for 816 aged and able-bodied inmates, as a supplement to the existing workhouse at East Greenwich. The site, of irregular form, has an area of 9½ acres with a front-

age of about 600ft. to Marvels-lane. The grouping of the buildings is shown by the block plan. At the entrance are lodge and visiting-departments with receiving-wards for male and female inmates, clothes and furniture stores, &c., to the left and right. The administration block is centrally placed, and is connected with the nine pavilions and the chapel by open-arched corridors. It contains offices and committee-room, and residences for master and officials in the front portion, and central store (66ft. by 27ft.) with gallery, clothes-stores, linen-room, mess-rooms, central dining-halls for aged (67ft. by 67ft.) and able-bodied (67ft. by 37ft.), divided for the two sexes, kitchen, scullery, larders, bread-room, &c., conveniently placed for service to each dining-hall. In the pavilions there is dormitory and day-room accommodation for 262 aged males in three pavilions, for 178 aged females in two pavilions, for 200 able-bodied males in two pavilions, and 100 able-bodied females in a further pavilion. There is also on the female side a block with accommodation for 12 married couples. Two small isolation-wards are also provided in a remote corner. Sites are reserved for future provision to the extent of three further pavilions, in connection with which the dining-halls in the administrative block have been planned to allow of extension at any future time without disturbance of the first buildings. The chapel, to seat 400, is situate to the rear of the administrative block, and is centrally placed between the different classes and sexes. In a block next the able-bodied pavilions are provided the laundry departments with engine and boiler-houses, bakery, &c. Flour stores are placed in the water-tower, which is surmounted by a 20,000 gallon tank. A scheme for sinking a well is now in hand. Establishment and labour shops, with hand corn-mills and a stoneyard, are planned conveniently near the able-bodied quarter; smaller shops are also provided for the aged inmates. A mortuary and small stable accommodation complete the scheme. The buildings are being faced with red pressed bricks from the Tunbridge Wells district, with a sparing use of Portland stone, and are to be covered with Welsh rag slating. Internally, glazed facings are to be used to the dining-halls, kitchen, larders, stores, &c., also throughout the laundry block. The contract is being carried out by Mr. T. Rowbotham, of Birmingham, whose tender was accepted out of the fifteen submitted.

## PULPIT, ST. ALPHEGE, GREENWICH.

THIS church, with its pulpit, is one of the finest examples of the Wrenesque period. Like the contemporary church of St. Paul's at Deptford, no sure record of the architect is preserved. It is known to have been erected between 1710 and 1718 (when it was finished), but whilst some attribute the design to Nicholas Hawksmoor, local history associates it with John James, architect also of St. George's, Hanover Square. Both were engaged with Sir Christopher Wren in his great work on the spot—the Greenwich College buildings. The finely-carved pulpit herewith shown is of dark oak, as are the surrounding galleries with their unique column supports. The illustration is from a pen-and-ink drawing by Mr. T. Norman Dinwiddy.

## MISSION-HOUSE, DALSTON.

THIS building is being erected in Boleyn-road, Dalston, for the vicar of the parish. Its chief use will be that of providing for the parishioners such means of recreation as will be afforded by club and billiard-rooms, a gymnasium, &c. The hall on the ground-floor will be used for the various purposes connected with church work, such as services, meetings, &c., while the small kitchen in the rear is provided for the making of soup, tea, &c. The front of the building is being built in red brick, with dressings of Monk's Park Bath stone, and the roofs are being covered with Welsh green slates. Mr. H. O. Ellis is the architect.

Through the liberality of the Charity Commissioners the church of St. Martin, Osweston Ferry, has been renovated, the fabric strengthened and repaired throughout, and the nave re-seated and refurnished at a cost of between £1,200 and £1,300. In addition, a new organ has been erected.

It has been decided to take steps for enlarging St. Mary's Church, Waterloo, near Liverpool, by adding three bays at the west end, at an estimated cost of £3,000. This will raise the pew accommodation from 550 to 800 sittings.

## COMPETITIONS.

SALFORD.—The Barracks Site competition for the erection of a public hall and shops with model cottages for the county borough of Salford is now pending. The plans were received on the 1st inst., and fourteen sets of designs have been submitted.

SWINDON.—Out of twenty competitors in an open competition, the Swindon and District Hospital Board have accepted the joint plans of Mr. G. Halliday, F.R.I.B.A., and Mr. J. W. Rodger, of Cardiff, for the building of a hospital at Swindon, and have given instructions to the architects to prepare the necessary drawings to carry out the work.

WANDSWORTH.—The special committee of the Wandsworth and Clapham Board of Guardians, with reference to the new board offices, have examined the designs submitted (28 sets in all), with the assistance of the assessor, Mr. Alexander Graham, and recommended that the design No. 25 do receive the first premium of £100 and be the design adopted; estimated cost by architect, £20,311. Design No. 12 was awarded second premium of £50, and design No. 20 third premium £40. The recommendation was unanimously carried, and upon the clerk being requested to open the envelopes with corresponding numbers to above and containing the authors' names, the result was:—No. 25, Mr. Cecil A. Sharp, A.R.I.B.A., of 59, Fenchurch-street, E.C.; No. 12, Mr. W. F. Harber, 35, Craven-street, Strand, W.C.; No. 20, Mr. W. Nash, F.R.I.B.A., Bush-lane House, Cannon-street, E.C. We hope to illustrate the successful drawings at an early date.

## CHIPS.

The Unitarians of Liverpool will open next month a new church which will be erected in the Sefton Park district. The building will cost about £25,000 and will accommodate 440 persons.

A special meeting of the Dawlish Urban District Council was held the other day to consider the erection of a landing stage off the viaduct in front of the town, the G.W.R. board of directors having expressed their approval of the site chosen. The council had had before them modified plans drawn up by Mr. Garrett, of Torquay, for the erection of a landing stage on wooden piles, 650ft. out, with a depth of water at lowest tides of 3ft. 6in., and at an estimated cost of £4,050, which the engineer thought might be reduced in open tendering. The proposal and plans were accepted.

The Theatre Royal at Peterborough is to be rebuilt from plans by Mr. J. P. Briggs, of Arundel-street, Strand, W.C.

A group of five almshouses in one block is being built in Robin-lane, Padsey, the late Joseph Salter, of Horsforth, having left £5,000 for this purpose. The buildings are of stone, with dark Westmoreland slates for roofing, and each has separate entrance, outbuildings, and rear space. The architect is Mr. C. S. Wilson, of Leeds and Padsey.

New business premises have just been completed at the corner of Jewin-street and Well-street. The premises are six stories in height, and occupy an area of 15,000sq. ft. Messrs. Ford, Son, and Burrows, of Aldermanbury, were the architects, and Messrs. Kulby and Gayford, of Worship-street, E.C., the builders.

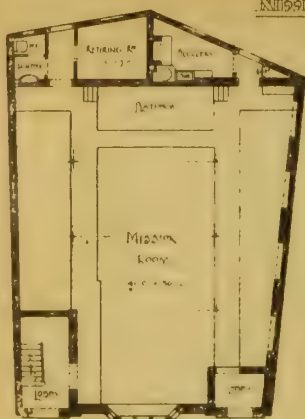
At Rackenford, North Devon, the restored parish church was reopened last week. Whitewash, until recently, disfigured its fine old oak ceiling and stone pillars; there was no chancel, and the high seats were ugly and uncomfortable; a gallery blocked up the fine western arch, and the church otherwise was in bad repair. Under the direction of Mr. A. Blomfield Jackson a new roof has been given to the church, the carved oak ceiling cleansed of whitewash, the sanctuary enlarged, a chancel formed, the whole church repaved and wood-blocked, the seating modernised, and some oak choir-seats, pulpit, and reading-desk placed in the chancel. The outlay up to date has been £730. A further sum is needed to complete the restoration of the tower, which at present has been left untouched.

The opening of the first section of the Sierra Leone Railway took place on May 1. The section now opened for traffic is thirty-two miles in length, and extends from Freetown to Songo Town, but twenty-five miles more are under construction to Rotofunk, and a survey has been completed for an additional thirty-one miles past Moyamba. The section completed has necessitated the construction of eleven large steel viaducts in the first eighteen miles, besides numerous smaller works. Mr. William Shelford, of London and Hull, was the consulting engineer, represented in the colony by Mr. W. Bradford.



Mission House, Kingston, N.F.

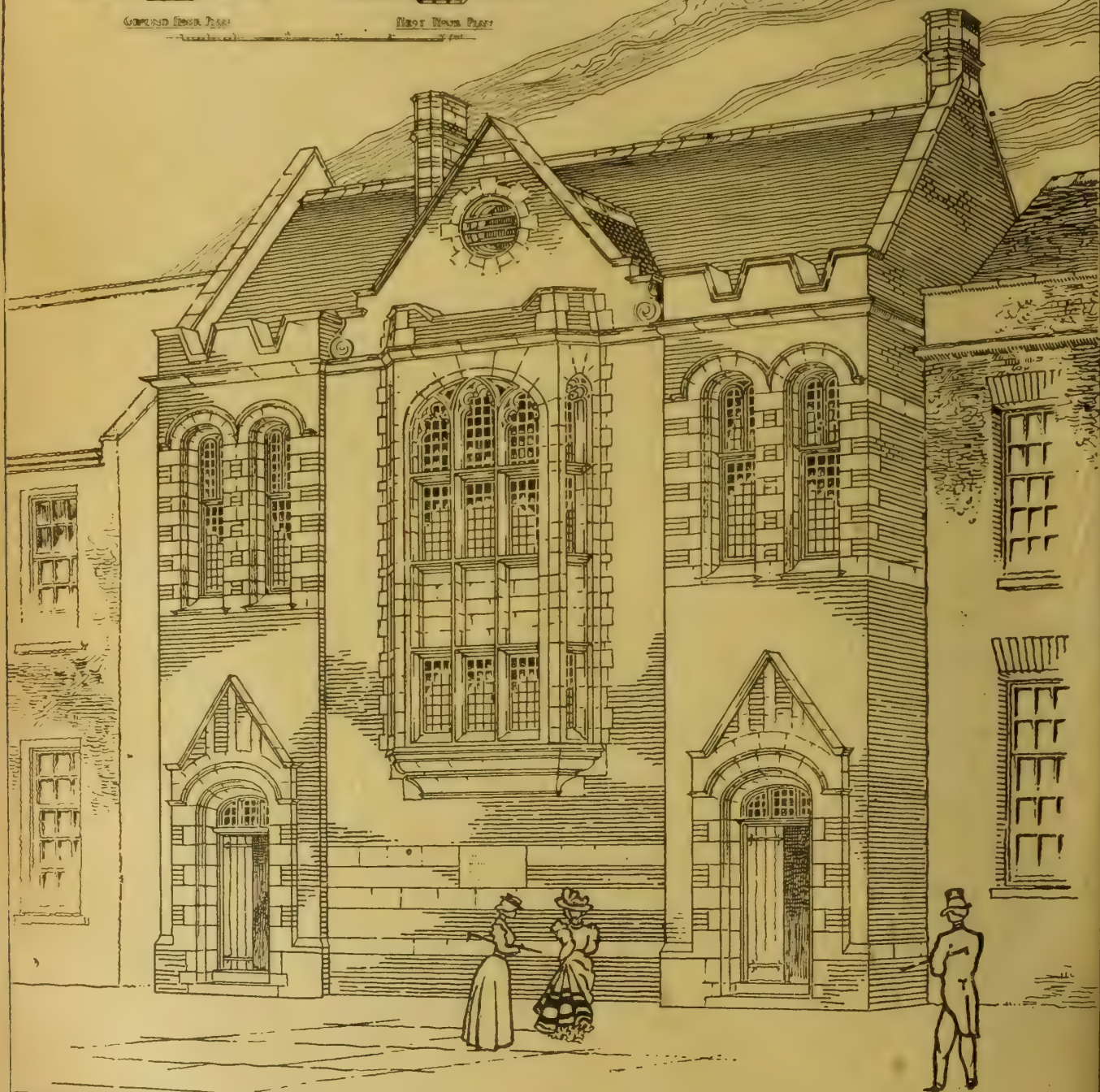
J.C. Ewing, Architect.



GROUND FLOOR PLAN



FIRST FLOOR PLAN



J.M. COGAM  
DEL.

MORRISON & CO.



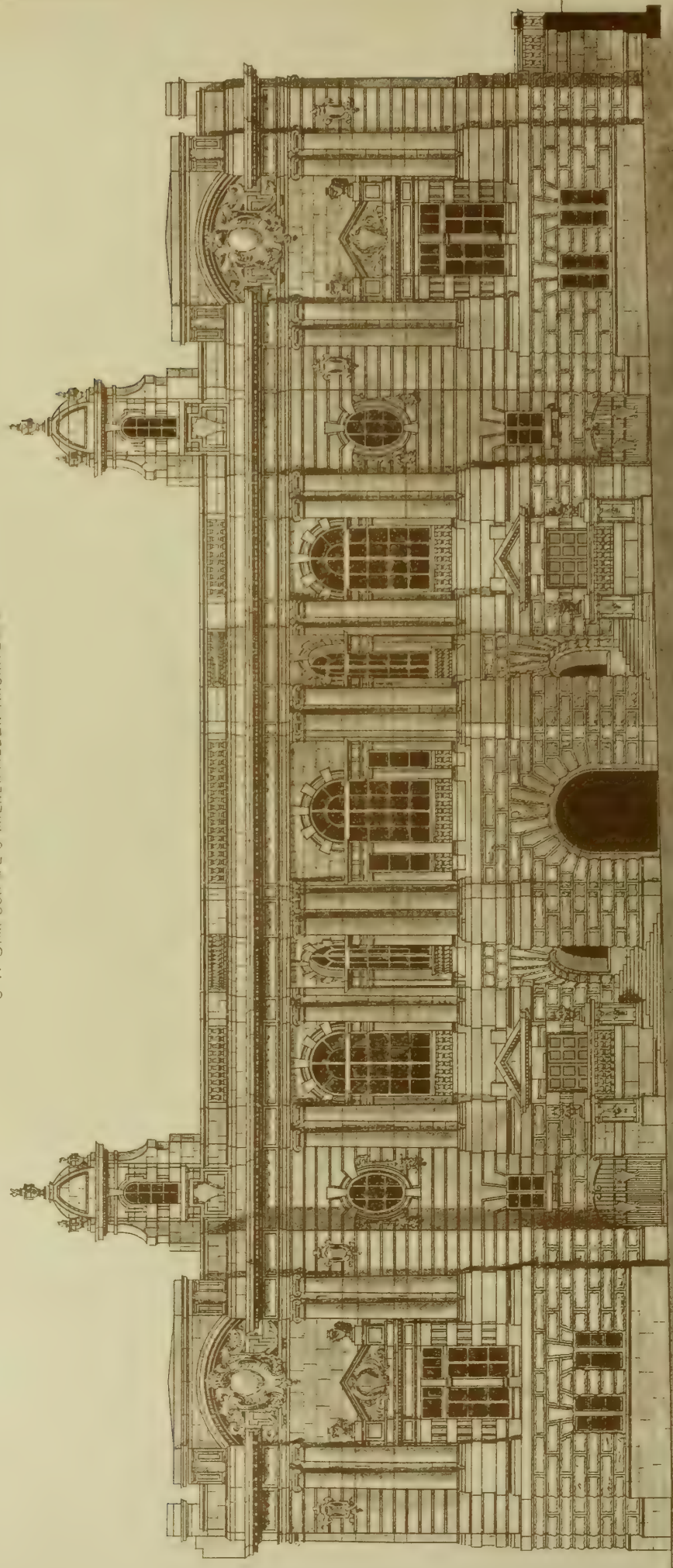




CITY of BRADFORD.  
CARTWRIGHT MEMORIAL HALL

SELECTED DESIGN

J W SIMPSON & E J MILNER ALLEN ARCHITECTS



North Elevation

Scale in Feet 0 10 20 30 40 50 60 70 80 90 100





# CRISWELL SCHOOLS

For His Grace The  
Duke of Portland and  
The Bosover Colliery  
Company

Brettell and Daily Architects  
Nottingham







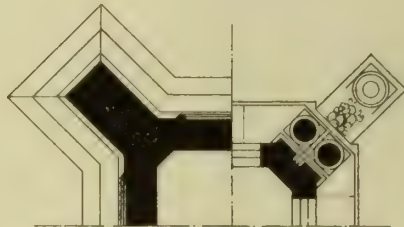




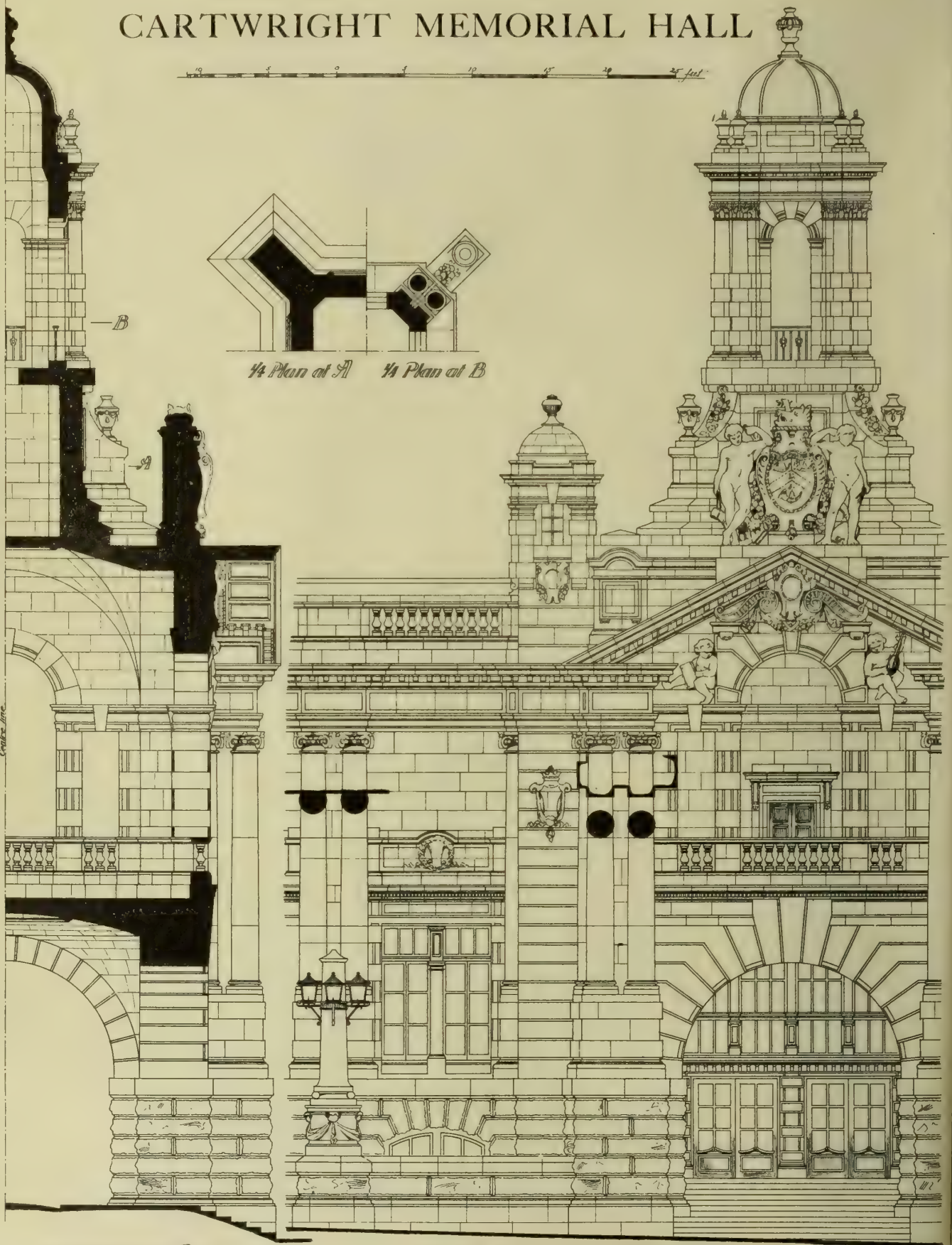
# CITY of BRADFORD.

## CARTWRIGHT MEMORIAL HALL

10 20 30 40 50 60 70 80 90 100 feet



1/4 Plan of A 1/4 Plan of B



*Section through Porch*

*Detail of part of South Elevation*

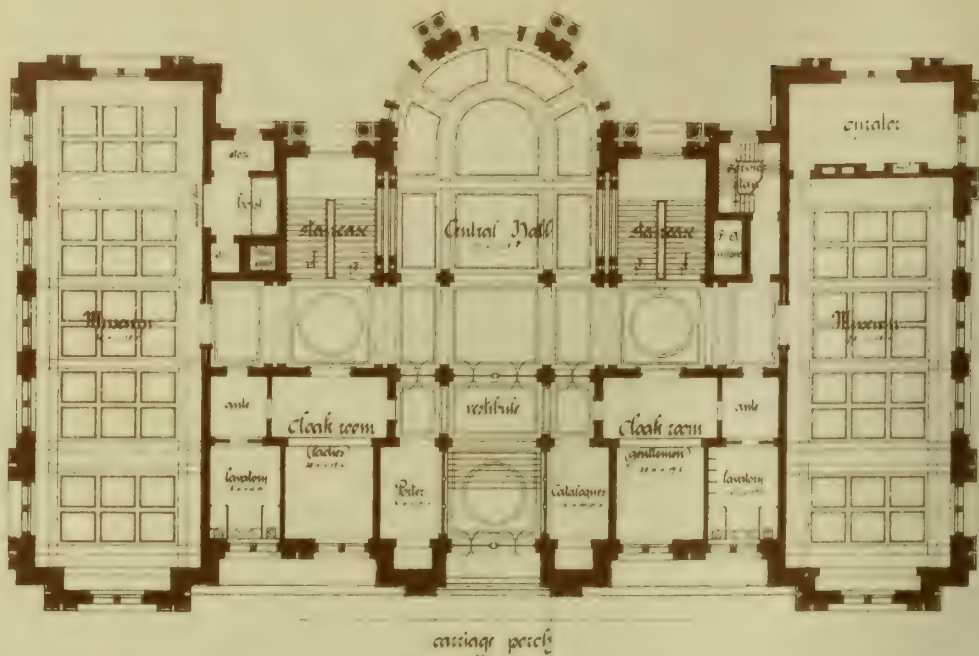
SELECTED DESIGN.

J. W. SIMPSON & E. J. MILNER ALLEN, ARCHITECTS.

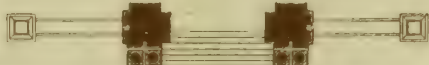








Ground Floor Plan

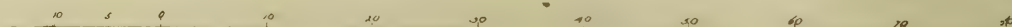


### SELECTED DESIGN.

J W SIMPSON & E J MILNER ALLEN, ARCHITECTS



South Elevation



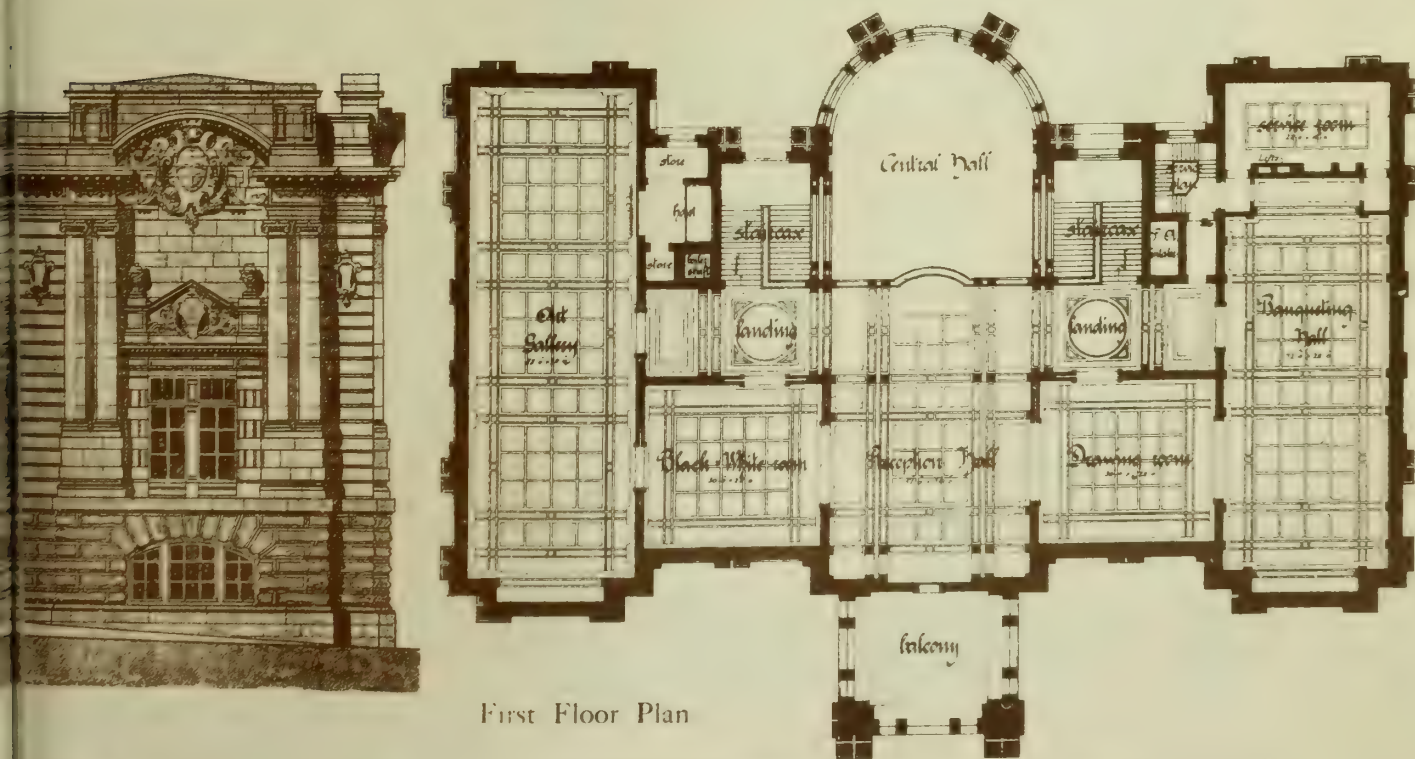


# CITY of BRADFORD.

## ARTWRIGHT MEMORIAL HALL

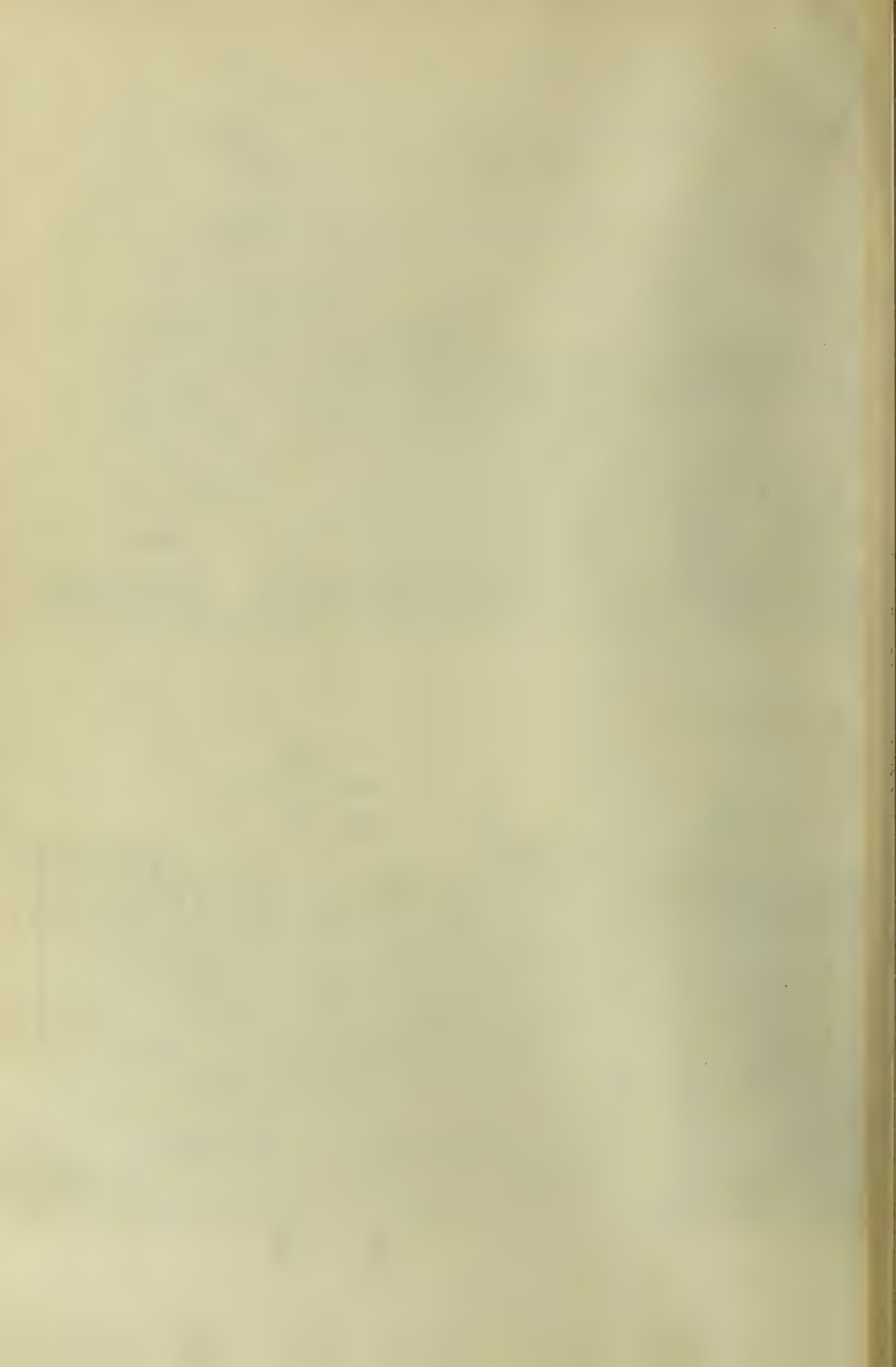


West Elevation

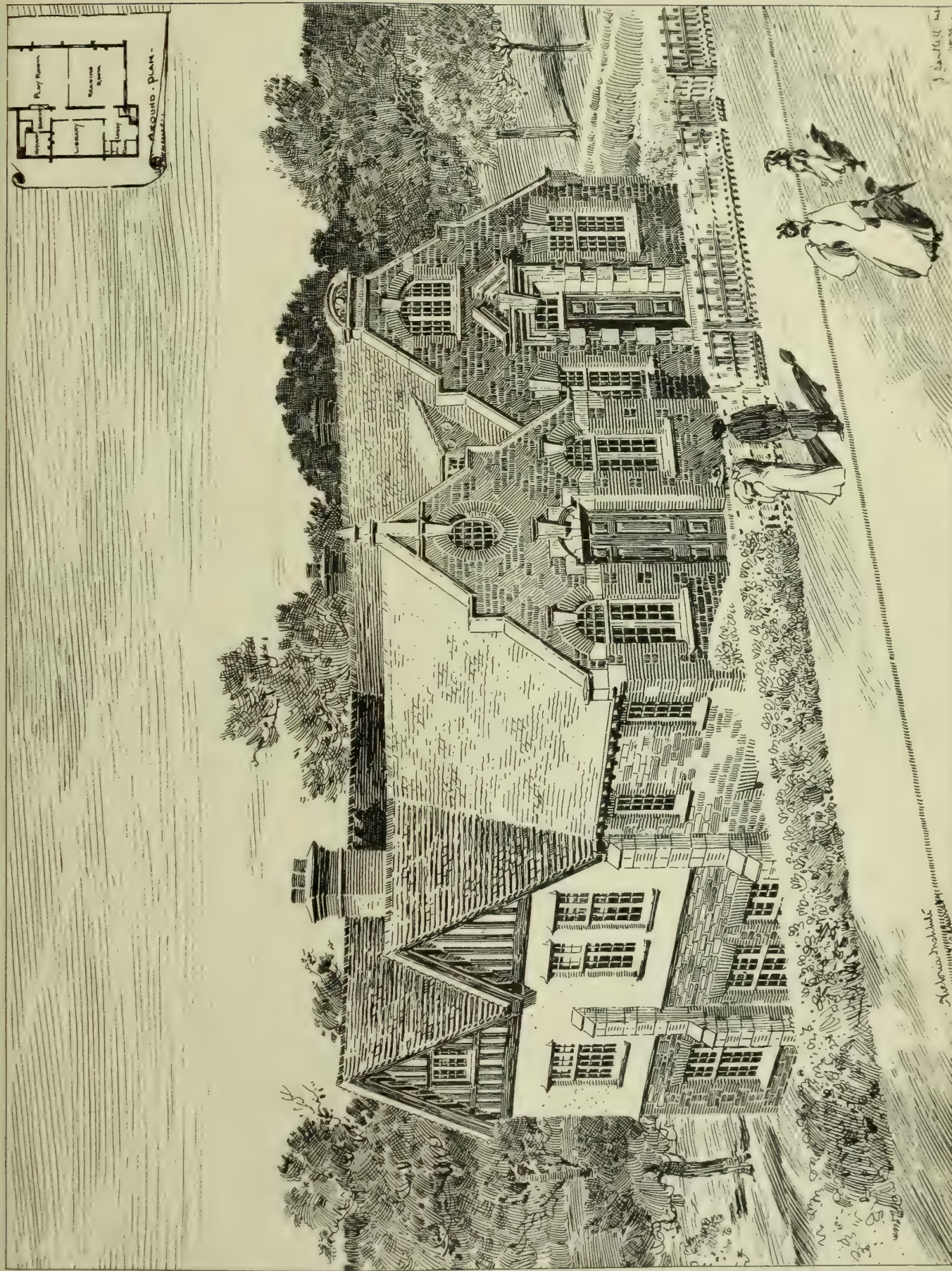


First Floor Plan









VICTORIA INSTITUTE WADHURST SUSSEX · J. BARTLETT ADCHT

Photo. by permission of the Victoria Institute, Wadhurst, Sussex.

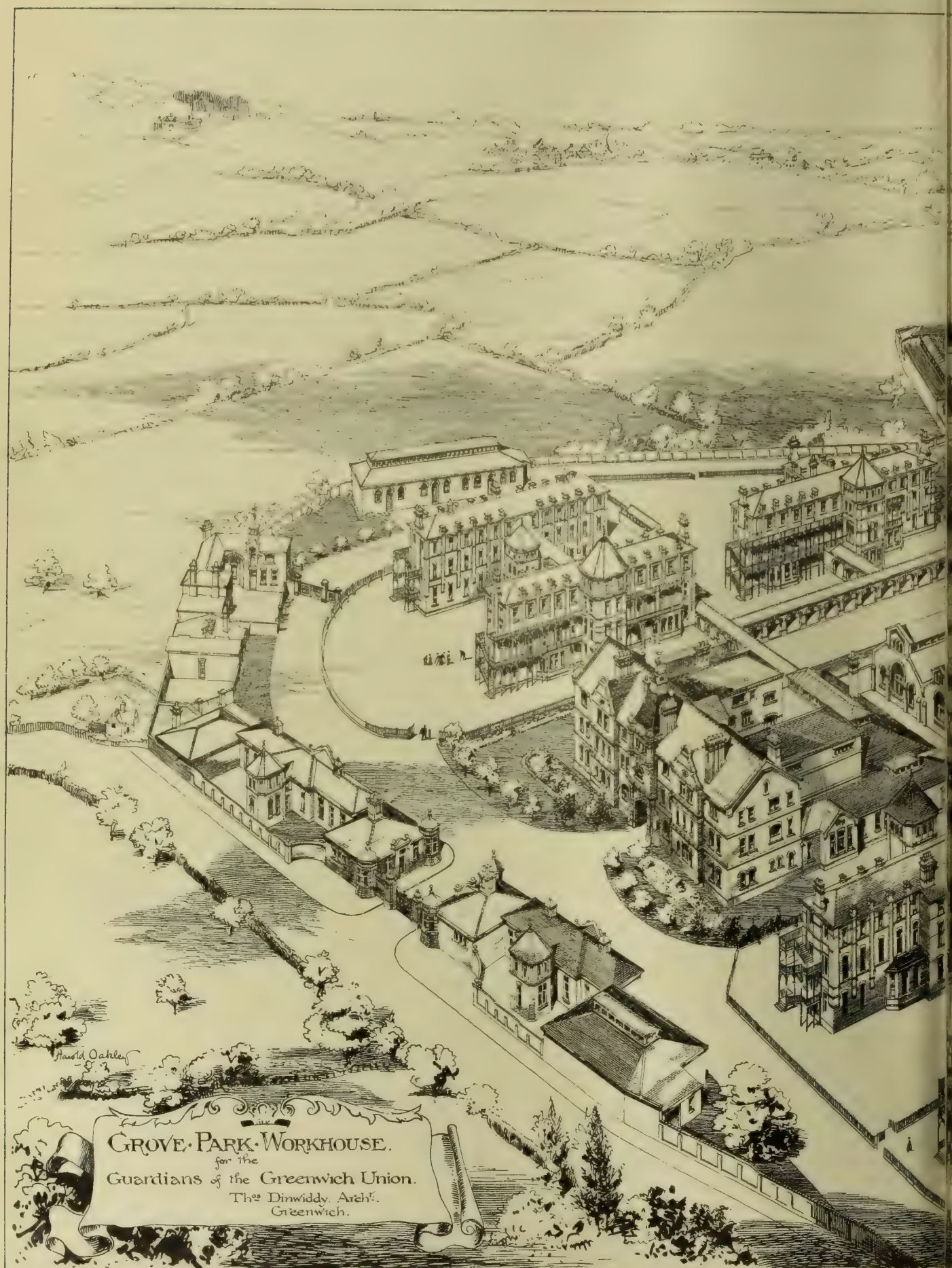












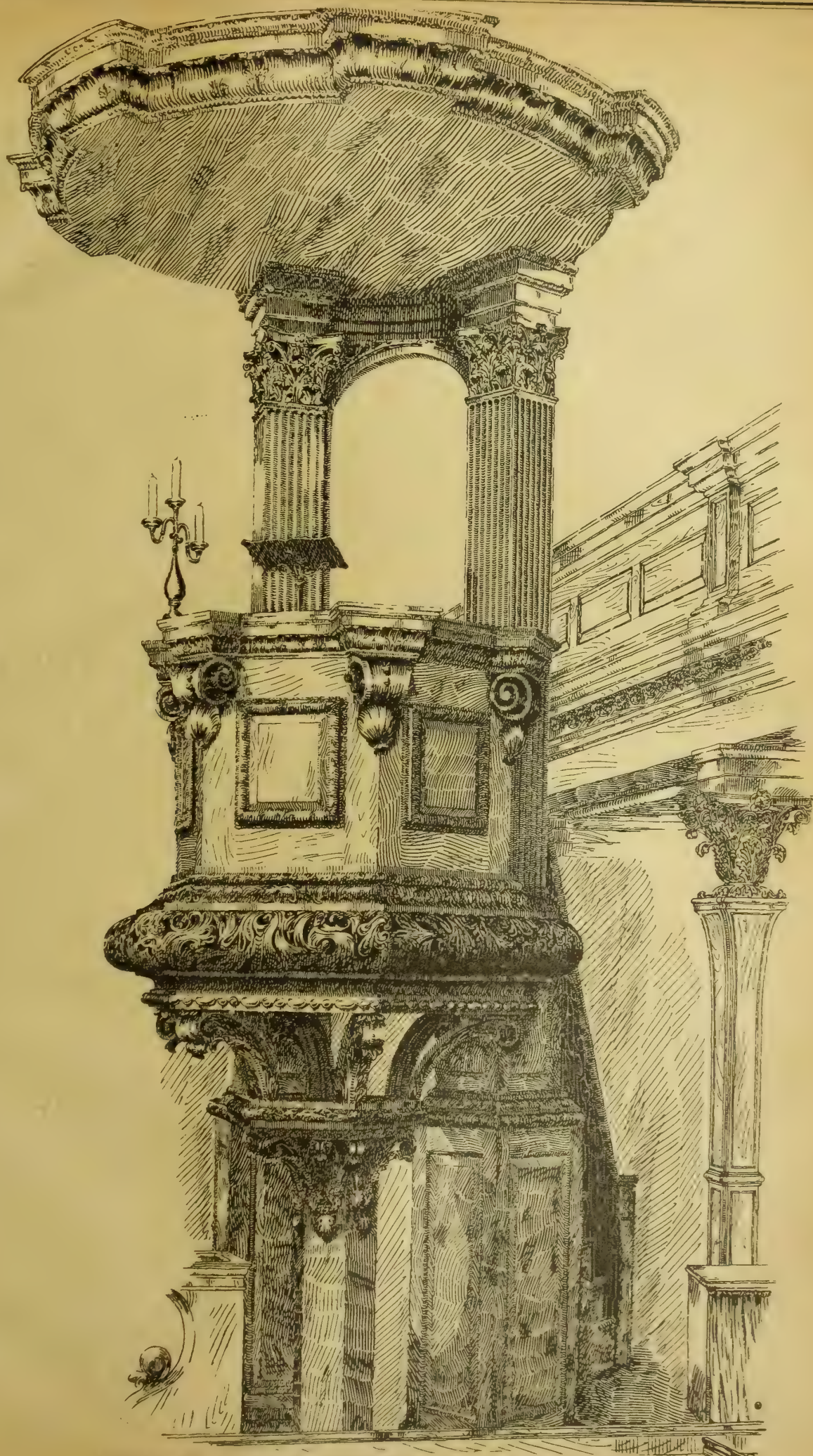










PULPIT, ST. ALPHEGE, GREENWICH.—MR. T. NORMAN DINWIDDY, *Architect.*



## Building Intelligence.

**BIRMINGHAM.**—The new premises of the Old Library at the corner of Margaret-street and Cornwall-street will be opened to-morrow (Saturday). They have been built from plans by Messrs. Cossins, Peacock, and Bewlay, of Birmingham. The elevations are in the English Renaissance style, carried out in Ruabon brick and white Hollington stone, with Westmoreland green slates for the roof. The building consists of two blocks at right angles the one to the other. The internal woodwork is of pitch pine, plaster is used for the principal walls, and wood blocks are used for flooring. Electricity is used for lighting the whole establishment, and there is not a gasp in the place. The cost of building is about £10,000, and the builders are Messrs. J. Barnsley and Sons, of Birmingham.

**CHRISTCHURCH, NEW ZEALAND.**—The Chapter of Christchurch have determined to complete the cathedral as a memorial of the fiftieth anniversary of the foundation of the Canterbury Settlement by the arrival of the first settlers on December 16, 1850. They set apart for a cathedral a splendid site in the heart of the city of Christchurch, and as soon as possible they procured plans from Sir G. G. Scott, and began to build. In 1881 the first portion of the cathedral was opened, consisting of nave, tower, and spire. The foundations have been laid and the outside walls built of the transepts, choir, and apse. Upwards of £40,000 have been spent on these works, and it is estimated that £15,000 will complete the building. The proposal to finish the cathedral in 1900 has been received with enthusiasm by the people of Canterbury, and subscriptions amounting to £5,000 have been promised.

**GREENWICH OBSERVATORY.**—The annual visitation of the standing committee of the Royal Societies to the Royal Observatory at Greenwich was made on Saturday afternoon. The chief interest of the day centred in the new Observatory building, which, commenced in 1891, was finished last month. Designed by Mr. Crisp, under the superintendence of the Director of Works of the Admiralty, the structure of red brick and terracotta is intended to accommodate the staff, the photographic appliances, and library. Henceforward it will constitute the Observatory proper, where all the important scientific observations will be taken, the old buildings being converted into departments.

**HORTON, EPSOM.**—The formal opening took place on Saturday of the Manor Asylum erected to accommodate seven hundred patients. The site at Horton, near Epsom, was purchased by the London County Council in 1896, and consists of 1,060 acres wooded ground, for which £40,000 was paid. The old stables and coach-house have been converted into the laundry. On either side of the Manor House temporary buildings have been erected for the patients, which consist of structures framed in wood, having brick foundations, the exterior walls being of corrugated iron, with layers of felt between the wood and iron. The buildings for the use of the patients are all one story high, and each block has a separate scullery and store-rooms. The recreation hall will seat 400 people. The water supply comes from a boring 450ft. deep, and the lighting is by gas. Workshops, laundry, kitchen, and other buildings are provided. There is a block for chronic cases which will house 110 patients; and two infirmaries which can receive 59 cases each. The 700 patients for this asylum will be distributed amongst eight blocks, of which three are already finished. The building works of the Horton main asylum are now in progress, for 2,000 patients, and the ultimate cost of the whole asylum is estimated at £112,000, or about £136 per bed. Mr. W. C. Clifford Smith, A.M.I.C.E., is the architect and engineer. The principal contractors were Messrs. Leslie and Co. (temporary buildings), Messrs. Kirk and Randall (alterations to Manor House, &c.)

**LEEDS.**—The report of the plans committee of the Leeds Corporation states that during the year ended March 25 last no less than 2,800 plans for new buildings or for extensions or alterations passed through the hands of the committee. During the preceding year the number of plans submitted for approval was 2,400. Four or five years ago it was a most unusual circumstance for the committee to have 70 or 80 plans before them.

Now the average number considered at their fortnightly meeting exceeds 100, and at the last meeting plans for the erection of 237 dwellings were submitted. Mr. Towers, the chief building inspector, states that the dispute in the building trade has not yet appeared to have had the slightest effect on the number of plans, which go on increasing almost week by week. At the last meeting of the city council, Mr. Batley, the chairman of the plans committee, announced that although the year ended March 25 last constituted a record year, more plans had passed through the hands of the committee during the past six months than during the whole of 1898. In every suburb of Leeds scores of buildings are in course of, or awaiting, erection. In the neighbourhood of Harehills-road, Harehills-lane, and Burman-tofts, hundreds of new houses have made their appearance during the last couple of years, whilst scores of others are now being erected, or are in contemplation. In Holbeck, Hunslet, Headingley, Beeston Hill, and Bramley, the builders have of late been equally active. Indeed, never have the builders of Leeds had such a prosperous period as during the past two years. Of still more interest is the large increase of late in the number of plans for extensions of works. As to the class of dwelling-houses that has been recently erected, a larger number of small semidetached villas than usual have been built in the suburbs, these apparently letting better than terrace houses. The corporation, taking into consideration the space at the ends of each pair of such villas, do not require so wide a back street as they insist upon in the case of terrace houses. Hence the cost of such dwellings is very little more than that of terrace houses of the same size. There are small semidetached villas on the outskirts of the city, letting at as low a rent as £20 to £22 a year.

**METROPOLITAN ASYLUMS BOARD.**—At Saturday's meeting of this board it was agreed to expend £400 on the construction of models of the North-Eastern Hospital and the Brook Hospital, from drawings and particulars to be supplied by the respective architects, for the Paris Exhibition of 1900. The Works Committee submitted the finished drawings, with descriptive report and architects' approximate estimate of the cost of the school for ophthalmic children which the managers propose to erect at Brentwood. The accommodation provided is for 360 children, with a staff (exclusive of school teachers) of 80, of whom seven will be non-resident. The architects' approximate estimate of the cost of the buildings was £106,600. The plans were approved, and the managers directed that they should be forwarded to the Local Government Board for their formal sanction under seal. A report was submitted on the subject of the proposed new Southern Hospital, the preliminary plans of the buildings for which institution were generally approved on March 25 last. A committee now submitted drawings for the foundations, together with the architects' approximate estimate (£227,454) of the cost of erection of the hospital buildings, which will contain 720 ordinary and 80 infirm beds for patients. The drawings were approved. Mr. C. E. Dance was appointed surveyor to the Board, at a salary at the rate of £500 per annum, with travelling expenses, office accommodation, and assistance.

**NOTTINGHAM.**—The General Hospital is being enlarged by the addition of a circular block or Jubilee Wing from plans by Messrs. Alfred Waterhouse, R.A., and Son, of London. The contract for the superstructure has just been let to Mr. Woodhead, of Nottingham. The new block is attached by accessory rooms to the north-east end of an existing long corridor. The position chosen involves the rearrangement and displacement of the existing staircase, and the new wards will be reached by a corridor 81ft. long, placed at right angles to the present corridor. Including two basements, the ward block is five stories high. But only the ground floor, first floor, and second floor which will be occupied by patients' beds. The upper basement is divided into four rooms for servants, and the lower basement provides accommodation for the staff of hospital porters. Each of the circular wards on the upper floors contains room for 18 beds, and the space will afford each 1,800 cubic feet of air. The diameter of the wards will be 60ft. externally, and 55ft. 6in. internally, the walls being about 2ft. thick. There is to be a window between all the beds, except in two inter-spaces, one of which is occupied by the door of

entrance, and the other by the gangway leading to the sanitary tower. The sanitary block contains on every floor a bathroom for patients, sanitary accommodation for nurses and patients kept distinct, a housemaid's closet, and a room for clinical investigation. The block will be cut off from the wards by bridges, with the usual methods of cross ventilation. Several bridges, 16ft. long, separate the rotunda from the rest of the new buildings. These remaining buildings consist of smaller wards, linen-rooms, and stores placed on each side of the corridor. The new staircase will inclose a passenger lift capable of carrying a recumbent patient. The roof of the circular wards, which is flat, will be covered with an impervious paving, and will form a promenade, in the centre of which, around the chimney-stack, will be constructed a shelter with seats. The walls of the new buildings will be faced with brickwork, relieved with Ancaster stone. Internally they will be lined with glazed bricks. All the floors will be fireproof—made of steel joists incased in concrete, and covered, in the case of the ward floors, with teak. The corridors will be in marble terrazzo. The chimney-shaft, which rises up the centre of the wards, will serve not only for the smoke flues but also for ventilation. There are to be balconies arranged on the sunny side of the bridges of communication upon each floor, where beds can be placed when desired. Mr. G. Reed is clerk of the works.

**PAISLEY ABBEY.**—Plans of the proposed alterations and additions to the Abbey Church have been adopted by the Executive Committee. These have been prepared by Dr. R. Rowand Anderson. The work of restoration is to be carried out by public subscription. The work of restoration will be carried out in sections. The first of these will be the restoration of the transepts and the four great arches of the centre tower, and then will follow the rebuilding of the choir, the foundation and lower walls of which are still intact. The final portion of the work will be the completion of the tower, which will be finished with a saddleback roof, as in the Dundrennan, Sweetheart, and other Abbeys. The cost of the restoration will be £40,000, and of that sum the greater portion has already been promised.

**SPEYSIDE, N.B.**—The Knockando-Glenlivet distillery, built from designs by Mr. C. C. Doig, of Elgin, will be opened on July 1. It has a present capacity of 1,000 bushels, the building being faced with local conglomerate stone, and lit by electricity. The heating is by a Babcock and Wilcox tubular boiler. The frontage of the two stills and also the boiler is built of white enamelled fire-bricks. There is a large warehouse of over 200ft. by 60ft. In connection with the distillery, and in keeping with its scale, there have been erected houses for the Excise officers and workmen.

### CHIPS.

An adjudication in bankruptcy has been made in the case of Harold Wharton, now or late carrying on business as Harold Wharton and Co., late of Liverpool and New Ferry, Cheshire, architect or surveyor.

At a meeting of the creditors of Messrs. Neilson Bros., iron and steel merchants, at Glasgow, on Monday, it was stated that the liabilities amounted to £150,791 and the assets to £22,713, leaving a deficiency of £128,078.

Designs are being prepared by Mr. George Frampton, R.A., for the statue of Mr. William Rathbone, which is to be erected in Liverpool. A statue of Mr. Rathbone's father stands in Sefton Park, near the same city. It is the work of J. H. Foley, R.A., and the panels of the pedestal are by Thomas Brock, R.A., who was Foley's favourite pupil. The panels represent in an emblematic way Education, Commerce, and the Arts and Sciences.

Mr. Hugh Barclay intimated to the Dean and Chapter of Norwich Cathedral, on Tuesday, that he proposed to present the cathedral with an organ, at an estimated cost of £1,300. The offer was gratefully accepted by the Dean and Chapter.

After long delays and many disappointments Lower Thames-street, between Fish Street-hill and Botolph-lane, will soon be widened to a width of 60ft. Some time must necessarily elapse before the various properties can be acquired; but all the freeholders have been served with notices.

The Cefnywaelen new school, near Carnarvon, is being warmed and ventilated by means of Shorland's patent Manchester stoves, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLV., XLVI., XLVII., XLVIII., XLIX., L., LI., LII., LIII., LIV., LV., LVI., LVII., LVIII., LIX., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 3fr. 30c.). To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of eight words, the first line counting as two, the minimum charge being 5s. for four lines.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

RECEIVED.—W. C. D. A.—G. G. and Son.—S. M. K.—L. S. A. Co.—B. B. and R.

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"First Attempt," "Bacchus" "Oak," "Butts," "Astragal," "Thistle," "Speys," "Levenach," "Tokio," "McGilligan," "Deadchick," "Arc."

## Intercommunication.

## QUESTIONS.

[12247].—Foundations by the Sea.—What is the best and cheapest method to adopt in preparing for the above where quicksand and beds of shells abound?—PERPLEXED.

[12248].—Value of Timber.—What is the present cost per foot cube of fir timber at the yard in London, and what would be a fair price per foot cube for fir framed in joists and in roof trusses? An answer by an experienced correspondent will be thankfully received.—G. S. S.

[12249].—Right to Drains.—A bought a plot of land adjoining another owner B, and connected his closet to the drains of B at the back. A finds his drain blocked. Has he any remedy?—G. J.

[12250].—Architect's Responsibility.—Is an architect responsible to his client for the spread of dry rot in a new building superintended by him? It is alleged there was not sufficient supervision in seeing that the spans below the floors were properly ventilated, that air-bricks were omitted, and that damp timber was put in. Do these defects or omissions imply neglect on the architect's part, and can he be made responsible?—A NOVICE.

## REPLIES.

[12244].—Outlet of Closet.—The by-laws of the London County Council under the Public Health (London) Act, 1891, observes "In all cases where he shall connect a lead trap and pipe with an iron soil-pipe or drain, he shall insert between such trap or pipe and such soil-pipe or drain a brass thimble, and he shall connect such lead trap or pipe with such thimble by means of a wiped or overcast joint, and he shall connect such thimble with the iron soil-pipe by means of a joint made with molten lead, properly caulked."—G. H. G.

[12245].—Gloucestershire.—If "Newcastle-on-Tyne" cares to write me, I shall be pleased to give him a list of places worth visiting and means of access thereto such as he requires.—T. OVERBURY, 17, College Green, Gloucester.

## WATER SUPPLY AND SANITARY MATTERS.

ACCRINGTON.—The new filter-beds at the Cliffe, Great Harwood, constructed by the Accrington and District Gas and Water Board, were opened on Tuesday. The beds, two engines of 160H.P. and other appliances have cost about £26,000. Water is obtained from Dean reservoir, filtered at the Cliffe, and then pumped by the engines into the covered reservoir on Smalley Thorn, which is elevated, and will therefore provide greater pressure than has hitherto been obtained. The higher parts of the district can now be supplied with water from Great Harwood.

THE NEW RESERVOIRS AT STAINES.—A party of members of Parliament and others interested in the water supply of the Metropolis visited Staines on Monday for the purpose of inspecting the works which are being carried out by Messrs. John Aird and Sons in connection with the new joint reservoirs of the New River, West Middlesex, and Grand Junction Water Companies. These reservoirs, which will have a storage capacity of 3,300,000 gallons, are intended to be utilised as a collecting area when water in the upper reaches of the Thames is plentiful, to be drawn upon at times of scarcity; and if the present rate of progress be maintained, the contractors' task will be completed well within the prescribed time. This means that in two and a half years the upper reservoir will be ready for use, and that in another twelve months the lower reservoir will also be finished. Among those present at the inspection were Mr. John Aird, M.P., and Mr. Middleton and Mr. Hunter, the engineers of the reservoirs.

THE WATER SUPPLIES OF THE FUTURE.—The British Association of Waterworks Engineers held its annual meeting in London on Monday and Tuesday. Mr. W. Watts, of Sheffield, was elected president for this year, and in the course of his address said that during the present session of Parliament about 40 Bills were being promoted for the extension of hydraulic works, the capital of which would amount in the aggregate to several millions sterling, and the capital of existing works already stood at 4½ millions. Probably at no time in the history of waterworks for domestic supply had such gigantic and valuable schemes been before the country. Year by year the population of the country was steadily increasing, and the habits of the people were getting more refined. Sources of water supply were becoming more scarce and difficult to obtain, while the average rate of consumption was increasing. Unless, therefore, means could be devised to lessen the rate of consumption for purely domestic supply, the genius of the water engineer would be sure to be taxed to find water for the want of the rising generation. The roofing space in large towns was capable of collecting supplies of water for many purposes other than for domestic supply if means were taken to store it. The flat roofs of some of the Lancashire cotton mills provided fair supplies of water in case of fire and for other purposes, and it seemed to the president that the plan might be extended to many buildings with advantage. The purification of drinking water was occupying the mind of every waterworks engineer. He was glad to find that every practical bacteriologist suggested the plan which had been so satisfactorily carried out on the Oldham works, where the best water supplies might be found without filtration. In the course of the day a report was submitted from the Water Areas Committee recommending that water supplies generally should be placed under national control and supervision, and at Tuesday's meeting a paper on "The Biology of Sand Filtration" was read by Dr. A. Kemna, of Antwerp; and another on "Auxiliary Water Supplies," by Mr. W. G. Peirce.

The restoration and unflaking of the nave of the cathedral of Norwich has been celebrated by a dinner given to the workmen by Sir Samuel and Lady Hoare. The work now completed has been in progress for nine years, about £8,000 has been expended, and there has not been a single accident.

The foundation-stone of the New Providence Church at Churchbridge, near Oldbury, was laid on Monday. The church, which will accommodate about 400 persons, is to be built at a total cost of £1,300. Messrs. Wood and Kendrick are the architects, and Mr. J. Dallow is the builder.

The foundation-stone of the Milner ward of the infirmary attached to Ecclesall workhouse, near Sheffield, was laid on the 31st ult. The ward is for men, and will cost £25,000.

Some ten miles to the west of Launceston is the hamlet of Canworthy Water, the meeting-place of the parishes of Warbstow, North Petherwyn, Jacobstow, and Tremayne, while distant two miles from the nearest church. Here, on Wednesday week, the Bishop of Truro laid the foundation-stone of a mission chapel. The chapel will be named after St. Sidwell V.M., a local saint, but martyred at Exeter. The architect is Mr. E. Sedding, of Plymouth.

## Our Office Table.

THE supply of oak timber east of the Mississippi is practically exhausted, and, as in the case of white pine, American architects and builders are looking out for something to take, so far as possible, its place. European oak is, says a Transatlantic contemporary, too costly for any but the rich to use, and ordinary people must content themselves, if they want hardwood floors or finish, with inferior material, such as ash, or birch, or chestnut. Meanwhile millions of acres of land in the Eastern States are already covered with oak "scrub," consisting of young oak trees, which grow into a tangled and worthless mass, periodically swept away by fires, to start afresh in the same manner a few years later. If this scrub had been thinned out, and, still more, if good trees had been planted, the non-manufacturing portions of the Eastern States, instead of diminishing in population and wealth, as is now the case, would be the scene of solid prosperity and comfort.

THE overwhelming superiority of electric traction over haulage by steam or horse-power on tramways, is demonstrated by the experiences of Leeds, where the city corporation is in the unique position of having all three systems of traction in use at the same time. During last year, according to the official returns just made to the corporation, the average working expenses per mile for each car running in Leeds were—electric, 4.42d.; steam, 9.36d.; and horse, 9.44d.; while the receipts per mile were—electric cars 12.33d.; steam cars, 11.80d.; and horse cars, 9.90d. The experience in that city for the last financial year was, therefore, that while the receipts of electric cars were appreciably larger than those of the others, the working expenses were less than one-half.

A CURIOUS illustration of the working of "trusts" is to be found, says the *American Architect*, in the fact that the first rails for the Boston Elevated Railway have been purchased in England, the management having bought them there for about one-third less than they could be purchased in Massachusetts. At the same time, American iron is sold in England for less than English iron can be bought there, and one English railway has made large contracts for American rails; so that it is by no means impossible that the rails actually delivered to the Boston road may have been rolled in Pittsburgh, sent to England, and sold there to some manufacturer at a price less than he could make them for himself, and by him resold to the Boston company, to be sent again across the Atlantic, and delivered in Boston, after the payment of three-fifths of a cent. a pound, or about 60 per cent. *ad valorem*, for one-third less than the same rails could be bought by the Boston customer directly from the Pittsburgh manufacturer. The explanation of this is that the rail-mill combination, although it can sell at a profit in Europe at less than the cost of European iron in its own country, makes its price to American customers higher than the cost of production, with the addition of 6,000 miles of transportation, insurance, interest, and brokerage, and 60 per cent. duty, knowing that consumers at home will, as a rule, pay this price, rather than adopt the only other alternative, which consists in waiting for rails to be imported.

At the Opera House, Covent Garden, the balcony facing the main entrance has been converted into a spacious and comfortable apartment. Under its new conditions the balcony forms a glass apartment 20ft. long by 30ft. wide, with a height of 21ft. The space between the pillars is reached by doors, and the whole work has been executed from designs of Messrs. Pilbrick, Chadwick, and Co., of Pall Mall East.

Torquay Town Council on Tuesday decided to apply to the Local Government Board for sanction to borrow £20,000 to complete the purchase of the watershed; for £10,000 to cover the excess expenditure, and provide for future extension on the electric light undertaking; and also for £1,500 for a new pavilion at the head of the Princess Pier.

There will be an inauguration at the University Museum, Oxford, on Wednesday next, of a statue of Darwin by Mr. Hope Pinker, which has been presented to the museum by Professor Poulton. The statue is one of a series surrounding the central court of the museum, which already displays at least one other product of the chisel of Mr. Hope Pinker.



## MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Royal Institute of British Architects. Business meeting. 8 p.m.

WEDNESDAY.—Carpenters' Company. Examination at their Hall. 6.0 to 10.0 p.m.

THURSDAY.—Carpenters' Company. Examination at their Hall. 6.0 to 10.0 p.m.  
National Trust. Annual Meeting at Grosvenor House, W. 4.30 p.m.

FRIDAY.—Carpenters' Company. Practical Examination at the Company's Schools, Great Titchfield-street. 9.30 a.m. to 5.30 p.m.

SAURDAY.—Carpenters' Company. Examination at their Hall. 12.0 noon.

## THE ARCHITECTURAL ASSOCIATION.

JUNE 10.—VISIT to GATTON PARK and CHICHESTER. By 2.15 p.m. 1.15 p.m. from Charing Cross to Newcastle. Meet under clock at 2 p.m. Send P.O. 2s. 2d. to the Hon. A. McGAREL HOOD, 35, Lincoln's Inn Fields, W.C.

G. B. CARVILL } Hon. Secs.  
R. S. BALFOUR }

## CHIPS.

The castle of Duntroon, belonging to Lord Malcolm of Poltalloch, Lochgilphead, Argyllshire, was on Wednesday burned to the ground. Duntroon, which had been repaired and rendered habitable, was situated on the northern shore of Loch Crinan, and was a place of interest to tourists.

An adjudication in bankruptcy has been made in the case of George Atkinson, of Adwood, near Southport, architect; and also in the case of Thomas Newell, of Southall, Middlesex, architect and surveyor.

Mr. Harry Geen, C.C., late borough surveyor of Okehampton, and the representative of that district on the Devonshire County Council, has accepted the post of water and sewerage engineer under the Exeter Corporation, and will commence his new duties forthwith.

At Swinton (near Rotherham), on Tuesday, Mr. W. O. E. Meade-King, barrister, held an inquiry touching the application of the district council for sanction to borrow £2,450 for the purchase of 12½ acres of additional land near the sewage works.

A public meeting was held at Aston on Tuesday in reference to the renovation of Aston Hall, which, although maintained by the city corporation of Birmingham at a yearly cost for mansion and park of £1,300, is almost in the centre of the area of the urban district council of Aston Manor. It was stated that £1,000 would be needed for repairs, and towards this sum about £500 has been promised.

The City Council of Worcester decided on Tuesday to expend £14,000 in providing additional pumping plant and filtering area at the waterworks, for an improved supply of water to the city. Mr. A. Hodder, art principal of the Victoria Institute, wrote tendering his resignation. This was accepted with regret.

At Mainlee, near Newport, Mon., a new block of municipal buildings, comprising branch fire brigade station, reading-room, and police quarters, has just been opened. It has cost £3,600, and is described by a local journal with unusual frankness as "devoid of architectural feature of any sort."

The German Empress and most of the Berlin professors were present on Tuesday at the unveiling of the Helmholtz Monument, in the garden in front of the Berlin University. The statue, which is the work of Professor Ernst Herter, is of white Tyrolean marble, and represents the great mathematician and physicist, wearing an Academical gown over evening dress, standing on a pedestal of red Bavarian marble, the front of which bears the simple inscription "Herman von Helmholtz, 1821 to 1894."

Dr. Tristram, Q.C., as Commissary of the Diocese of Canterbury, held a Court in the parish church at Croydon on Tuesday to consider an application for an opposed faculty to throw portions of the churchyard and footpaths into the thoroughfare so as to widen the road at the entrance to the church. Mr. E. Mawdesley, the town clerk, produced the plans and explained the objects the corporation had in view for the benefit of the borough. The judge granted the faculty as prayed, and said that he should insert a special clause as to the preservation of the splendid elm at the church entrance.

The second biennial three days' conference of the members of the Institution of Civil Engineers was opened on Wednesday in the theatre of the Institution, Great George-street, Westminster, by a short address from the president, Sir William Henry Preece, F.R.S. The members afterwards separated into seven sections, dealing respectively with such subjects as railways, harbours, docks, and canals, machinery, shipbuilding, and electricity. The proceedings close to-day (Friday).

A large new Cambridge chime-clock has just been erected in the parish church tower of Watermoor, Cirencester. The makers are Messrs. John Smith and Sons, Derby.

## Trade News.

## WAGES MOVEMENTS.

ARBROATH.—A conference was held on Tuesday between the masters and representatives of the men in reference to the strike of the operative masons for an advance of wages from 8d. to 8½d. per hour. The masters intimated that they were prepared to give the increase, and the offer was accepted on behalf of the men. The strike has thus terminated.

DISPUTE IN THE WORCESTERSHIRE CLAYFIELDS.—The strike at Messrs. Doulton and Co.'s Worcestershire clayfields, Saltwells, which commenced seven weeks ago, came to a lock-out on Monday, but was terminated on Tuesday, the men having given in and returned to work. The dismissal of 24 men brought about the trouble.

FLEETWOOD.—About 150 joiners, employed at various firms in Fleetwood, came out on strike on Friday for an advance of a halfpenny per hour, making their pay 8½d. The employers were given notice six months ago of a demand for an advance. A conference between the trade-union leaders and the employers proved fruitless. Many building operations will be brought to a standstill.

NORWICH.—The points raised by various classes of the building trade at Norwich have been amicably settled, after repeated conferences. One halfpenny per hour advance will be given to carpenters, bricklayers, masons, builders' labourers, and painters.

A lychgate of oak from Cheshire is being erected in the churchyard of Brantham, Suffolk. The work is being carried out by Mr. W. Grayston, of Ipswich.

The new fire brigade station which has been erected in King-street, Edinburgh, was formally opened on Friday by the corporation. The building is of three stories, and equipments are provided for a permanent staff. The cost of the buildings is about £12,000.

New premises are being built at Colwick, Nottingham, for Messrs. Lawrence, house furnishers, at a cost of £45,000. The works will provide employment for about 1,000 hands, and are being erected from plans by Mr. W. B. Starr, of Nottingham.

An infants' National school in Avenue-road, Newport, Salop, was opened last week. It has cost £1,500. Mr. Ashton Veale, of Wolverhampton, was the architect, and Mr. E. Whittingham, of Newport, the builder.

Mr. Thomas Hewson, jun., A.M.I.C.E., son of the city engineer, was elected by the Leeds City Council on Wednesday, as general assistant in the city engineer's office, at a salary of £250 per annum.

An inquiry was held on behalf of the Local Government Board by Mr. W. A. Ducat, at Oswestry, on Friday, into an application by the town council for sanction to a loan of £3,500 to meet the cost of proposed new sewerage works.

The parish church of St. Gregory, Heckingham, Norfolk, was reopened on Wednesday after restoration, the builder being Mr. R. Morris, of Ditchingham, near Bungay. The old box pews have been replaced by oak benches, new floors laid throughout, and the walls recoloured. The interior of the roof of the nave has been clad with stained deal, and the exterior, which is of thatch, repaired where necessary. A new roof has been placed over the north aisle. The chancel has been restored by the rector. The pulpit has been remodelled, and a prayer-desk has been given.

## "SANITAS" DISTEMPER.

A Washable Sanitary Distemper for Whitening and Disinfecting Walls and Ceilings of Passages, Cellars, Stables, Kennels, Sheds, Farm Buildings, Railway Trucks, Horse Boxes, and for General Use.

7lb. Tins, 1s. 9d.; 14lb. Tins, 3s.; 28lb. Kegs, 5s. 6d.; 56lb. Kegs, 10s. 6d.; and 20s. per cwt.

THE "SANITAS" COMPANY, Limited,

BETHNAL GREEN, LONDON,

Manufacturers of Disinfectants and Sanitary Appliances.

## LATEST PRICES.

## IRON, &amp;c.

	Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0	£8 10 0
Rolled-Steel Joists, English.....	8 10 0	7 0 0
Wrought-Iron (Ridder) Plates.....	5 15 8	6 10 0
Bar Iron, good Stuff.....	7 5 0	8 5 0
Do., Loomwork, Flat, Round, or Square.....	17 0 0	17 5 0
Do., Welsh.....	5 15 0	5 17 6
Boiler Plates, Iron—		
South Stuff.....	7 17 8	8 5 0
Best Suedhill.....	10 0 0	10 10 0

Angles 10s., Tees 20s. per ton extra.  
Builders' Hoop Iron, for bonding, &c., £6 15s.  
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.  
Galvanised Corrugated Sheet Iron—

	No. 18 to 30.	No. 22 to 24.
8ft. to 8ft. long, inclusive gauge.....	£10 15 0	£11 0 0
Best ditto.....	11 5 0	11 10 0
Cast-Iron Columns.....	£8 10 0	£9 0 0
Cast-Iron Stanchions.....	6 10 0	9 0 0
Rolled-Iron Fencing Wire.....	8 5 0	9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	9 5 0
"  "  Galvanised.....	11 10 0	12 10 0
Cast-Iron Sash Weights.....	4 12 6	4 15 6
Cut Clasp Nails, Sin. to 6in.....	9 0 0	10 0 0
Cut Floor Brads.....	8 15 0	9 15 0
Wire Nails (Pointe de Paris)—		
0 to 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		B.W.G.
9 6 10 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		per cwt.

Cast-Iron Socket Pipes—  
3in. diameter..... £6 7 6 to £6 12 6  
4in. to 6in..... 6 2 6 to 6 7 6  
7in. to 24in. (all sizes)..... 5 12 6 to 5 17 6  
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 6s. per ton extra.]

	Per ton.
Pig Iron—	
Cold Blast, Lilleshall.....	105s. to 110s.
Hot Blast, ditto.....	57s. 6d. to 62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:	
Gas-Tubes.....	6 1/2 p.c.
Water-Tubes.....	6 1/2
Steam-Tubes.....	5 1/2
Galvanised Gas-Tubes.....	6 1/2
Galvanised Water-Tubes.....	4 1/2
Galvanised Steam-Tubes.....	4 1/2

	10cwt. casks.	5cwt. casks.
Zinc, English.....	£30 10 0	£31 10 0
Do., Vieille Montagne.....	31 10 0	32 15 0
Sheet Lead, 8lb. per sq. ft. super.....	18 2 6	17 2 6
Pig Lead, in lwt. pigs.....	15 7 6	16 7 6
Lead Shot, in 28lb. bags.....	19 0 0	20 0 0
Copper Sheets, sheathing and rods.....	85 0 0	86 0 0
Copper, British Cake and Ingots.....	80 0 0	81 0 0
Tin, Straits.....	118 10 0	119 10 0
Do., English Ingots.....	121 0 0	122 0 0
Spelter, Silesian.....	27 0 0	28 10 0

## TIMBER.

	per load	£13 10 0	£16 10 0
Teak, Burmah.....	11 10 0	15 10 0	10 0 0
"  Bangkok.....	4 7 6	8 10 0	6 5 0
"  Quebec Pine, yellow.....	4 10 0	6 5 0	5 10 0
"  Oak.....	3 10 0	6 10 0	5 10 0
"  Birch.....	4 12 6	6 5 0	5 10 0
"  Elm.....	4 0 0	5 5 0	4 0 0
"  Ash.....	3 5 0	5 5 0	4 0 0
Danitic and Memel Oak.....	1 7 6	3 7 6	2 5 0
Fir.....	3 15 0	6 5 0	5 10 0
Waincoat, Riga p. log.....	4 10 0	6 10 0	5 10 0
Lath, Danitic, p.f.....	4 0 0	6 10 0	5 10 0
St. Petersburg.....	7 15 0	8 0 0	7 15 0
Greenheart.....	4 0 0	15 0 0	10 0 0
Box.....	0 1 9	0 2 0	0 2 0
Sequoia, U.S.A. ....per cube foot			
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5	0 0 7 1/2	0 0 6 1/2
"  Honduras.....	0 0 3 1/2	0 0 4	0 0 4
"  Mexican.....	0 0 3 1/2	0 0 4	0 0 5
"  African.....	0 0 4	0 0 4 1/2	0 0 4 1/2
Cedar, Cuba.....	0 0 3 1/2	0 0 4 1/2	0 0 4 1/2
"  Honduras.....	0 0 10 0	0 1 9	0 1 9
Satinwood.....	0 0 8	0 0 7 1/2	0 0 7 1/2
Walnut, Italian.....			
Deals, per St. Petersburg Standard, 120—12ft. by 1 1/2in. by 1 1/2in.....	£19 0 0	£25 10 0	£15 0 0

Quebec, Pine, 1st.....	14 0 0	17 5 0
"  2nd.....	6 15 0	10 0 0
"  3rd.....	8 5 0	10 5 0
Canada Spruce, 1st.....	7 0 0	8 5 0
"  2nd and 3rd.....	7 0 0	7 15 0
New Brunswick.....	8 5 0	9 5 0
Riga.....	9 15 0	14 5 0
St. Petersburg.....	9 15 0	16 15 0
Swedish.....	9 15 0	10 5 0
Finland.....	10 15 0	18 0 0
White Sea.....	5 0 0	16 0 0

Flooring Boards, per square of lin.:—		
1st prepared.....	£20 11 9	£20 15 0
2nd ditto.....	0 10 8	0 12 0
Other qualities.....	0 5 3	0 6 6
Staves, per standard M:—		
Quebec pipe.....	£35 0 0	£42 10 0
U.S. ditto.....	210 0 0	230 0 0
Memel, cr. pipe.....	130 0 0	190 0 0
Memel, brack.....		

## OILS.

Linseed.....per ton.....	£19 0 0	£19 7 6
Rapeseed, English pale.....	22 5 0	22 10 0
Do., brown.....	21 0 0	21 5 0
Cottonseed, refined.....	16 6 0	16 15 0
Olive, Spanish.....	30 0 0	32 0 0
Seal, pale.....	18 0 0	18 5 0
Cocoanut, Cochin.....	29 0 0	29 5 0
Do., Ceylon.....	25 10 0	25 15 0
Palm, Lagos.....	24 0 0	24 5 0
Oleum.....	18 15 0	19 15 0
Lubricating U.S.....per gal.....	0 6 8	0 7 6
Petroleum, refined.....	0 8 8	0 9 6 1/2
Tar, Stockholm.....per barrel.....	1 0 0	1 6 6
Do., Archange.....	0 18 0	1 0 0
Turpentine, American...per ton.....	£25 15 0	29 0 0



## LIST OF COMPETITIONS OPEN.

Wakefield—Central Premises	£50, £30, and £20	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield	June 30
Buckie—Bridge over Buckie Burn (£1,600 limit)	25gs.	J. L. Naughton, Clerk to Commissioners, Buckie, N.B.	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate	July 8
Lichfield—Grammar School	£20	H. H. Brown, Clerk to Grammar School Governors, Lichfield	" 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor)	£100, £75, £50	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead	" 27
Edinburgh—Midlothian County Buildings, Parliament-square	£30 merged, £10	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh	" —
Aldershot—Masonic Hall (£2,500 limit)		John Yould, Secretary, The Triangle, Aldershot	" —
Hawick—Houses and Cottages		W. Haddon, Solicitor, Sec. Building Co., Hawick	" —

## LIST OF TENDERS OPEN.

## BUILDINGS.

Slackland—Stable and Loose-Box	T. and G. Hays	The Estates Office, Fochabers, Scotland	June 10
Leeds—Villa and Stabling, Dewsbury-road		A. Hiscoe, Architect, 57, Holford-street, Wellington-rd., Leeds	" 10
Guisborough—Fifty Pig Pens at the Mart	Cleveland Auction Mart Co., Ltd.	The Company's Office, Auction Mart, Guisborough	" 10
Corsbie—Repairs to House		The Estates Office, Fochabers, Scotland	" 10
Packington—Farm Buildings	Ashby Urban District Council	J. B. Everard, M.I.C.E., 6, Millstone-lane, Leicester	" 10
Kirkbride—Dwelling-house		W. M. Thompson, Builder, Kirkbride, Carlisle	" 10
Belfast—Alterations to Premises	Belfast Rope Co., Ltd.	Græme-Watt & Tulloch, Architects, 77A, Victoria Chmbrs, Belfast	" 10
Braces of Enzie—Additions to Offices		The Estates Office, Fochabers, Scotland	" 10
Durham—Alterations to 25, Market-place	York City and County Banking Co.	H. T. Gradon, Architect, 22, Market-place, Durham	" 10
Lower Mill of Tynet—Repairs to Offices		The Estates Office, Fochabers, Scotland	" 10
Workington—Alterations to Shop, Station-road	District Indust. and Prov. Soc., Ltd.	W. G. Scott and Co., Architects, Victoria Buildings, Workington	" 10
Upper Allaloth—Barn	Building Club	The Estates Office, Fochabers, Scotland	" 10
Cwmaman—Thirty Houses		L. Smith, 20, Commercial-street, Aberdare	" 10
Upper Mill of Tynet—Additions to House and Offices		The Estates Office, Fochabers, Scotland	" 10
Athelney, Somerset—Alterations to Railway Hotel	Mitchell, Toms, and Co., Ltd.	Arthur W. Yeomans, Architect for the Co., Somerset	" 10
Montrose—Villa at Sunnyside		John Sim, Architect, 160, High-street, Montrose	" 10
Axminster, Devon—Repairs to Western Hotel & Black Lion Inn	Mitchell, Toms, and Co., Ltd.	Arthur W. Yeomans, Architect for the Co., Somerset	" 10
Fochabers—Repairs to Offices at Castlehill		The Estates Office, Fochabers, Scotland	" 10
Kewick—Rebuilding the Woolpack Inn, Main-street	H. Spencer and Co., Ltd.	D. N. Pape, Surveyor, Lake-road, Kewick	" 10
Oxhill—Alterations to Offices	Corporation	The Estates Office, Fochabers, Scotland	" 10
Heywood—Store-Sheds, &c., Hind Hill		J. A. Settle, E.C., Boro' Eng., Municipal Buildings, Heywood	" 10
Forth, Glamorgan—Boarded Fencing (2,000ft.), Open Shedding, Horse-Boxes, &c.	Glam. General Agricultural Society	W. V. Huntley, Secretary, Welsh St. Donatt's, Cowbridge	" 10
Bogs of Enzie—Additions to Offices		The Estates Office, Fochabers, Scotland	" 10
Chester-le-Street—Eight Cottages, Daisy Hill	Co-op. and Industrial Society, Ltd.	J. Black, Daisy Hill Branch Stores, Chester-le-Street	" 12
Gloucester—Cattle-Shed at Field House Farm	Municipal Charities Trustees	Thos. Cadle, Lynwood, Denmark-road, Gloucester	" 12
Seaton Two Houses	J. Pattinson	Donald and Tate, Architects, 14, John-street, Workington	" 12
Kilaly—Rebuilding Silos Chapel		W. W. Williams, 63, Wind-street, Swansea	" 12
Whitby—Two Houses and Shops, Brunswick-street	Thos. Parratt	R. Lennard and Sons, Architects, Cliff-street, Whitby	" 12
Brothcroft—Enlargement of Barley Sheaf School	N.E. Holland U.D. Fen School Board	J. H. Tooley, Clerk, 6, Bridge-street, Boston	" 12
Grays, Essex—Four Pairs of Semi-Detached Houses		C. M. Shiner, Architect, 3, Bond-court, Walbrook, London, E.C.	" 12
Castleton—Shops, Stables, and Dwelling-House	Thos. Furness	W. Young, Architect, Park-road, West Hartlepool	" 12
Newbury—Rebuilding the Cock Inn, Shaw	Newbury Brewery Co.	J. H. Money, Architect, Newbury	" 12
Grays, Essex—Four Pairs Semi-detached Houses		C. M. Shiner, Architect, 3, Bond-court, Walbrook, E.C.	" 12
Barry—Refuse Destructor Buildings	Urban District Council	J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry	" 12
Gloucester—Piggeries and Boiling-House at New House Farm	Municipal Charities Trustees	Thos. Cadle, Lynwood, Denmark-road, Gloucester	" 12
Stockport—Gymnasium at Hollywood Park	Parks Committee	John Atkinson, A.M.I.C.E., Borough Surveyor, Stockport	" 12
Grays, Essex—Four Pairs Semi-Detached Houses		C. M. Shiner, Architect, 3, Bond-court, Walbrook, London, E.C.	" 12
Hartley Row, Hants—Police Cottages and Cells	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester	" 12
Cwmaman Extensions to Jersey Arms	E. Evans Bevan	J. Cook Rees, Architect, Neath	" 12
Wolsingham—Two Cottages at Tunstall Reservoir	Waterworks Co.	J. Askwith C.E., South-road, Bishop Auckland	" 12
Upper Landwrog—Improvements to Cesarea C.M. Chapel	Standing Joint Committee	Robert H. Williams, Cae Glas, Upper Landwrog, Gwerslton, R.S.O.	" 12
Cross Ash—Petty Sessions Court and Police Station		William Tanner, F.S.I., County Surveyor, Newport	" 12
Falmouth—Alterations to Summerhill Hotel	Guardians of Blean	R. Billett, Chapel-terrace, Falmouth	" 12
Herne Common—Alterations at Union Workhouse	Urban District Council	The Master, Workhouse, Herne Common	" 12
Barry—Chimney Stack for Refuse Destructor		J. C. Pardoe, A.M.I.C.E., Surveyor, Holton-road, Barry	" 12
Artillery—Rebuilding Premises, Commercial-road	Thos. Parratt	Swash and Bain, Architects, Midland Bank Chambers, Newport	" 12
Whitby—Two Houses and Shops, Brunswick-street	E. Evans Bevan	R. Lennard and Son, Architects, Cliff-street, Whitby	" 12
Cadroxton—Green Dragon Hotel and Five Houses		J. Cook Rees, Architect, Neath	" 13
Luthermuir—New Offices at Chelsea Croft	Committee of the Rugby Co-op. Soc.	Hon. C. Forbes Trefusis, Fettercairn	" 13
Rugby—House, Campbell-street	School Board	J. T. Franklin, Architect, 40, Bridget-street, Rugby	" 13
Wissett—Entrance Porch and Cloakroom		Arthur Pells, F.S.I., Architect, Beccles	" 13
Londonderry—Extensions to 12, Strand-road	Corporation	W. E. Pinkerton, M.R.I.A.I., Architect, 8, Diamond, Londonderry	" 13
Bridgwater—Repairs to Town Pound, Market-street		The Surveyor's Office, Municipal Buildings, Bridgwater	" 13
Raemore—Public School and Teacher's Residence	Croydon School Board	Brown and Watt, Architects, Aberdeen	" 13
Thornon Heath—Schools, Ecclesbourne-road	Town Council	H. Carter Pegg, A.R.I.B.A., Archt., 6, Sudbury-rd., Thornton Heath	" 13
Kidderminster—Lodge near Infectious Hospital	Staffordshire Joint Committee	Arthur Coomber, Borough Surveyor, Town Hall, Kidderminster	" 13
Newcastle-on-Tyne—Rebuilding the Greyhound Inn, Pitt-street	J. Watt	Oliver and Leeson, Architects, Mosley-street, Newcastle-on-Tyne	" 13
Wednesbury—Police-Station at Darlston		C. W. D. Joynson, Architect, Butcroft, Darlston	" 13
Elgin—Alterations on Farm Steading at Rosebrae		A. and W. Reid and Wittet, Architects, Elgin	" 13
Newburn—House, Shop, and Stable	W. J. Williams	H. Piper, North Walbottle, Newburn	" 13
Llanwrst—Two Shops and House, Denbigh-street	London County Council	Peter McIntyre, Architect, The Square, Llanwrst	" 13
Parliament Hill—Timber Diving Platform, &c.	Gas Committee	The Parks Department, 9, Spring Gardens, S.W.	" 14
Shotley Bridge—Excavating, &c., for Steel Gasholder Tank	Joint Hospital Board	T. Newbighing and Son, Engineers, 5, Norfolk-street, Manchester	" 14
Lancaster—Tanfield Infectious Diseases Hospital	School Board	G. T. Wilson, 121, Durham-road, Blackhill	" 14
Oldham—Wood Block Flooring of Two Schools	Lancaster Joint Hospital Board	Wind-r and Taylor, Architects, 61, Union-street, Oldham	" 14
Lurgan—School Building, Victoria-road	N.W. Durham Steam Laundry Co.	Young and Mackenzie, Architects, Donegall-square East, Belfast	" 14
Tanfield—Infectious Diseases Hospital	School Board	G. T. Wilson, Architect, 121, Durham-road, Blackhill	" 14
Blackhill—Laundry	Trustees	Geo. Thos. Wilson, Architect, 121, Durham-road, Blackhill	" 14
Sutton-in-Ashfield—Schools	Asylums Sub-Committee	J. P. Adlington, Architect, Sutton-in-Ashfield	" 14
Newbury—Additions to Primitive Methodist Chapel		W. H. Bell, Architect, The Market-place, Newbury	" 14
Wells—House on Asylum Estate		G. T. Hine, F.R.I.B.A., Architect, 35, Parliament-st., Westminster	" 14
Crewe—(chimney Stack, &c., for Electricity Works		The Borough Engineer, Earle-street, Crewe	" 14
Guisborough—Additional School Accommodation, Skelton-grn.	Skelton and Stanghow School Board	W. Richardson, Clerk, Guisborough	" 14
Leytonstone—Water-Tower at Workhouse	Guardians of West Ham Union	J. Sturdy, 44, Finsbury Pavement, E.C.	" 14
Hull—Quay and Shed, St. Andrew's Dock	North-Eastern Railway Company	T. M. Newell, Engineer, Dock Offices, Hull	" 14
Shotley Bridge—Excavating for a Steel Gasholder Tank	District Gas Co.	T. Newbighing and Son, Engineers, 5, Norfolk-street, Manchester	" 14
Ashburton—New Offices	School Board	H. M. Firth, Clerk, Ashburton, Devon	" 15
Toft Monks—Three Cottages	Toft Monks Town Estate	Arthur Pells, F.S.I., Architect, Beccles	" 15
Killalee—Rebuilding Tower of Cathedral		J. F. Fuller, F.S.A., Architect, Brunswick Chambers, Dublin	" 15
Farnborough, Hants—Extension of Steam Laundry	Steam Laundry Co.	W. E. Trevena, Archt., Southampton-street, Farnborough, Hants	" 15
Bradford—Store, Outley-road and Dover-street	Provident Industrial Society, Ltd.	Ryeford & Firth, Architects, Bank Bldgs., Manchester-rd., Bradford	" 15
Warrington—Police Buildings, &c.	Watch Committee	R. B. Dick, Architect, 55, Northumberland-st., Newcastle-on-Tyne	" 15
Amesbury—Alterations to Sick Wards and Laundry		John Harding and Son, Architects, High-street, Salisbury	" 15
Faygate—Alterations to The Beeches		William Buck, Architect, Horsham	" 15
Nelson—Additions to Shippon and Barn at Scholefield		H. Holgate, Architect, Market-street, Colne	" 15
Glydebank—Burgh Buildings	Commissioners	Jas. Miller, Architect, 223, West George-street, Glasgow	" 15
Walton-on-Thames—Club and Institute, Osborne-road	Committee	J. Brind, High-street, Walton-on-Thames	" 15
Pleatwood—Museum at Rossall School		Austin and Paley, Architects, Castle-hill, Lancaster	" 16
Sowerby Bridge—Foundry, Victoria-road	W. P. Eglish	A. Clement Williams, Architect, 29, Southgate, Halifax	" 16
Chartham Downs—Alterations, County Lunatic Asylum		W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	" 16
Harrington—Alterations to House, Church-road	J. B. Little	W. G. Scott and Co., Architects, Victoria Buildings, Workington	" 17
Cockstown—Iron School at Rear of Premises in Loy Houses	M. and E. J. Houston	J. M. Robinson, Cockstown	" 17
Treherbert—Alterations at Carmel Chapel	Building Committee	Jacob Rees, Architect, Pentre, R.S.O.	" 17
Carnarvon—Hospital	Corporation	Rowland Lloyd Jones, Architect, Market-street, Carnarvon	" 17
Tunbridge Wells—54 Cottages and Five Blocks of Tenements		The Borough Surveyor's Office, Town Hall, Tunbridge Wells	" 19
Loughborough—Extensions to Corn Exchange	Ardrissan & Saltcoats Jnt. Hospital	A. H. Walker, Borough Surveyor, Town Offices, Loughborough	" 19
Springvale—Hospital	West Riding County Council	Fryers and Penman, Architects, Largs	" 19
Walsley—Large Dining Hall at Asylum	Urban District Council	The Clerk of Works, at the Asylum, Walsley, Sheffield	" 19
Sandbach—Detached Villa		John Pring Elworth, Sandbach	" 19
Wimbledon—Alterations to Cottage at Pumping Station		C. H. Cooper, M.I.C.E., Broadway, Wimbledon	" 19
Halwell—Two Cottages		W. F. Tollit, Architect, Gate House, Totnes	" 19
Ardrissan—New Hospital at Springvale	Ardrissan & Saltcoats Jt. Hospital	Fryers and Penman, Architects, Largs	" 19



## BUILDINGS—continued.

Swansea—Alterations to Dyfatty Board School	U.D. School Board	The School Board Offices, Dynevor-place, Swansea	June 19
Mullion—Six Coastguard Houses	Trinity House Corporation	James Roberts, Mullion, Cornwall	" 19
Penlee Point—Fog-Signal House, &c.	St. Marylebone Guardians	Chas. A. Kent, Secretary, Trinity House, London, E.C.	" 19
Southall, W.—Infirmary and Cottages at Schools	Urban District Council	A. Saxon Snell, F.R.I.B.A., Archt., 22, Southampton Bldgs., W.C.	" 19
Beckenham—Technical Institute and Swimming-Baths	School Board	J. A. Angell, Surveyor, Council Offices, Beckenham	" 19
Croydon—Repairs, &c., at Slaughter-Houses, Fildale	Samuel Webster and Son, Ltd.	The Borough Engineer's Office, Town Hall, Croydon	" 20
Denbigh—Alterations at Albert-road Board Schools	City Hospitals Committee	Seddon & Carter, Architects, Bank Buildings, St. Mary-st., Cardiff	" 20
Halifax—Eleven Houses at Ovenden Wood	T. Hudson Harrison	Jackson and Fox, Architects, 7, Rawson-street, Halifax	" 20
Sheffield—Infectious Diseases Hospital, Lodge Moor	Isle of Thanet Union Guardians	Flockton, Gibbs, & Flockton, Archts., 16, St. James's-row, Sheffield	" 20
Rathkeale—Repairing the Spire of St. Mary's Church	Urban District Council	John Horan, M.I.C.E., 50, George-street, Limerick	" 20
Bridlington Quay—Dwelling-Houses, Lansdowne-road	Guardians	Samuel Dyer, Architect, Bridlington Quay	" 21
Manstone—Cottage Homes Buildings	Corporation	Leonard Grant, Architect, High-street, Sittingbourne	" 21
Basingstoke—Joint Isolation Hospital	English Cong. Church Trustees	James Gibson, 8, New-street, Basingstoke	" 21
Hemsworth—Vagrant Wards at Workhouse	Board of Guardians	T. H. Richardson, Architect, Hemsworth	" 21
Loxwithiel—United Methodist Free Church	Aberystwith School Board	Sampson Hill, Architect, Green-lane, Redruth	" 22
Lawrence Cove, Co. Cork—Coastguard Station	Magistrates and Council	The Office of the Carpenter-in-Charge, Queen's College, Cork	" 22
Glasgow—Alterations to Polmviadie Old Police Buildings	(Great Northern Ireland) Ry. Co.	Office of Public Works, City Chambers, 64, Cochrane-st., Glasgow	" 22
Halifax—Stabling and Caretaker's House, Square-road	Local Board of Health	J. F. Walsh, Architect, L. and Y. Bank Chambers, Halifax	" 23
Kelvedon—Four Almshouses	Visiting Committee	Chancellor and Sons, Architects, Chemsford	" 23
Blaina—New Schoolroom and Heating Chapel	Coast Development Co., Ltd.	W. S. James, Secretary, 77, High-street, Blaina	" 25
Hursley—New Workhouse	St. Mary (Islington) Guardians	Chancellor and Hill, Architects, 12, Jewry-street, Manchester	" 26
Cwm—Classrooms, &c., Cwmyrdderch Infant School	H.M. Commissioners of Works	R. L. Roberts, Architect, Victoria Chambers, Abercarn	" 26
Edinburgh—Extension of Boiler House, &c.	Lancashire County Council	The Burgh Engineer, 1, Parliament-square, Edinburgh	" 26
Bundoran and Belleek—Stationmasters' Houses	Guardians	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin	" 27
Woolwich—Lodge, Shelter, and Mortuary, Sun-street	School Board	Church, Quick, & Whinop, Architects, William-street, Woolwich	" 27
St. Alban's—Isolation Hospital, &c., Hill End	James Wright and Son	G. T. Hine, F.R.I.B.A., Archt., 35, Parliament-st., Westminster	" 27
Halifax—Villa Residence on Greenrood Estate	Edwin Ogden	Medley Hall, Architect, 29, Northgate, Halifax	" 28
Walton-on-the-Naze—Hall and Buildings in Round Garden	Ind, Coope, and Co.	Chas. H. M. Milham, Architect, 1, Lincoln's Inn Fields, W.C.	" 28
London, N.—Works at Highbury Relief Offices, Corsica-street	D. L. Evans and Co.	Wm. Smith, Architect, 65, Chancery-lane, W.C.	" 29
Chatham—Post Office	Cilely Colliery Co.	The Postmaster, Chatham	" 30
Carlisle—Alterations to Business Premises, Devonshire-street	Trustees of Wesleyan Church	T. Taylor Scott, F.R.I.B.A., Architect, Carlisle	July 10
Preston—County Sessions House	Rochdale Carriage Co.	Henry Littler, Architect, County Offices, Preston	" 10
Stamford—Workhouse	W. J. Jennings, & Co.	J. H. Morton, F.R.I.B.A., Architect, 50, King-st., South Shields	" 17
Brighton—Alterations and Additions to Public Library, Museum, and Art Gallery	W. J. Jennings, & Co.	Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton	" 27
Melrose—Alterations at Roxburgh District Asylum	W. J. Jennings, & Co.	Sydney, Mitchell, and Wilson, 13, Young-street, Edinburgh	" 27
Rochdale—New Infirmary at Dearnley	W. J. Jennings, & Co.	S. Butterworth and Duncan, Architects, 4, South Parade, Rochdale	" 27
Thornaby-on-Tees—Church	W. J. Jennings, & Co.	Hicks and Charlewood, Architect, 67, Westgate-road, Newcastle	" 27
Woodford, Essex—School Buildings, Cowslip-road	W. J. Jennings, & Co.	E. Tidman, Architect, 31, Victoria-street, Westminster, S.W.	" 27
Nottingham—Three Villas, Wiverton-road	W. J. Jennings, & Co.	Collier and Slater, Architects, 8, Bridle-Smith Gate, Nottingham	" 27
Croft End, N.—Sixteen Semi-detached Villas	W. J. Jennings, & Co.	Macer and Co., 39, Cheapside, E.C.	" 27
Woodford—School Buildings, Cowslip-road	W. J. Jennings, & Co.	Edward Tidman, Architect, 34, Victoria-street, Westminster, S.W.	" 27
Uttoxeter—Twenty Houses, &c.	W. J. Jennings, & Co.	C. H. Cowlishaw, Solicitor, Uttoxeter	" 27
Bradford—Three Houses, Newark-street	W. J. Jennings, & Co.	F. Moore, Architect, 40, Sunbidge-road, Bradford	" 27
Market Drayton—New Crown Brewery	W. J. Jennings, & Co.	T. Tindal, Architect, Longton, Staffordshire	" 27
Walton-on-Thames—Cottage	W. J. Jennings, & Co.	George L. Crickmay, 13, Victoria-street, Westminster	" 27
Duffield—Villa Residence, King-street	W. J. Jennings, & Co.	Sands and Walker, Architects, Angel-row, Nottingham	" 27
Sheerness—Schools, &c., at Broadway	W. J. Jennings, & Co.	Leonard Grant, Architect, Sittingbourne	" 27
Hemsworth—Workshops, Offices, &c.	W. J. Jennings, & Co.	The Hemsworth Collieries, near Wakefield	" 27
Brynmaur—Premises	W. J. Jennings, & Co.	J. Watkins, Beaufort-street, Brynmaur, Wales	" 27
Deepcar—Eight Cottages	W. J. Jennings, & Co.	J. Dobson Townsend, Surveyor, 21, Fargate, Sheffield	" 27
Leeds—Alteration of Premises, Wade-street and Wade-lane	W. J. Jennings, & Co.	J. E. Preston, Architect, Chapel-Allerton, Leeds	" 27
Exeter—Two Residences, Summerland Hill Estate	W. J. Jennings, & Co.	J. Archibald Lucas, F.S.I., Architect, Guildhall Chambers, Exeter	" 27
Cardiff—Repairs to British Volunteer Hotel, The Hayes	W. J. Jennings, & Co.	Veall and Sant, Architects, Cardiff	" 27
Treborth—Residence near Treborth Railway Station	W. J. Jennings, & Co.	Grison and Ballis, Architects, Bangor	" 27
Willesden, N.W.—Three Cottages	W. J. Jennings, & Co.	T. F. Shaw, Architect, 60, Nicopol-road, Harlesden	" 27
Barry Dock—Alterations to 104 and 106, Holton-road	W. J. Jennings, & Co.	D. E. Knapman, M.S.A., Metropolitan Bank Buildings, Barry Dock	" 27
Middlesbrough—Five Shops, Ormesby-road	W. J. Jennings, & Co.	T. H. Bulmer, Atlas Works, Ormesby-road, Middlesbrough	" 27
Leeds—Engine House	W. J. Jennings, & Co.	J. Routledge, Waterloo Main Colliery Offices, Pontefract-lane, Leeds	" 27
Shawford—Caretaker's Residence at Compton Parochial Hall	W. J. Jennings, & Co.	Olson Farrow, and Niblett, 45, Jewry-street, Winchester	" 27
East Kirby—Alterations to Co-operative Stores	W. J. Jennings, & Co.	Lawrence Bright, Architect, 9, St. Peter's Church Walk, Nottingham	" 27
Dunbar—Four-Story Tenements, High-street	W. J. Jennings, & Co.	Swanston and Legge, Architects, Kirkcaldy	" 27
Trebanog—Manager's House	W. J. Jennings, & Co.	Veall and Sant, Architects, Cardiff	" 27
South Croydon—Residence	W. J. Jennings, & Co.	W. Towell, Architect, 21, Buckingham-street, Strand, W.C.	" 27
Cardiff—Block of Offices, Mount Stuart-square	W. J. Jennings, & Co.	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff	" 27
Scunthorpe—Day Schools	W. J. Jennings, & Co.	John M. Dossor, A.R.I.B.A., Architect, 2, Manor-street, Hull	" 27
Bradford—Four Houses, Ounsworth-street, Wakefield-road	W. J. Jennings, & Co.	James Young and Co., Architects, 62, Market-street, Bradford	" 27
Worthing—Wesleyan Church and Schools	W. J. Jennings, & Co.	John Wills, Architect, Victoria Chambers, Derby	" 27
Rochdale—Extension to Premises in Lower Tweedale-street	W. J. Jennings, & Co.	Smith and Cross, Architects, Town Hall Chambers, Rochdale	" 27
Limerick—Roofing Houses, Henry-place	W. J. Jennings, & Co.	E. Fogarty, Architect, Limerick	" 27
Harrietham—Master's House at National Schools	W. J. Jennings, & Co.	Hubert Baasted, Architect, Maidstone	" 27
Leeds—Alterations to Premises, Wade-street	W. J. Jennings, & Co.	J. E. Preston, Architect, Chapel-Allerton, Leeds	" 27
New Benwell—Laundry, &c.	W. J. Jennings, & Co.	J. P. Bennett, Architect, 32, Ridley-place, Newcastle	" 27

## ENGINEERING.

Port Talbot—Main (930 yards of 6in.) in Cwm-Wernderi Valley	Margam Urban District Council	Taylor, Sons, & Santo Crimm, Engs., 27, Gt. George-st., Westminster	June 10
Todwick—Reconstructing Two Bridges	Kiveton Park Rural District Council	Wm. Atkinson, Surveyor, Top Hall, Thorpe Salvin, Worksop	" 10
Perth—Glenfarg Waterworks	County Council	Thomson and Wright, C.E.'s, 22, Rutland-square, Edinburgh	" 10
Blaenavon—Hot-Water Heating Apparatus at Horeb Chapel	District Committee	Benj. Davies, Annie-street, Blaenavon	" 12
Lanark—Waterworks	Corporation	Warren and Stuart, Civil Engineers, 115, Wellington-st., Glasgow	" 12
Huddersfield—Electric Equipment Steam Tram Service	Police Commissioners	The Borough Engineer, 1, Peel-street, Huddersfield	" 12
Ruabon—Storage Reservoir (21,000,000 gallons)	Urban District Council	Dennis and Son, Engineers, Rusbon	" 12
Bathgate—Stone Reservoir at Sunnybraes	District Committee	J. and A. Leslie and Reid, C.E.'s, 72a, George-street, Edinburgh	" 12
Ellon—Artesian Well	Blyth and Cowpen U.D.C.'s	D. Davidson and Garden, 12, Dees-street, Aberdeen	" 12
Oldbury—Bacteria Beds, &c., at Outfall Works, Roway-lane	Committee of Visitors	H. R. Shipton, Engineer, Public Buildings, Oldbury	" 12
Lanark—Waterworks	Cowal District Committee	Warren and Stuart, C.E.'s, 115, Wellington-street, Glasgow	" 12
Blyth—Steam Fire-Engine (200-gallon)	Corporation	R. T. Gutterie, Clerk, Blyth, Northumberland	" 12
Denbigh—Concrete Dam, &c., at Llyn Bran	Assam-Bengal Railway Co., Ltd.	J. T. Wood, M.I.C.E., 3, Cook-street, Liverpool	" 12
Lochgillhead—Concrete Service Tank, &c.	Lancashire and Yorkshire Ry. Co.	Alexander Frew, Engineer, 176, Hope-street, Glasgow	" 12
South Shields—Two Cast-Iron Tanks	Vestry	The Borough Electrical Engineer's Office, West Holborn, S. Shields	" 12
London, E.C.—Triangulated Girder Bridge	London County Council	The Offices, 55 and 56, Bishopsgate-street Within, E.C.	" 12
Bolton—Widening Line through Bolton and Construction of New Goods and Passenger Stations	Urban District Council	The Engineer's Office, Hunts Bank, Manchester	" 13
Hackney—Electricity Supply Mains	Gas Co.	Robert Hammond, M.I.C.E., 64, Victoria-street, S.W.	" 13
London, S.W.—Twin-Screw Fire-Float	North-Eastern Railway Co.	The Clerk's Department, County Hall, Spring Gardens, S.W.	" 13
Athlone—Extensions to Gasworks	Assylum Committee	J. Bradley, Manager, Town Hall, Athlone	" 14
Shotley Bridge—Gasholder Tank and Single-Lift Gasholder	Committee of Visitors	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester	" 14
Co. Durham—Deviation of Redheugh Branch Railway	Rural District Council	Charles A. Harrison, Engineer, Central Station, Newcastle-on-Tyne	" 14
Builth—Two Gauges on Rivers Irfon and Ithon	Public Health Committee	E. Owen, Clerk to Wye Board of Conservators, Builth	" 14
Chartham Downs—Drainage Works, Reservoirs, &c., at Kent	Anglo-Chilian Nitrate & Ry. Co., Ltd.	W. J. Jennings, 4, St. Margaret-street, Canterbury	" 15
County Lunatic Asylum	Electric Lighting Committee	J. T. Wood, M.I.C.E., 3, Cook-street, Liverpool	" 15
Denbigh—Concrete Dam, &c., at Llyn Bran	Guardians	A. Powell, A.M.I.C.E., 3, Unity-street, College Green, Bristol	" 15
Axbridge—Waterworks	Urban District Council	T. Duxbury, Gas Engineer, Town Hall, Middleton, Lancs.	" 15
Middleton—Lancashire Boiler and Two Engines	Wallasay Urban District Council	The City Surveyor's Office, Belfast	" 15
Belfast—Destructor at Lagan Bank-road	London County Council	The Offices, 123, Bishopsgate-street Within, E.C.	" 15
London, E.C.—Two Hauling Engines	Gas Committee	Wilson and Story, 66, Victoria-street, Westminster	" 17
Dudley—Electric Lighting Plant	St. Pancras Guardians	H. A. Badham, Clerk, 22, High-street, Tewkesbury	" 19
Tewkesbury—Weighing-Machine at Workhouse	Rural District Council	W. B. Woodhead and Son, Engineers, 18, Exchange, Bradford	" 19
Ilkley—Reservoir at Gill Head	Rural District Council	W. J. Taylor, County Surveyor, The Castle, Winchester	" 19
Southampton—Widening Quayley's Bridge, Christchurch	Rural District Council	The Ferry Manager, Egremont, Cheshire	" 19
Egremont—Pier Work at New Brighton Ferry	Rural District Council	The Chief Engineer's Dept., County Hall, Spring-gardens, S.W.	" 20
Blackfriars and Deptford—Gangways, Landing Stages, &c.	Rural District Council	The Gas Engineer, Gas Offices, Bloom-street, Salford	" 21
Salford—Elevators, &c., at Liverpool-street Works	Rural District Council	Browett and Taylor, Surveyors, 9, Warwick-croft, Holborn, W.C.	" 22
Dartmouth Park Hill, N.—Fire-Escape Staircases at Infirmary	Rural District Council	The Gas Manager, Guildhall, Carnarvon	" 23
Carnarvon—Purifiers, Engines, &c.	Rural District Council	Joseph Bobington District Surveyor, Willaston, Nantwich	" 23
Nantwich—Bridge over the Crewe Brook	Rural District Council	H. W. Walton, Clerk, Alnwick	" 26
Alnwick—Reservoir (250,000 gallons), &c., at Snabeazes	Rural District Council	N. Lailey, A.M.I.C.E., 16, Great George-street, Westminster	" 26
Guildford—Reconstructing Wiseley Bridge	Rural District Council	H. W. Walton, Clerk, Alnwick	" 27
Alnwick—Repairs to Two Highway Bridges	Rural District Council	The Engineer's Office, Hunt's Bank, Manchester	" 29
Horbury—Railway, &c.	Rural District Council	J. C. Mellish, M.I.C.E., 284, Gresham House, Old Broad-st., E.C.	" 30
North Walsham—Waterworks	Rural District Council	A. H. Mountain, A.M.I.C.E., Surveyor, Town Hall, Wingham	" 30
Withington—Culvert over Leigh Brook, Fallowfield	Rural District Council	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	July 10
Shanghai—Electric Trolley Tramways (23 miles)	Rural District Council	The Public Works Department, Rona	"
Naples—Harbour and Docks (estimated cost £162,400)	Rural District Council	J. A. Nuttall, Architect, Birley-street, Blackpool	"
Blackpool—Electric Lighting Fittings, Masonic Hall	Rural District Council	The Offices of the Agent-General, 112, Victoria-street, S.W.	"
Cape of Good Hope—Railway from Port Elizabeth to Avontuur	Rural District Council		"



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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WILLIAM MORRIS.\*

THERE are few of us alive now who are capable of predicting the duration of the fame of the "poet, artist, manufacturer, and socialist," the story of whose life has been told so well by Mr. Mackail in these two volumes. Our own opinion is that Morris's reputation will augment rather than decrease, as men grow capable of appreciating the motives that influenced him. We ourselves are very unreliable judges, because in connection with the ideal which he pursued through so many paths, but yet with such undeviating constancy, we felt the influence of William Morris very strongly. Like a good many other people who must have become sick of the shams and sophistries of the politics of late years, we found ourselves years ago irresistibly drawn towards the conception of the "New Order," but as disagreeably repelled by the crudity and vulgarity of some of its apostles, and by the glib optimism of others. If anyone who has read Bellamy's "Looking Backward," and then Morris's "News from Nowhere," feels at all as we felt, he will understand at once how William Morris's conception of the order and life and work of the New Society shaped our after-course; if he doesn't, this is not the place in which to attempt to make him, even if it were worth while. To us it seemed that the picture of the free, wholesome, useful life sketched by Morris was indeed something to live and work for; and that his own career was the ever-constant proof of its possibility and reasonableness. To take men and boys, as William Morris did, with no special training or aptitude or fitness about them, and make them craftsmen, was the sanest and surest guarantee of the certainty of the coming days when England shall once more be peopled by self-supporting tillers of the earth, and makers of useful and beautiful things, and not by gangs of mere labourers and factory hands. When that time comes, the claims of William Morris on the gratitude of our children will need no urging; meanwhile those who knew and loved him will owe Mr. Mackail no small obligation for the record of Morris's life and work which these volumes contain.

The son of a well-to-do bill-broker, who married a daughter of one of the Sheltons of Worcestershire, Morris was born at Elm House, Clay Hill, Walthamstow, on March 24, 1834. His parents moved to Woodford when he was six years old, and Epping Forest was practically his playground. Entered at Marlborough College when he was 14, he left in 1851, and after eighteen months' private tuition, went up to Oxford, to Exeter College, where he made the acquaintance of his most intimate and lifelong friend Edward Burne-Jones. Aristocrat and High Churchman, Morris had in these days serious thoughts of devoting his whole fortune to the foundation of a monastery. Street himself, seven years before, had been deeply engaged with a similar idea, and both probably had caught it from the German painters Cornelius and Overbeck, who a generation earlier had actually started such a community in Rome for students of the theory and practice of religious art. But the religious influence at Oxford that bid fair to land both Morris and Burne-Jones in the Roman Church, as it had landed so many more, was on the wane. Price and Faulkner had brought to Oxford actual knowledge of

the horrors of the great industrial centres of England, and though it was not till long afterwards that these things took full hold of Morris, the easy liver and born aristocrat, their perception effectually shattered the dreams of salvation in the revival of monastic institutions. A tour in Normandy in 1855 with Burne-Jones and Fulford helped to develop the architectural and archaeological bias of his mind, and Morris determined that he must be an architect, and in the following January signed articles with Street and began work in that architect's office in Beaumont-street, Oxford, and at once formed a close friendship with Philip Webb, who was then Street's senior clerk, a position he retained till 1859, when his place was taken by Norman Shaw. Full of ardour, Morris worked hard at his new profession, practising various handicrafts—clay modelling, carving, illuminating, and the like in his spare time. Week-ends in London with Burne-Jones and Rossetti seem to have aided to unsettle Morris, and painting rose for a time almost, if not quite, to the first place in his interest. It is possibly quite true that Street's numerous church restorations may have been uncongenial to his pupil, who already had very strong opinions about the rights of ancient buildings. For a time Morris tried six hours a day of architecture and six hours a day of painting, having removed to London with Street, who had by this time transferred his office there; but Rossetti's influence triumphed, and Morris gave up architecture for the easel, and transferred his affections with all his energy. Ceasing to work all day in Street's office, his lodgings in Upper Garden-street became insufficient for himself and Burne-Jones, who shared them. Burne-Jones, too, was poor, and the lodgings were expensive. In the autumn of 1856, accordingly, they moved to 17, Red Lion-square, where they remained till 1859. Round this house clusters much of what Mr. Mackail calls the "mythology" of Morris's earlier life. Whatever may be the truth about some of these stories, there is little doubt that the furnishing of the rooms in Red Lion-square was responsible for the direction of Morris's mind to his subsequent work as a decorator and manufacturer. With the aid of a neighbouring carpenter the rooms were gradually provided with intensely Mediæval furniture, "tables and chairs like incubi and succubi," as Rossetti called them.

The Bohemian life in London had by this time raised Morris's unconventionality, which had always been extreme, to a still more excessive height. To wear long hair, and a soft felt hat, and to smoke a pipe in season and out of season, was still, as in the earlier days of Clive Newcome, the mark of an artist. But Morris exceeded even the customary license of Gandish's. "Morris went to Jones's on Sunday night," runs a note in Miss Price's diary, "while they were here; and his hair was so long and he looked so wild that the servant who opened the door would not let him in, thinking he was a burglar." He forswore dress clothes, and there is a ludicrous story of his ineffectual attempt to get into Hughes's evening trousers when he was going to dine at high table in Christ Church. To go into society was torture to him, and he never took pains to conceal it. One of the tribulations of these months was the task, equally hard in either case, of evading or accepting the invitations of Dr. Henry Acland, whose intimacy with Ruskin and appreciation of the Pre-Raphaelite school led him to offer constant hospitality to the young painters. Once, when they were to dine with Dr. Acland, Morris invented an illness and sent his apologies by Burne-Jones. Unfortunately, Burne-Jones arrived with this message when there still wanted a few minutes to dinner-time. Acland, who was all kindness, instantly, to Burne-Jones's infinite dismay, put on his hat and went round to see the sick man in his lodgings; he was found, apparently in the best of health and spirits, sitting at dinner with Faulkner and playing cribbage over the meal. He had to confess recovery, and he led off to dinner. Another story of the same period is equally characteristic. At dinner one evening in George-street, Prinsep said something, whether intentionally or not, which offended Morris. Everyone expected an outburst of fury. But by a prodigious effort of self-control Morris swallowed his anger, and only bit his fork—one of the common four-pronged fiddle-pattern kind—which was crushed and twisted about almost beyond recognition.

During this period were written some of the finest poems published early in 1858 in "The Defence of Guenevere and other Poems," and on April 26, 1859, William Morris married his wife, Jane Burden, at

St. Michael's Church, Oxford; Dixon, by this time curate of St. Mary's, Lambeth, going down to perform the ceremony. A six weeks' tour to Paris, Belgium, and the Rhine as far as Basle followed, and the married couple returned to London to live in furnished rooms at 41, Great Ormond-street, till Philip Webb could build their house for them on Bexley Heath, near the little village of Upton.

The reaction from early Victorian stucco had just begun to set in, but had not yet begun to produce any visible effect over the country. Nowadays, when the red brick of the common modern country house is to be seen on every roadside, this, the first house that Webb built, might be passed without any remark by a casual traveller. But Mr. Norman Shaw was then a clerk in Street's office; stucco and slate still reigned supreme in all districts where stone was not the native building material; and the name of Red House given to the new building was sufficient to describe it, without ambiguity to all the neighbourhood. Its planning was as original as its material. The type of house which Morris was fond of describing as a square box with a lid was completely abandoned; it was planned as an L-shaped building, two-storied, with a high-pitched roof of red tile. The beautiful oak staircase filled a bold projection in the angle, and corridors ran from it along both the inner walls, so that the rooms on both limbs of the house faced outward on to the garden. The two other sides of this half-quadrangle were masked by rose-trellises, inclosing a square inner court, in the middle of which rose the most striking architectural feature of the building, a well-house of brickwork and oak timber, with a steep conical tiled roof. Externally the house was plain almost to severity, and depended for its effect on its solidity and fine proportion. The decorative features it possessed were constructional, not of the nature of applied ornament: the frankly emphasised relieving arches over the windows, the deep cornice moulding, the louvre in the high open roof over the staircase, and the two spacious recessed porches. Inside, its most remarkable feature was the large drawing-room, which filled the external angle of the L on the upper floor. It looked by its main end window northwards towards the road and the open country; and a projecting oriel in the western side overlooked the long bowling-green, which ran, encircled with apple-trees, close under the length of that wing. The decoration of this room, and of the staircase by which it was reached, was to be the work of several years for Morris and his friends: and he boldly announced that he meant to make it the most beautiful room in England. But through the whole house, inside and out, the same ideal standard was, so far as possible, to be kept up.

The difficulties of furnishing the Red House according to Morris's mind helped along the suggestion of the firm of Morris and Company, largely due to Madox Brown, and still more to Rossetti. Church decoration was at first the main business of the firm, which consisted of Morris, Burne-Jones, Madox Brown, Philip Webb, Rossetti, Peter Paul Marshall, a surveyor, and Faulkner, who had given up Oxford for civil engineering. Arthur Hughes was at first included, but withdrew before the firm was formally registered. The capital was not a large one. The firm began with a call of £1 per share, and on this and a loan of £100 from Mrs. Morris, of Leyton, the first year's trading was done. Premises were taken at 8, Red Lion-square, a few doors from Morris and Burne-Jones's old rooms. The foreman was a glass-painter, Mr. George Campfield, who had come under Morris's notice as a pupil at the Working Men's College. Mr. Campfield is still in the employ of the firm at Merton Abbey. In January, 1862, a further call of £19 a share was made, raising the paid-up capital to £140, which was never increased till the dissolution of the firm in 1874. Morris and others had, of course, to lend the firm money, and his resources, and in a still greater degree his business-like sagacity and unwearied industry, were the mainstay of the business. Stained glass, decorated furniture, tapestries, &c., were the staple productions at first; the chintzes, paperhangings, and carpets followed in later years. The well-known trellis paper was the first designed, the rose-trellis by Morris, and the birds by Webb. The Daisy paper, though not the first designed, was the first placed in the market. It was at first attempted to print the papers in oil from etched zinc plates; but the process proved tedious and unsatisfactory, and it was soon given up, and the design was recut in pear-tree blocks, and printed in the ordinary dystemper by Messrs. Jeffrey and Co., of Essex-road, Islington, the success of that part of the work depending almost wholly on the care and attention of Mr.

\* The Life of William Morris. By J. W. MACKAIL. London: Longmans, Green, and Co. 32s. Two vols.



Metford Warner, the managing partner of Messrs. Jeffrey and Co. In 1865 the firm moved to Queen-square, at No. 26 on the east side, since demolished to make room for an extension of the Hospital for the Paralyzed and Epileptic. Morris having given up the Red House at Upton, took up his residence there, and for the next seventeen years it was the headquarters of his work. The business now began rapidly to extend, thanks mainly to the capability and energy of Mr. George Warrington Taylor, who became its business manager in 1865, and remained such till his death in 1870. Leisure began to grow on Morris's hands, and he resumed, in new forms, the writing of poetry. "The Life and Death of Jason" appeared in June, 1867; the first volume of "The Earthly Paradise" followed in 1868, and, eighteen months later, the second, and the remainder about the end of 1870. In 1873 the workshops in Queen-square had begun to encroach so on the living part of the house that Morris removed to a little house on the Turnham Green-road. Disagreements between the partners began soon after to arise, and, at last, in March, 1875, it was dissolved, and it was announced that henceforth it would be carried on under Morris's sole management and proprietorship. This change seems to have snapped the chain of attachment between Morris and Rossetti, which had long been weakening, and to have caused a breach with Madox Brown, which, however, was healed in later years. Some two years before this Morris had taken Kelmscott Manor House on the upper Thames, thirty miles from Oxford, and in 1878 he took a new house in London, on the Upper Mall at Hammersmith, which he renamed Kelmscott House, after his other home on the same river, and in which he lived for the rest of his life.

For years it had been Morris's desire to transfer the works of his business to some place out of London, and the increasing work made the matter more urgent, as the opening of the separate counting-house and showrooms in Oxford-street made it more practicable. His own first desire was to shift to the neighbourhood of Kelmscott; then Hemel Hempstead and Isleworth were thought of; but the move was finally made to Merton Abbey in Surrey. Many readers, doubtless, have visited that quaint group of sheds and barns by the side of a millpond. If any have ever come away without heartily wishing that every "art-factory" in the land might be demolished to-morrow, and that all over England handicraftsmen might be trained and set to work under similar conditions and amid similar surroundings, he must be of a very satisfied mind with the modern system of "art-manufacture"! We well remember our last visit to the place, and the delight with which Keir Hardie, who accompanied us, contrasted the lot of the workers there with that of his own earlier life in the coal-mine! If William Morris had done nothing more all his lifetime than found and develop the object-lesson he left behind him at Merton Abbey, his claim on the gratitude of future emancipated generations of the common folk of England would rank higher than that of many politicians and "labour-leaders."

Of his more generally recognised work as a Socialist, this is not the place to speak. We need only advise those who failed to understand Morris's position carefully to read the statement as to his motives and convictions, which will be found in the second volume. Like Arnold, he had come to take no very ardent interest in English politics. What interested him was English civilisation; and few honest, thoughtful men, to-day, if they tell themselves the truth, will deny that politics have very little bearing on that! Morris hoped—as many of us have hoped—that at the touch of an external impulse leaders among the workers might arise with

whom he might be permitted to work for better social conditions. He had to realise, after years of disappointment, that the time for this had not yet come. But there was no turning back:—

This renunciation of his own class at all events, so far as such a thing could be actually done, presented itself to him as a step which now more than ever would have, so far as he himself was concerned, real value and significance. His position in the eyes of the world was more than respectable; it might even be described, within limits, as famous. He had a recognised place in the first rank of living poets. He was no less recognised as an authority on all matters relating to the theory and practice of the decorative arts. He was a well-known and (in spite of the temporary embarrassments which attended the first year of the work at Merton Abbey) a prosperous manufacturer, whose goods travelled far, and carried their own guarantee of excellence in design and workmanship. He might speak of renunciation as one who had something not inconsiderable to renounce. Just at the moment when he was making up his mind to take some decisive step, he was unanimously elected an Honorary Fellow of his College at Oxford; a distinction which, always rare, is generally reserved for old members who have attained the highest official rank in their profession, and implies a tribute to very special distinction in one who is not a Bishop or a Privy Councillor. This honour was conferred on him on the 13th of January, 1883. He had gone down to Bournemouth that day to see his daughter. "Such a pile of letters I found waiting me," he wrote to her on the 17th, after coming back to London, "some of them like those of David Copperfield after he had become an author." That same day he enrolled himself as a member of the Democratic Federation.

On his card of membership, which is signed by H. H. Champion, he is described as "William Morris, designer." It was on his status as a workman that he based his claim to admission into the fighting rank of a working-class movement. The step, which in a sense cut him definitely away from respectability, was in no way a merely formal one. He took it with a full sense of its import. "I am truly glad," were his words, with something of the grave joy of a convert, "that I have joined the only society I could find which is definitely Socialist." His support of the new movement, even before he formally joined it, had not been confined to theoretical sympathy. In the previous October he had sold the greater part of his valuable library, in order to devote the proceeds to the furtherance of Socialism.

The drain on his resources was heavy during the whole of his connection with the movement; but he seldom complained, and when at last he severed his official connection with the Socialist League, which was a split-off from the Social Democrat Federation, from which differences with the organisers of that body had caused his resignation, we find him, in November, 1890, very calmly and rationally reviewing his position:—

"It is now some seven years," he writes, "since Socialism came to life again in this country. To some the time will seem long, so many hopes and disappointments as have been crowded into them. Yet in the history of a serious movement seven years is a short time enough; and few movements surely have made so much progress during this short time in one way or another as Socialism has done."

"For what was it which we set out to accomplish? To change the system of society on which the tremendous fabric of civilisation is founded, and which has been built up by centuries of conflict with older and dying systems and crowned by the victory of modern civilisation over the material surroundings of life. Could seven years make any visible impression on such a tremendous undertaking as this?"

"Consider, too, the quality of those who began and carried on this business of reversing the basis of modern society! A few working men, less successful even in the wretched life of labour than their fellows; a sprinkling of the intellectual proletariat, whose keen pushing of Socialism must have seemed pretty certain to extinguish their limited chances of prosperity; one or two outsiders in the game political; a few refugees from the bureaucratic tyranny of foreign Governments; and here and there an unpractical, half-cracked artist or author."

"Yet, such as they were, they were enough to do something. Through them, though not by them, the seven years of the new movement toward freedom have, contrary to all that might have been expected, impressed the idea of Socialism deeply on the epoch."

Too deeply, one trusts, ever to disappear again. Whatever wholesome influences may broaden and extend that impression, none will be more salutary than that of William Morris.

The last years of the poet-artist's life witnessed the awakening of a new interest—in the art of printing, with the happiest results. Had he lived to the age of Methuselah, every succeeding decade would probably have found him attacking some new branch of craftsmanship, so busy was the brain, so untiring the industry of the never-tiring worker. But Morris had not inherited the constitution of a long-liver from his father's family, and domestic anxieties had told on him, and during the summer of 1895 the gradual failure of his strength became noticeable. With the turn of the year the weakness became more pronounced. In the

autumn of 1896 he was sent, not wisely many have thought, to Norway in search of health. When he returned he was evidently a dying man, and on the morning of the 3rd of October he died quietly and without visible suffering. His disease, as his family doctor said, was "simply being William Morris, and having done more work than most men." "I have had a jolly life, on the whole," said Morris to a friend of ours, not long before his voyage to Norway. Doubtless it was, as with most workers, its own best reward.

## ESTIMATES.—X.

BATH STONE, ETC.

THE labour on Bath stone is about 40 per cent. less than Portland stone, which is the chief reason of its large employment in London and elsewhere. It has been priced at about 25 per cent. less than Portland. As an approximative mode of estimating, a deduction of this percentage may be made from Portland stone for similar items. The price per cubic foot for Box Ground Bath stone at Nine Elms station is given at 1s 6<sup>3</sup>/<sub>4</sub>d. by Laxton; price on railway trucks at quarry, 11d. per foot cube. In ashlar work of an average thickness of 4in., and in courses from 4in. to 14in. high, including one bonder to each super. yard, all worked ready for fixing, the price quoted at the loading station for Box Ground stone is only 5<sup>1</sup>/<sub>4</sub>d. per foot super.; add to this the carriage, hoisting, and setting, say 1s. 6d. per foot super. The prices for labour are proportionately low. Thus the quarry prices quoted for labour on Corsham Down stone by the Bath Stone Firms, Ltd., are given in Laxton, from which we quote:—

	£	s.	d.
Sawn face .....	per foot super	is	0 0 1 <sup>1</sup> / <sub>2</sub>
Beds and joints .....	ditto	0 0 2	
Ditto ditto sunk .....	ditto	0 0 3 <sup>1</sup> / <sub>4</sub>	
Ditto ditto circular .....	ditto	0 0 5 <sup>1</sup> / <sub>4</sub>	
Plain face .....	ditto	0 0 2 <sup>1</sup> / <sub>4</sub>	
Ditto circular .....	ditto	0 0 3 <sup>1</sup> / <sub>4</sub>	
Sunk face, average 2in. deep .....	ditto	0 0 5 <sup>1</sup> / <sub>4</sub>	
Ditto stopped .....	ditto	0 0 6 <sup>1</sup> / <sub>4</sub>	
Moulded work .....	ditto	0 0 9	
Ditto stopped one end .....	ditto	0 1 1 <sup>1</sup> / <sub>4</sub>	
Ditto ditto both ends .....	ditto	0 1 3	
Ditto circular .....	ditto	0 1 0	

Labour on Box Ground stone is about 10 per cent. more than the above, owing to the greater hardness of Box Ground stone compared with Corsham.

For special or large items of Bath stone-work apply to a large stone merchant, or any of the well-known quarry owners or masonry contractors, such as the Bath Stone Firms, Limited, for quotation of price.

We now resume the other items in Portland stone bill:—

No. 10. Cement joggle joints.

These joints will take each half an hour, say 5d. each.

No. 10. Slate dowels in mortises in cement.

The mortises are about 2in. super., 3d. each. The slate dowel 1in. square by 4in. is worth 2d., cement say 1d. The two mortises are 6d., the slate dowel 2d., and the cement 1d., in all 9d. each.

3,560ft. super. Portland stone ashlar 4in. on bed, of varying heights, set in fine mortar and cleaned down.

This can be done at about 2s. 8d. per foot super., or at about 7s. 6d. per foot cube. If there are bond stones, say 6ft. apart, add 1s. per foot super., or 3s. 9d. The price of this item will largely depend on quantity, and a price should be obtained.

120ft. super. Portland stone landings rubbed on face and soffit, including pinning, setting, and scaffolding 3in. thick.

The price at the London depot for 3in. would be about 1s. 3d. per foot super. Add cost of carriage, say 3d., hoisting and setting 6<sup>1</sup>/<sub>4</sub>d., scaffolding 6d., would be about 2s. 6<sup>1</sup>/<sub>4</sub>d. Laxton prices a similar item at 3s. 9d. per foot super.



30ft. run. Cutting and pinning to landings and steps in cement.

Put this at 1s. 2. per foot.

96ft. run. 13in. by 3in. spandrel steps, rubbed all round, splayed soffit and splay rebated (see sketch).

The price of this may be put at about 4s. per foot run. To take one step, say 4ft.

	£	s.	d.
2ft. cube of Portland stone at, say, 3s. 6d.	0	7	0
6ft. super. plain face to tread and riser at 8d.	0	4	0
1ft. 4in. super. sunk rebate at 1s. 2d.	0	1	6
Plain face to splayed soffit 3ft. 6in.	0	2	6
Rubbed, 9ft. super. at 2d.	0	1	6

Cost of one step ..... 0 16 6

Equal to about 4s. per foot run.

No. 24. Fair ends.

Put these at 1s. each.

No. 1. Step with semicircular end.

Say, about 1s. 6d. extra.

96ft. run. 15in. by 8in. spandrel steps, with moulded nosings, rubbed all round, splay rebated, with two square ends for building in (see section), 4ft. long.

These would contain more stone, about 3ft. 4in. cube each, the ends being solid for building-in, say, 4s. extra per step, and add for moulded nosings 10d. per foot run, say 2s. per foot run.

No. 6. Spandrel-shaped steps as winders, 6ft. by 18in. by 8in.

These would require about 4in. to 6in. more cube stone each, and more labour, rubbing and fixing, for which add 2s. 9d. each step.

No. 1. Moulded curtail step, built in, about 6ft. long.

Add to former extra stone 1s. 9d., say 3s. for circular moulded end.

4,250ft. super. Bath stone (Box Ground) ashlar, 4in. on bed, set and cleaned down.

This may be put at about 40 per cent. less than Portland ashlar of the same thickness, say 1s. 6d. per foot super.

3,200ft. super. Box Ground ashlar, 6in. on bed, with bond stones 6ft. apart, each containing 18in. cube stone, set and cleaned down.

Add for extra thickness of bed 6d. If the bond stones are 1ft. on face and 18in. in bed, there would be 1c.ft. to add to every 6ft., or one-sixth of a cubic foot to each foot super., and if the price per cubic foot of this stone is 3s. 3d., including waste cartage, hoisting, and setting, we may add 6½d.

	£	s.	d.
Cost of ashlar 6in. on bed, hoisting and setting	0	2	0
Extra cost of bond stones, one-sixth of cubic foot, at 3s. 3d. per foot cube	0	0	6½

Per foot super. .... 0 2 6½

1,165ft. cube Box Ground stone to quoins, window-jamb, and lintels, of the sizes shown in drawings, and hoisting and setting, &c.

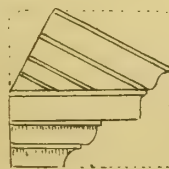
Before affixing a price to this item the estimator should examine the details; but for ordinary dressings of plain character with little or no moulded work the work may be priced at from 2s. 9d. to 3s. 6d. per cube foot. A more correct way would be to take out rough quantities of a few quoin stones and labour on them, the jambs and lintels of windows, the pilasters, and string-courses, cornice, &c., a few feet of each, and so obtain the average value of a foot cube of these several items.

In pricing a stone pediment, it is desirable to take rough quantities of the springing or angle stones where the horizontal part of cornice and raking pediment meet, and also of the apex stone. We give sketches (1 and 2) of these stones. The dotted lines will show the cube block and the amount of sinking

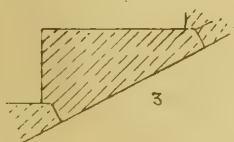
and moulded work. There would be two sunk faces to the moulded part in front and on the return, sunk-joint at top, and splay sunk, in addition to bed and joint and plain face at back. The labour on each stone would probably cost 5s. or 6s. per foot cube if of Portland, and about half that if in Bath stone. The apex-stone would also have a bed plain face back and front; two sunk joints where the raking portion of cornice joins sunk and moulded face mitre, which would have to be priced. These three stones being taken in cube stone with the labours on them, and a 3ft. length of the straight cornice, an



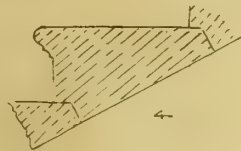
1



2



3



4

average may be obtained of the price per foot run of the cornice round the pediment.

In pricing a Gothic gable and coping, there would also be the two "kneelers" or corbel-stones at the springing, and the apex-stone. Each "kneeler" would have ½ bed and joint, two plain faces, two sunk faces, moulding on three sides, and moulding of corbel. The apex-stone would have for its labours a bed, plain face back and front; two sunk joints for coping, a sunk-face to front, sunk work stopped to back and front, moulding and mitres. The labour on Bath-stone for plain work of this description may be priced at 3s.

Quarry-worked Yorkshire stone is generally supplied in the form of templates, pavings, landings, steps, hearths, window sills, bases for columns, &c. Tooled 2½in. paving may be supplied within four miles of London depot for 8d. per foot super., 3in. paving for 9d., rubbed 2½in paving would be about 1d. more per foot than tooled.

220ft. super. York tooled 3in. paving in parallel courses and laying.

	£	s.	d.
Say the cost of tooled paving at depot is	0	0	9
Add cartage	0	0	2
For cutting for parallel course	0	0	3
Waste	0	0	1
Mortar	0	0	1
	0	1	4

If the paving is rubbed add 3d.

16ft. super. 3in. York stone tooled landings, including hoisting, pinning, and setting.

	£	s.	d.
Stone at depot, per foot super.	0	1	2
Cartage	0	0	2
Plain work to faces	0	1	0
Pinning and setting	0	0	4
	0	2	8

12ft. super. Self-faced landing of York stone.

The price of 3in. York landings delivered is about 1s. 3d. per foot super.

	£	s.	d.
Say cost of stone is	0	1	3
Tooling edges, &c.	0	0	3
10 per cent. waste	0	0	1½
	0	1	7½

18ft. run. 11in. by 3in. sawn York sill, throated and grooved for iron tongue.

Call 11in. a foot, then say:—

	£	s.	d.
3in. sawn stone costs, say, per foot super.	0	1	3
Waste	0	0	2
Sawing, grooving, throating, and setting	0	0	6
	0	1	11
Profit, 10 per cent.	0	0	2
Per foot run	0	2	1

32ft. run. York window-sills 8in. by 3in., rubbed, weathered, and throated and fixed.

We may price this item at 1s. 10d. for Robin Hood stone, and for hard York 2s. per foot run. Fair ends for these may be taken at 3d. each.

16ft. run. Groove for tongue.

The groove would be about ½in. deep, and ½in. wide. Taking the mason's time, we should say a groove would cost 1½d. to 1¾d. per foot. Some estimators have put throat and groove together as low as ¾d.

48ft. run. Tooled York treads, 12in. by 2½in.

If coped out of 2½in. paving, the price for this may be put down at 1s. 1d., add to this tooling to edge, say 4d., setting and profit, say 4d., in all, 1s. 9d. per foot.

20ft. run. 10in. by 6in. York steps, gauged to thickness and fixed (in 4ft. lengths or steps).

	£	s.	d.
Say about ½ cube foot, per foot run	0	1	6
Surfaces tooled, 1ft. 3in. super.	0	1	8
Fixing	0	0	2
Cost of 1ft.	0	3	4

#### DUDLEY GALLERY ART SOCIETY.

THE summer exhibition of water-colour pictures and sketches at the Egyptian Hall opens with a display the average merit of which is discouraging. The novice is still strongly in evidence. We see his workmanship in crudely-drawn figure subjects, and in mannered landscapes and weak motives. Our notes are reserved for a few of the better works. Broadly treated are C. Talbot Davenport's views, "Kew Bridge" (6), "Still Evening" (27), and "A Lonely Cottage." Miss Margaret Bernard's decisive and full-brush sketches of "Criel, Billericay, Essex" (15), "Street in St. Ives" (57), "Marshes, Wilts," (75), are pleasing and simple first impressions; the handling of light and colour is firm and brilliant. A large water-colour study of a broad sunset landscape, by Sylvester Stannard, prompted by a well-known verse in Gray's "Elegy," commencing:—

Now fades the glimmering landscape on the sight,  
And all the air a solemn stillness holds

has caught the poet's sentiment. The red glow in the sky, the sheep wending their homeward way, and the fading landscape are feelingly painted. Bessie Wigan, in her vivid colouring of flowering herbage on hills (14), and in one or two other subjects, shows a true instinct for nature. Several other lady contributors are to be noticed, and we here mention Mrs. R. C. Foster's "Fittleworth" (28), Miss J. A. Gilchrist's "Poppyland, Wells, Norfolk" (25), Mrs. Clutterbuck's "On the Campagna" (24). "No Sign of the Boats" (36), by Miss Lucy Miller, is a sympathetic study of coast life. Two fisherwomen and children on a cliff overlooking the sea are straining their eyes to catch a glimpse of the boats that bear the bread-winner home. The fading light and colour are appropriate. The same lady's penchant for fisher life is shown also in her Dutch sketch (59), a beach with a group of fisherfolk walking along the sands—a fresh sea coming in. "Peace at Eve" (63), by C. Duassat, is a quiet landscape and church, with patches of water in foreground and a distant



village reposeful. Rose Hake is a dexterous draughtswoman; her "Cobham College, Kent," with its curious corner arch, is a nice sketch of a stone building. Another talented lady artist is Evangeline Jex Blake, whose work is always attractive. Her sketch of "Fountain at St. Lo" (53), is a clear liquid-wash sketch, very sharp and brilliant in handling of the light and shadow; so also is her "After Rain, Teignmouth," broad and full of colour. We must also approvingly mention Hely Smith's "Arab Caravan" (45), a spirited sketch of Arabs in the desert; J. Paul Brinson's "Welsh Moorland," a broad landscape in brown and grey tones; Edith A. Langdon's "Old Farm" (42). Arthur Verey's "River Yare" is hard, and Sir William Eden, Bart., who sends a number of sketches, has spoiled his drawing of the "Temple of Dendera" by the crooked column on the right. William Affleck in "June Roses" and "Gorgeous Flowerets" are careful studies of rustic maidens in fields, with banks of wild roses and flowering grass (83 and 86).

The best work of the president, Mr. Walter Severn, who has four views of scenery, is "River Doon below Burns's Cottage" (125), a tranquil view of a charming spot. His large hilly landscape "Inverary in Autumn," with trees in bright autumn tint of gold and red (97), is a delightful scene; but the trees have a mannered look, and his smooth, reflecting rippled surfaces are a little too placid. A nice boat sketch is by Hely Smith (101). A very charming study of an old woman, "A Lace Maker" (104), by Mary A. Sloane, rich in tone and colour, is one of the few subject pictures of merit; and for its religious fervour, Miss Lucy Miller's "The Evening Prayer," peasant girls kneeling before a Crucifix in a harvest field, may be noted; and we notice further on some sunset studies by L. Burleigh Bruhl (105 and 106).

Nice tone in pearly hues is seen in F. Jas. Aldridge's "Summer Weather on the Thames." One of the few subject-pictures of a poetical kind is Lerdex L. Pocock's "The Romaine of Margaret" (118), where the "fair lady" is seated by the river side. The drawing and colour are at least satisfactory. The same painter's "Flight of Margaret of Anjou and Prince Edward, 1464" (256), in a dark wood, shows a careful study of costume, and the colour is agreeable. The young prince looks frightened. No. 129, "The Winter Evening," by Maud Peel, a young mother and her child passing along a dark passage by a lighted church is pathetic and well painted, and the same lady's "Golden Autumn" and "Mill in the Cornfield" (159, 160) are clever sketches in warm colour. A nice sketch of "Whitby" (135), by Frances E. Nesbitt, and the river sketches in Oudh, by R. H. Shields, and by Miss Mary Sloane, "Sunset" (157), a study of sky, a "note" of landscape effect, may be noticed in passing. Alice Woodhouse's "West Door, Salisbury" (175), is better in colour than drawing. The drawing of Miss Maude M. Turner (216), a cottage interior, a little girl looking at a picture-book, with a blue jug of daffodils by her side, is pleasing as a colour study. Hebe Alexander's landscape evening effect, blue and golden sunset; N. E. Green's "View at Maggiore" (220), Percy Dixon (229) "Sandy Beach," and Albert Stevens's huge view "Castle of Chillon" (228), with its bank of foliage and rocks and mist-veiled hills, full of light and colour, and his bird's-eye view of "Monaco and Monte Carlo" (236), showing the coast under a veil of haze, is clever. We can only name George Mark's massive foliage and purple heather (247), J. Twigg's bright bit of colour "Madeleine Flower Market, Paris" (240), Miss Mary Steven's brilliant "Old Market," and the same lady's fine "View at Chamouix," a hayfield carpeted with wild flowers, below a mountain range, and some careful drawings by Chas. J. Adams, H. Sylvester Stannard (306); B.J.M. Donne, an Alpine effect, and his "Iris" (371), and other brilliant light and atmosphere studies and sketches, by Miss Margaret Rose (374), C. Duassut, &c. The popular and saleable kind of subjects are those which find favour in this Gallery.

#### ROYAL ARCHITECTURAL MUSEUM.

THE yearly meeting of this Institution took place on Thursday in last week at Tufston-street in the large hall of the Museum. The Duke of Westminster, the President, at the last

moment was unable to preside, being detained at the House of Lords. The chair was occupied in his absence by Mr. John P. Seddon, chairman of the school committee. The hall was well filled by students and their friends, and the proceedings were of a very hearty character. Among the council present were Mr. Aston Webb, A.R.A., Mr. J. H. Pollen, Mr. E. L. Somers Cocks, the treasurer, Mr. Chas. Foster Hayward, Mr. Sidney Lee, Mr. William Pain, the secretary of the School of Art, and Mr. Maurice B. Adams, hon. sec. The following report was adopted, and Sir Arthur Blomfield, A.R.A., was added to the list of vice-presidents. The Duke of Westminster was re-elected president.

The council, in presenting their report for 1898, record the loss of some of the oldest and staunchest supporters of the institution, notably of Mr. Walter Carew Cocks and Professor T. Hayter Lewis, F.S.A.

During the year the new classrooms added to the museum on the south side have been completed, furnished, and occupied, and have been extremely useful.

The results of the examinations held in 1898 were, on the whole, very satisfactory. In 1897 (as was stated in last year's report) the number of candidates from the Westminster School of Art who were presented in the most advanced subject, drawing from the life, was 61, of whom only two failed. It was scarcely to be expected that this remarkable result could be repeated, but in 1898 there were 64 candidates, and again only two failed. To form an adequate estimate of this remarkable success, the local figures are appended in juxtaposition with the results of the whole of the United Kingdom, viz.:—

	Westminster School of Art.	United Kingdom.
Excellent .....	9	92
First class .....	17	192
Second class .....	86	738
Failed .....	2	330
Total candidates .....	64	1,350

It will thus be seen that the failures in this subject were only 1 in 30, as against 1 in 4 for the kingdom generally.

Five "Queen's Prizes" were awarded to students of the Westminster School of Art—viz: John Shopland, bracketed first amongst 1,350 candidates in Drawing from Life. John H. Harmstone and Geoffrey F. Webb, bracketed sixth amongst 1,744 candidates in Drawing from Antique. Gertrude Brodie, placed second amongst 537 candidates in Anatomy. Robt. W. Boussey, bracketed first amongst 627 candidates in Modelling Design (Advanced).

In the National Competition, also, the work sent up from this school of art was more than usually successful. Six students obtained prizes—viz., Albert J. Baker and Frances Drummond, book prizes for drawing from the life; Millicent J. Owen, book prize for a modelled mirror-frame; Edgar G. Vernon, bronze medal for design for a fireplace; James Begg, silver medal for a modelled design for a door-knocker; and Henry J. Strutt, the much-coveted prize of a gold medal for a modelled panel or grille for a music-room. At the request of the Science and Art Department, some of these works were subsequently sent with others to an exhibition at the Royal Industrial Art Museum at Budapest, and thence to Vienna and other places, and ultimately Mr. Strutt's gold medal work was purchased by the Austro-Hungarian Government.

The Council feel that, while these successes redound to the credit of the school, it is but fair to add a word of cordial congratulation to Mr. Moutat Loudan, Mr. J. Holgate, and Mr. F. E. E. Schenck, to whose careful and judicious teaching they are so greatly due.

In conclusion, it is satisfactory to observe that, notwithstanding the heavy and exceptional expenditure of the last two years, the finances of the Institution are in a satisfactory condition.

Sir Wyke Bayliss, P.R.S.B.A., delivered an impassioned and encouraging address to the old students, entitled "The Bogey in the Studio." The lecturer traversed the fallacy of much which passes for criticism in dealing with art questions of the day, and scouted the Bogey embodied in the term of reproach a "pot-boiler," seeing that every serious and honest worker was entitled to labour that he might live. The greatest works of art which the world has ever seen were produced under such conditions, and very often the worker laboured midst the most unlovely surroundings, and worked under great disadvantages, against odds, and in the face of

disparagement. There was the bogey of the common-place, and he urged artists to remember that they should get more into their pictures than they could find in their paint-boxes. All art worthy of the name began in paint and ended in passion. The artist should not only be a seer, but a revealer. Another bogey was the one which would fain persuade a man that he was an artist because he knew something about technique, or had an appreciative mind for the beautiful. True art was, he asserted, the property of no class, age, or people; the birth-right of every true art worker remained, and the pessimist's cry about the age of the decadence was a Bogey, to be seized by the throat and vanquished if ever good work was to be done, as it is done every day by those whose individuality and sense of proportion enable them to kick out such-like Bogeys from their studies and studios.

#### THE ADMINISTRATION OF BUILDING BY-LAWS IN NON-METROPOLITAN DISTRICTS.

A BUSINESS meeting of the Royal Institute of British Architects was held at 9, Conduit-street, W., on Monday evening, to receive and consider the report of the special committee appointed by Council as to the administration of building by-laws in non-metropolitan districts.

Mr. JOHN SLATER, B.A., chairman of the special committee, presided, and moved the adoption of the following report, which he stated had been recommended by the council for approval:—

The Committee have considered the present condition of building by-laws in England outside the County of London, and their administration.

Some of the larger municipalities are governed in these respects under private Acts of Parliament; but the great majority of boroughs and urban districts have adopted by-laws under the Public Health Acts which have been confirmed by the Local Government Board, and they are for the most part founded on, though they do not absolutely follow, the Model By-laws issued by that Board.

Around some of the larger centres of population there are urban districts which have obtained the sanction of the Local Government Board to building by-laws varying in several particulars from the Model By-laws and from one another. This want of uniformity in districts closely adjacent causes inconvenience and irritation to building proprietors as well as to architects.

It is within the powers of rural sanitary authorities to apply for and obtain from the Local Government Board "urban powers," which have been freely granted. They can then adopt the whole of the Model By-laws.

When adopted the By-laws become operative not only in that part of the district which is crowded, but also in its suburbs and outlying districts; and thus a rural district, often extending for miles round the large village or small town which forms its centre, has just the same building regulations as a crowded town.

It is the experience of the Committee that some of the by-laws thus introduced are not well adapted for general use throughout the country, and when applied in connection with ordinary buildings over large areas of a purely rural character, they become oppressive.

The enforcement of unnecessary regulations in respect of matters in which the public has no practical interest seems to the committee an improper interference with the liberty of the subject.

It gives useless trouble to local authorities.

It multiplies undesirably officials to be paid out of the rates.

It adds unreasonably to the cost of building.

It promotes monotony in design, stultifies invention, and prevents improvement.

It occasionally stops building. More particularly it discourages the erection of cottages for the labouring classes by landed proprietors on their country estates.

Recognising the necessity for such building by-laws as are proved to be essential to the safety or health of the public, and desiring that the by-laws relating to the same subject should, as far as practicable, be alike throughout the country, the Committee suggest that the model by-laws should be grouped in divisions as detailed below, in order that buildings in rural localities may be relieved from those divisions which appear inapplicable in such places. In an Appendix they deal in detail with each division so far as amendment appears to them needed therein.

#### Suggested Divisions.

A. Definition of Terms and Exempted Buildings

[Model By-laws 1 and 2].

B. New Streets [3-8].

C. Space about Buildings and Area of Windows [53-58].



- D. Structure of Party Walls [25-32].  
 E. Structure of Walls, Foundations, Roofs, and Chimneys [11-23, 33, 34, 36-52].  
 F. Sanitation, Preparation of Site, and Drainage [9, 10, 17, 52A, 60-89].

In rural districts the Committee consider that A, D, and F would suffice. It might be desirable to add B in the case of any part of a rural district likely to become urban.

Possibly E might be added, to apply only to large public buildings, warehouses, and factories of considerable height. Ordinary shops should not be regarded as other than domestic buildings.

In towns where a competent building surveyor of experience is engaged, the whole of the by-laws should be in force. In such places exemptions from certain divisions of the by-laws should be made applicable to particular buildings rather than to districts. The Committee are of opinion that in no case should the exemptions extend to sanitary matters. The exemptions they suggest are set forth in the Appendix, Division A, No. 2.

It appears to the Committee that no model by-laws can be considered complete which do not include those to be enforced by local authorities with respect to the staircases and exits of public buildings and factories, even though authorised otherwise than under the Public Health Acts.

It is of great importance that the requirements of the local authorities as to the deposit of drawings should be reasonable, and that they should be explicitly stated. The committee suggest that in all cases a block plan, with the lines and depths of drainage shown thereon, together with the nearest public roadway and adjoining premises within 100ft. of the proposed building, should be deposited, and that, where required, plans and sections (together with elevations, if needful to explain methods of construction) should be submitted for inspection during a defined and limited time; which drawings should be then returned, stamped, if approved, or, if not approved, accompanied by a precise statement of the particulars in which the by-laws have not been complied with.

It would be of great advantage if an appeal could be provided to a technical authority as to the meaning and applicability of by-laws.

The Committee have the honour to lay this Report, with the Appendix, before the Council of the Royal Institute of British Architects, and request that it may be submitted to a general meeting.

It might be well to forward copies to the allied societies, for their consideration, before the meeting is called.

On the report being adopted, the Committee suggest that the Institute should request the Local Government Board to receive a deputation, whose objects would be to point out to the Board the desirability of altering some of their Model By-laws and arrange them in divisions, and to request the board to take such steps as may be necessary to bring the new method of administering the by-laws before the notice of the local authorities.

The influence of those who are interested in building would have to be brought to bear upon the local authorities to urge them to give effect to the proposed measures of relief by adopting such, and such only, of the divisions of the by-laws as would be applicable to their districts or to different portions thereof.

#### SYNOPSIS OF MODEL BY-LAWS AS ISSUED BY THE LOCAL GOVERNMENT BOARD.

No.	Division.
1. Interpretation of terms ....	See Appendix, A.
2. Exemptions.....	See Appendix, A.
3-6. New streets. Retain ....	B.
7. New streets.....	See Appendix, B.
8. New streets. Retain ....	B.
9. 10, 10a, 10b. Sites. Retain..	F.
11. 12. Walls.....	See Appendix, E.
13-16. Walls. Retain.....	E.
17. Damp-course.....	See Appendix, F.
18, 19, 20, 21. Walls.....	See Appendix, E.
22, 23. Walls. Retain.....	E.
24. Wood in external walls. Omit	
25-32. Party-walls.....	See Appendix, D.
33, 34. Support of timbers. Retain	E.
35. Brick nogging. Omit.	
36-51. Chimneys, &c. Retain..	E.
52. Roofs. Retain.....	E.
52a, 60a. Water on roofs, &c..	See Appendix, F.
53, 54. Open spaces.....	See Appendix, C.
56, 57. Windows.....	See Appendix, C.
Heights of stories. Omit.	
56. Ventilation under floors.)	
Retain.....	C.
58. Ventilation of rooms. Retain	C.
59. Ventilation of public buildings. Omit.	
60. Subsoil. Retain.....	F.
61-64. Drainage. Retain.....	F.
65. Drainage.....	See Appendix, F.
66-79. Drainage. Retain.....	F.
80-85. Ashpits. Retain.....	F.
86-89. Cesspools.....	See Appendix, F.
91, 92. Notices and plans.....	See Report.

## APPENDIX.

### DIVISION A.—DEFINITIONS AND EXEMPTIONS.

#### Interpretation of Terms.

#### Model By-laws.

##### No. 1.

Terms defined by the Acts under which the by-laws are made should be inserted here for general information.

"Base" of a wall carried on a bressummer should mean the course above the bressummer. (See London Building Act, 1894.)

"Topmost story" should be defined to include a one-story building.

As far as possible, the interpretations should accord with the London Building Act, 1894.

#### Exempted Buildings.

##### No. 2.

It is undesirable that any buildings should be exempt in practice from supervision respecting sanitation and drainage; certainly not railway stations.

##### No. 2

(h)(i)(j).

To be substituted for Model By-law No. 2 (h) (i) (j).

The following buildings to be exempted from all by-laws excepting Division F (sanitation, &c.)

(h) Any building, not being a public building or factory (or which being a public building or factory is one story only in height and is without any gallery), which is situated not less than 15ft. from the boundary of the curtilage thereof.

For the purposes of this by-law two domestic buildings shall be regarded as one building provided they are separated by a party-wall in accordance with Division D.

NOTE.—This is not intended to exempt any public building or factory from by-laws regulating exits and stairs, should such by-laws be introduced.

(i) Any building situated within 15ft. of the boundary of the curtilage, which is distant 15ft. at the least from any public way and from any other building within the curtilage, and does not exceed 600ft. super. in area, nor 15ft. in height, provided that its external or party-wall towards the boundary of the curtilage is constructed as provided for a party-wall in Division D.

(j) Greenhouses if not attached to other buildings (see London Building Act).

(j) Greenhouses attached to other buildings so far as regards the necessary woodwork of their sashes, skylights, doors, and frames.

### DIVISION B.

No. 7 (c). Suggested amendment:—He shall construct on one side at least of such street a footway not less than 6ft. wide.

### DIVISION C.

No. 53. Omit 53 in favour of 53A.

No. 54. Add to 54 and its provisos Section 41 London Building Act, Subsection i., modified thus:—

Where there is a basement story directly and sufficiently lighted and ventilated, or where the basement story is not constructed or adapted to be inhabited, or where there is no basement story, and where the ground story is not constructed or adapted to be inhabited, the open space required by this section may be provided above the level of the ceiling of the ground story or a level of 16ft. exclusive of lantern lights, measured from the level of the adjoining pavement.

Section 52 of the London Building Act should also be introduced in the following form:—

In the case of domestic buildings and stables or other dependent buildings abutting in the front upon a street and in the rear upon a mews or public way, the sufficient open space provided for the domestic building shall serve also for the stables or dependent building.

It might be desirable to introduce Section 45 London Building Act respecting "Courts within a building."

No. 55. Suggested amendment: Every person shall construct . . . suitable windows in such manner that effectual means of ventilation by direct communication with the open air shall be

provided for every habitable room of such building.

NOTE.—It is not desirable that the heights of stories should be arbitrarily fixed by By-laws.

### DIVISION D.—PARTY-WALLS.

#### Model By-laws.

Such parts of Nos. 19, 20, 21, and 22 as relate to party-walls, shall be constructed of good bricks, stone, or other hard and fire-resisting material, properly bonded and solidly put together with good mortar.

Such wall shall in no part be less than 8½ in. in thickness. It may, however, be divided into two thicknesses of 4½ in. by a flue, provided that such flue be pargetted and has an opening into one only of the adjoining premises.

Such wall shall extend from the foundations or footings up to the underside of the incombustible roof covering, and shall be built or properly corbelled out to the full extent of any projecting string, eaves, or other architectural feature any part of which within 3ft. of the party-wall is constructed of wood or other combustible material.

It shall also be carried up the full width and height of any turret, dormer, lantern light, or other erection on a roof or flat any part of which within 4ft. of the party-wall is constructed of wood or other combustible material.

No timber shall be built into or placed in any party-wall nearer than 4½ in. to the centre line thereof, nor within 9 in. of the inside of any flue or chimney opening, nor within 7 in. of the hearth; nor shall any wooden plug be driven into any such wall nearer than 6 in. to the inside of any flue or chimney opening.

Such wall shall in each of the following cases be carried up above the roof or flat or gutter of the highest building adjoining thereto to such height as will give a distance of at least 15 in., measured at right angles to the slope of the roof, or above the highest part of any flat or gutter, as the case may be, and shall be properly coped and protected from water soaking into the wall:—

(a) When either of the adjoining buildings has a roof not externally covered with slates, tiles, metal, or other incombustible material;

(b) When either of the adjoining buildings exceeds 30ft. in height, measured from the lowest part of the ground-floor story to the tie of the roof, or to half-way up the gable if the roof has no tie;

(c) When either of the adjoining buildings is intended or adapted to be used as a public building or as a warehouse, factory, or workshop.

When either of the adjoining buildings is of the class described under (c) and exceeds the dimensions described in (b), the wall shall be carried up for a distance of 36 in. above the roof, flat, or gutter, as the case may be, and shall also extend 12 in. higher and wider on each side of any turret, dormer, lantern light, or other erection on a roof or flat any part of which within 4ft. of the party-wall is constructed of wood or other combustible material.

*Buildings Adjacent to the Boundary of the Curtilage Thereof.*

No. 25. When the external wall of a new building is within 7ft. 6 in. of any boundary of the curtilage other than a public road, the wall shall be built of incombustible material, and no timber or other combustible material shall be fixed beyond the face of such wall.

### DIVISION E.—STRUCTURE OF WALLS, ETC.

#### Model By-laws.

No. 11. Add:—Any story in a roof, and the story immediately below the roof not being the ground story of a detached or semi-detached domestic building, may be inclosed with timber studding, not less than 4 in. thick, properly framed, covered externally with weather-tiling or plastering, and internally with plaster-work covering the whole surface excepting the neces-



sary openings. Such inclosure, when properly corbelled out, may overhang the wall below, provided the soffit be plastered.

No. 18 (iii.) Add to 18<sup>th</sup> (iii.) :—A pier not less in width and breadth than twice the thickness of the wall as defined for each story, and standing on a solid foundation, shall be deemed to be a return wall for the purposes of measuring the length of walls.

Nos. 19 & 20. Omit "and every party-wall," and add in both cases :—The minimum thickness of every party-wall shall be 4½ in. less than that prescribed for an external wall of corresponding height and length, but in no case less than 8 in.

Add to 19 (not 20) :—Where the wall of any domestic building, hereby required to be 13 in. or more in thickness, is covered externally with tiles or other similar incombustible and impervious material securely fastened thereto, the said thickness may be reduced by 4 in., provided that such reduction shall not be made on more than one story nor on any ground story nor on any story exceeding 10 ft. in clear height.

No. 24. Omit 24. See sec. 55, London Building Act, 1894.

No. 35. Omit. There is no corresponding rule in the London Building Act, 1894.

No. 52A. Omit. See Division F, substituted By-law.

#### DIVISION F.—SANITATION, PREPARATION OF SITE, DRAINAGE.

##### Model By-laws.

No. 17. Substitute "floor" for "timbers" in line 5. In the second paragraph a vertical damp-course should be substituted for the hollow wall described.

Nos. 52A. and 60A. Substitute the following :—Every person who shall erect a new building shall make suitable provision for carrying off the rain-water from the roofs, flats, gutters, and areas in such manner as not to cause dampness in any part of the walls or foundations of such building or any adjoining building.

No. 65. It should be made to appear that this applies only to foul drains.

Nos. 86 to 89. The provisions respecting cesspools are unpractical and unsatisfactory. The question of the disposal of sewage where no sewers are available requires reconsideration under modern conditions.

Mr. LACY W. RIDGE seconded the adoption of the report. He remarked that they could hardly expect its recommendation to be received with absolute unanimity, and still less that the Local Government Board should adopt it in its entirety; nevertheless, it had been very carefully drawn up, the main principles governing its drafting being that all by-laws should be as uniform as possible, and that they should not be enforced where no public necessity existed, as, for example, in buildings erected in the open country.

Mr. WILLIAM WOODWARD, while eulogising the report as a whole as the best that had ever emanated from any committee of the Institute, said it would be a mistake to make the provisions of the proposed by-laws too lax. As for giving exemption to buildings erected in the open country, suggested by Mr. Ridge, they must remember that what to-day was an unoccupied field in a few years time would be absorbed in a crowded town, and they must, therefore, look ahead. There should be an appeal from the district councils to a technical building tribunal, such as existed under the London Building Act of 1894. An excellent feature in the recommendations was that no definite scale was laid down for the block-plan, plans, and sections; but he thought the requirement that on the block-plan should be shown the "adjoining premises within 100 ft. of the proposed building" was needlessly comprehensive, and he moved that these words be omitted.

Mr. E. W. HUDSON differed from Mr. Woodward as to this last point; it was often, in country districts, necessary to show existing premises 100 ft. from the proposed building in order to fix a frontage line.

Mr. P. GORDON SMITH, architect to the Local Government Board, said the recommendations in the report had, as a whole, his sympathies; but the subject was full of difficulties, as it opened up certain defects in the general legislation by which they were all controlled. Under the existing law, rural district councils could apply

to the Local Government Board for sanction to exercise urban powers, and the Board would feel a very grave responsibility was incurred by refusing to allow to any local authority such powers if definitely asked for. (General cries of dissent.) So far as he was personally concerned, he would do all in his power to bring about the modifications named in the report, although certain propositions were very debatable.

Mr. RALPH NEVILL, F.S.A., could not agree with Mr. Gordon Smith in his views as to the attitude that should be adopted by the Local Government Board towards rural district councils, as he felt that such bodies should be discouraged from attempting to assume too much authority. In designing cottages for erection in various parts of Surrey and Sussex, he had been much hampered by rural district councils, who enforced unreasonable rules—e.g., as to the height of rooms, the thicknesses of walls when a room was built in a gable, and the proportion of room space to windows; they often insisted on footings to walls where the whole structure stood on a solid 12 in. bed of concrete. He should have liked to have criticised and sought to amend many details in the report, but feared it was now too late.

Professor KERR said a hard and fast cast-iron insistence on compliance with the letter of the law only irritated building owners, their architects and builders. The aim should be to enforce the principle rather than the letter of the building by-laws.

Mr. LACY RIDGE said there was great difficulty in interpreting the London Building Act, and they might imagine how much more diverse would be the readings of by-laws by rural councils. He could not agree with Mr. Gordon Smith's views of the compliant attitude the Local Government Board should adopt towards rural councils who sought urban powers.

Mr. WOODWARD's motion having found no second, the Chairman formally moved that the report be received and adopted, and this was unanimously agreed to.

#### PROCEDURE AS TO PARTY STRUCTURES

The CHAIRMAN moved, in accordance with the recommendations of the Special Committee :—

That the Royal Institute of British Architects petition the Local Government Board to promote a Bill in Parliament to regulate the procedure in dealing with party structures in a similar manner to the London Building Act, 1894, in all parts of England where there are no Acts of Parliament dealing with such party structures.

This was seconded by Professor KERR, who said the section of the London Building Act relating to this point had been most useful, and had obviated much litigation, irritation, delay, and expense.

The resolution was spoken to by Messrs. RIDGE, WOODWARD, S. FLINT CLARKSON, and others, and was carried unanimously.

On the motion of Mr. J. M. BRYDON, seconded by Mr. E. W. MOUNTFORD, it was agreed to send an address of congratulation to the hon. associate, Sir L. Alma Tadema, R.A., on the Knighthood just conferred upon him, reference being made to the service rendered the Institute by Sir Lawrence on the Art Committee.

#### PROJECTED METROPOLITAN IMPROVEMENTS FOR NEXT SESSION.

THE improvements committee of the London County Council recommends to the Council six improvements to be undertaken in the ensuing year, three of which—for the extension of the Thames Embankment and the improvement of the Millbank district, the widening of Mare-street, Hackney, and the widening of Goswell-road—are of considerable magnitude. The estimated cost of the improvements, including contributions from local authorities, is £1,565,000.

The first scheme deals with the extension of the Thames Embankment between the Houses of Parliament and Lambeth Bridge and the improvement of the district near Millbank. It is proposed that the course of Abingdon-street and Millbank-street shall be altered, that the new street 70 ft. wide shall start from a point which will involve the demolition of the corner house of Old Palace-yard and run thence diagonally to a point much nearer the end of Lambeth Bridge than at present. It is proposed further to purchase all the property between this line and the river on the one side and between it and the west of St. John's Church on the

other side, to lay out the land between Millbank-street and the river as an addition to the Victoria Tower Garden, and to lay out in a manner suitable for offices and residential houses, and with widened streets, the land between Millbank-street and St. John's Church. By the recoupment resulting from the alteration of the line of Millbank-street and from the acquisition of the property between the street and St. John's Church, it will, in the opinion of the committee, be possible to effect this great improvement—to embank the river, to lay out the garden, to widen Millbank-street, and to widen the other streets up to St. John's Church, including a portion of Horseferry-road—at a cost of £530,000, as compared with £306,000 required for an imperfect and unsatisfactory scheme of merely widening the existing Millbank-street, and £498,000 for both widening and straightening the street. This estimate of £530,000 does not include the cost of altering the Abingdon-street block, which is not absolutely essential to the main part of the scheme. If carried out by the Council, it is estimated that the net cost would be £130,300. The committee propose to leave this part of the scheme to be undertaken by the Government, and to confine their specific proposals to the widening of Millbank-street and the embanking of the river. It is estimated that the purchase of property would involve an expenditure of £1,329,000, and the value of the recoupment would be £873,000, leaving the net cost £456,000, to which must be added about £74,000 for the cost of the works, making a total of £530,000. They accordingly recommend the Council to sanction application being made to Parliament for power to carry out the scheme, subject to the Government's agreeing to undertake the Abingdon-street portion of the scheme, and to a contribution of £100,000 from the Westminster vestry. The cost of rehousing the persons who would be displaced by this scheme is estimated at £50,000.

The second scheme is for widening Mare-street, Hackney, to 70 ft. between the North London Railway and the Triangle. The total net cost of this scheme is £577,100, and it is recommended subject to a contribution from the Hackney Vestry of not more than £125,000. The vestry have already offered to contribute this sum. The third scheme proposes to widen Goswell-road to 60 ft. between Upper Ashby-street and Great Sutton-street at a net cost of £209,500. It is only to be undertaken if the vestries of St. Luke and Clerkenwell contribute between them the sum of £20,000 towards the cost. The fourth improvement is a widening of Nine Elms-lane to a maximum of 60 ft. between Southampton-street West and Battersea Park-road. The net cost of this scheme is £136,400, to which the Battersea Vestry are to contribute £15,000. The fifth project deals with the Camberwell New-road, which is to be widened between Warner-road and Camberwell Green at a net cost of £52,000, towards which the Camberwell vestry are to contribute £5,000. The last improvement is a small widening in the Kentish Town-road.

It is proposed to hold Provincial Meetings of the Society of Architects at Sheffield, and possibly other provincial centres, towards the end of June, with a view to bringing forward the question of the Architects' Registration Bill, and also matters affecting the state of the law in regard to "light and air" cases.

The Batley Town Council received, on Friday, a report from the General Purposes Committee recommending the adoption of plans, prepared by Messrs. W. Hanstock and Son, for a new town-hall, to be erected on the Market Estate; and also asked the council to instruct the town clerk to apply to the Local Government Board for sanction to borrow £35,000 for the erection of the building. The recommendations were unanimously adopted.

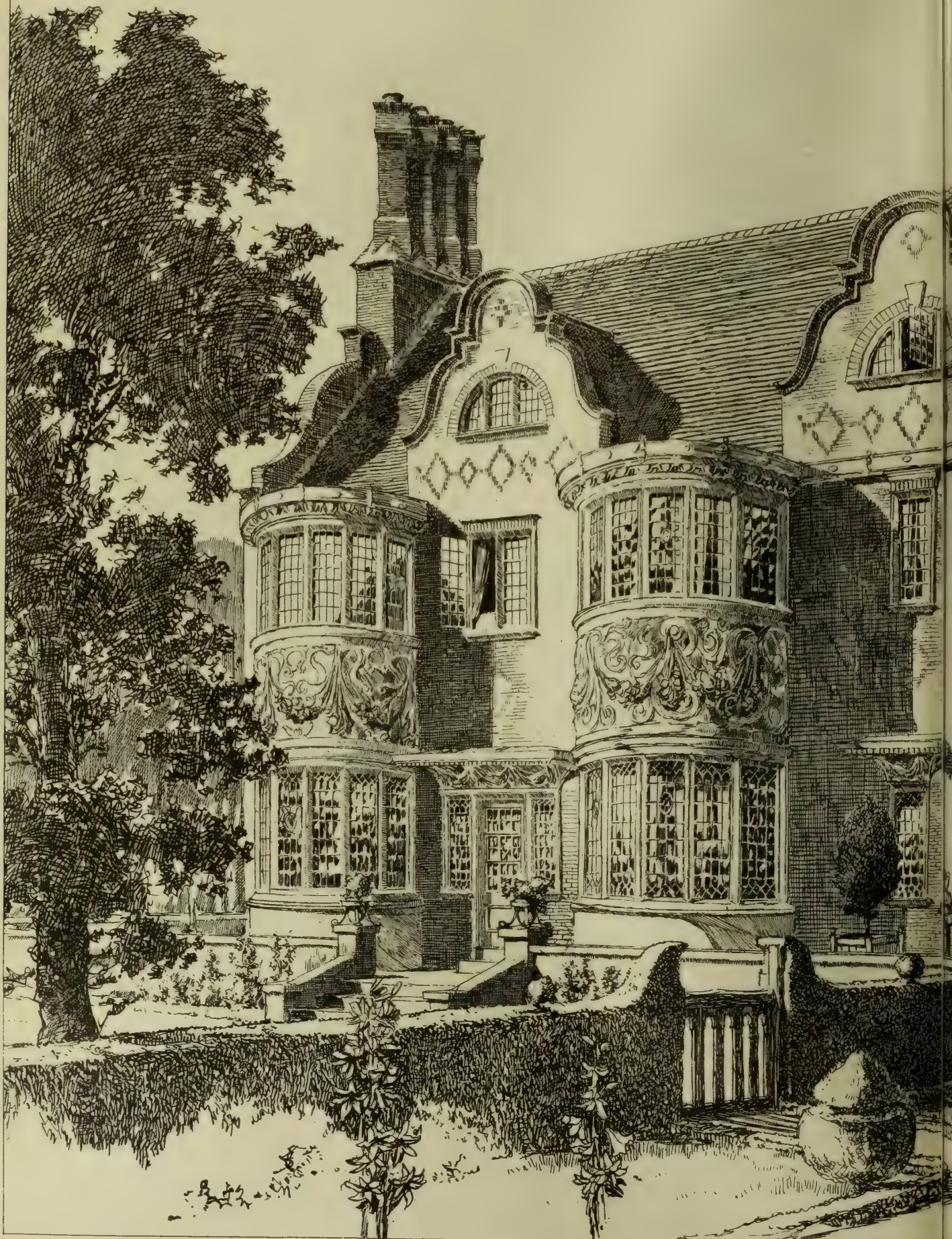
Under Part II. of the Housing Act, the vestry of Rotherhithe are about to clear a noted insanitary district in the parish, bounded by Rotherhithe, Paradise, and Fulford streets, and Seven Sisters-alley, and including some half-dozen streets and courts near the river. The area of an acre and a half now accommodates 550 people, and the new dwellings will house 890 people. Mr. Service has prepared the plans, and the outlay will be £29,120.

The City Corporation have approved of a proposal submitted by the Improvements and Finance Committee for widening Mansell-street to 50 ft. in continuation of the scheme for improving the northern approaches to the Tower Bridge. The estimated cost of the improvement is £61,200.

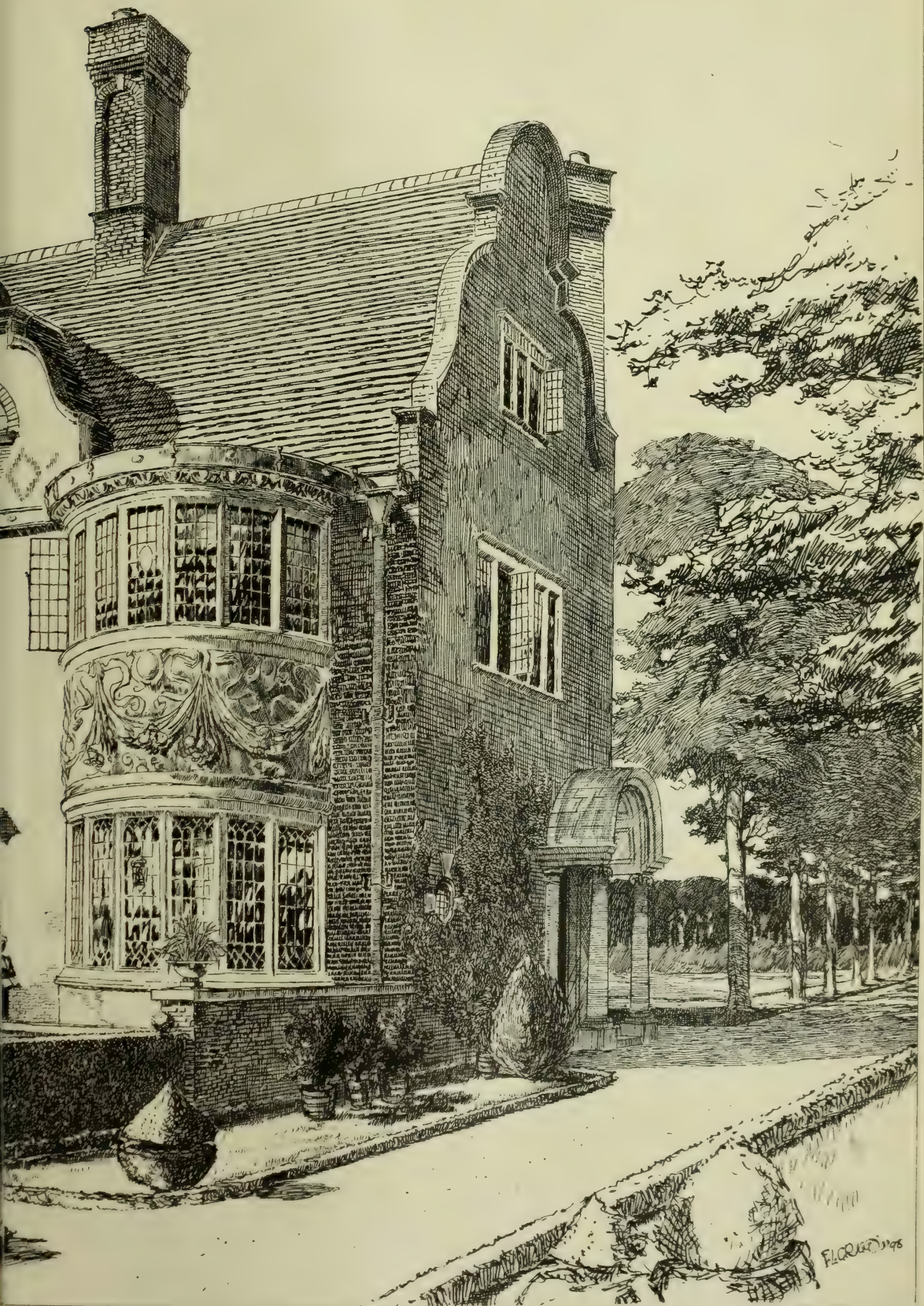
















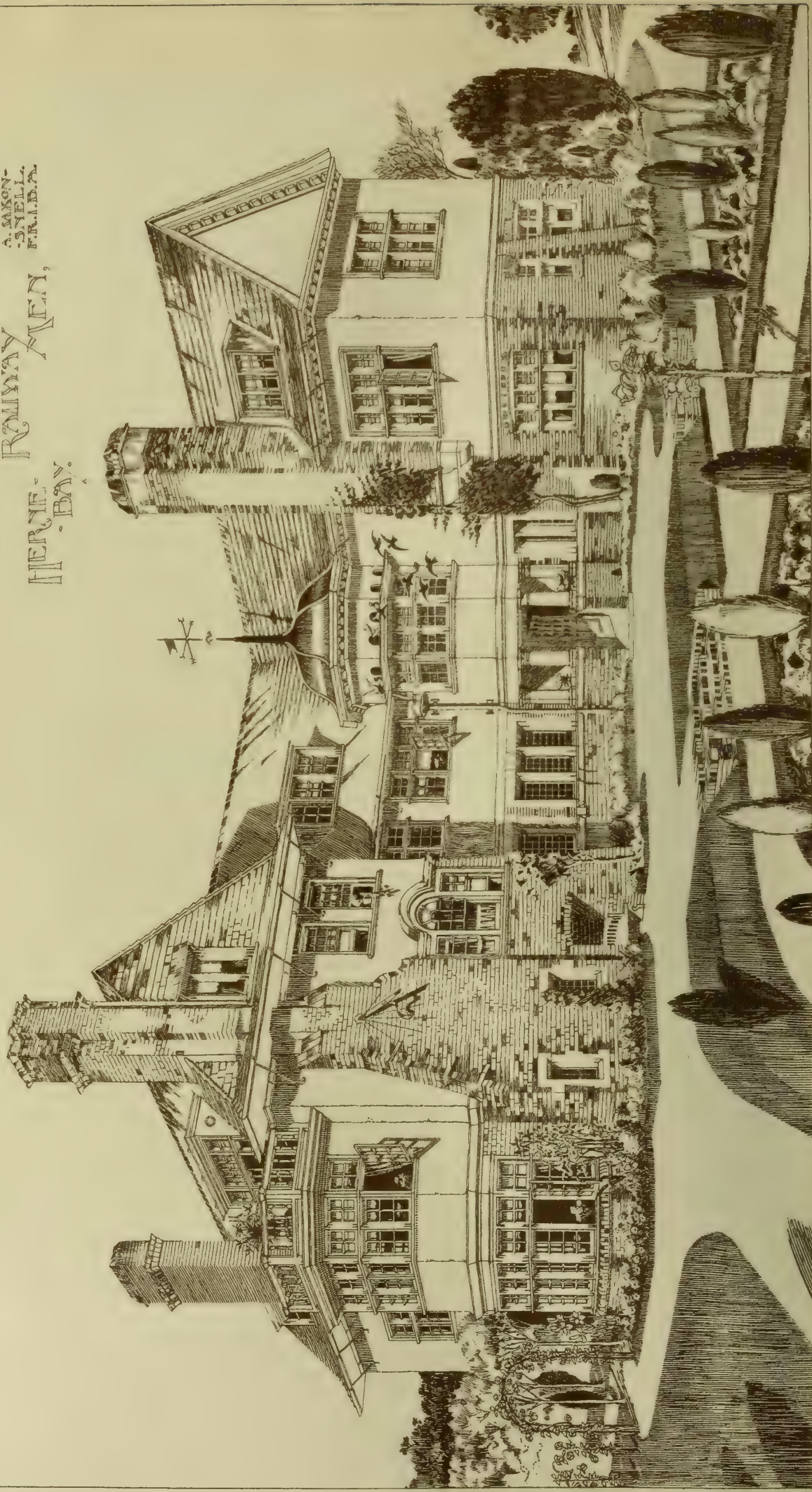






THE  
PASSMORE EDWARDS  
CONVALESCENT HOME . FOR  
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HERNE-  
BAY.

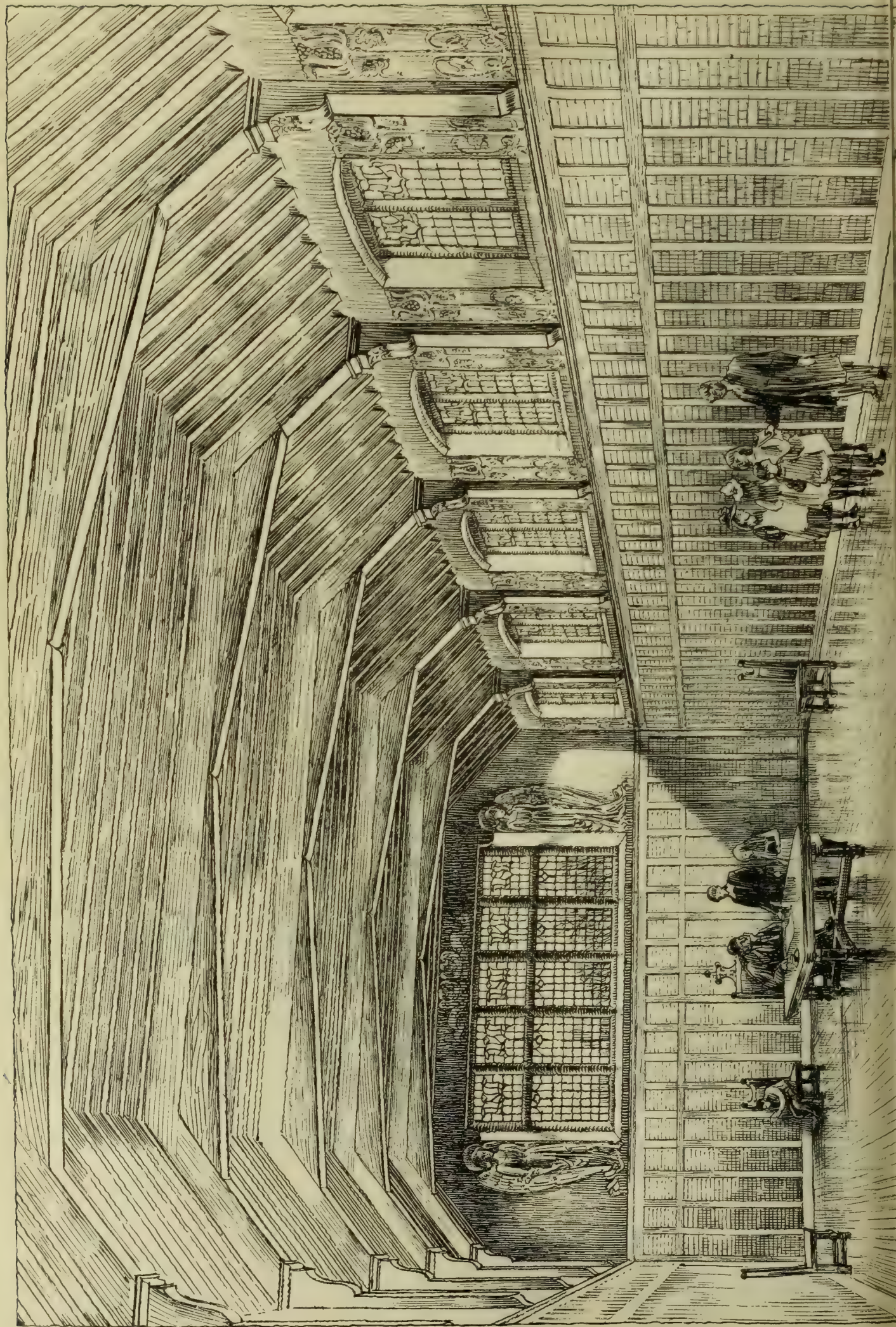
A. SAXON-  
SYELL,  
F.R.I.B.A.



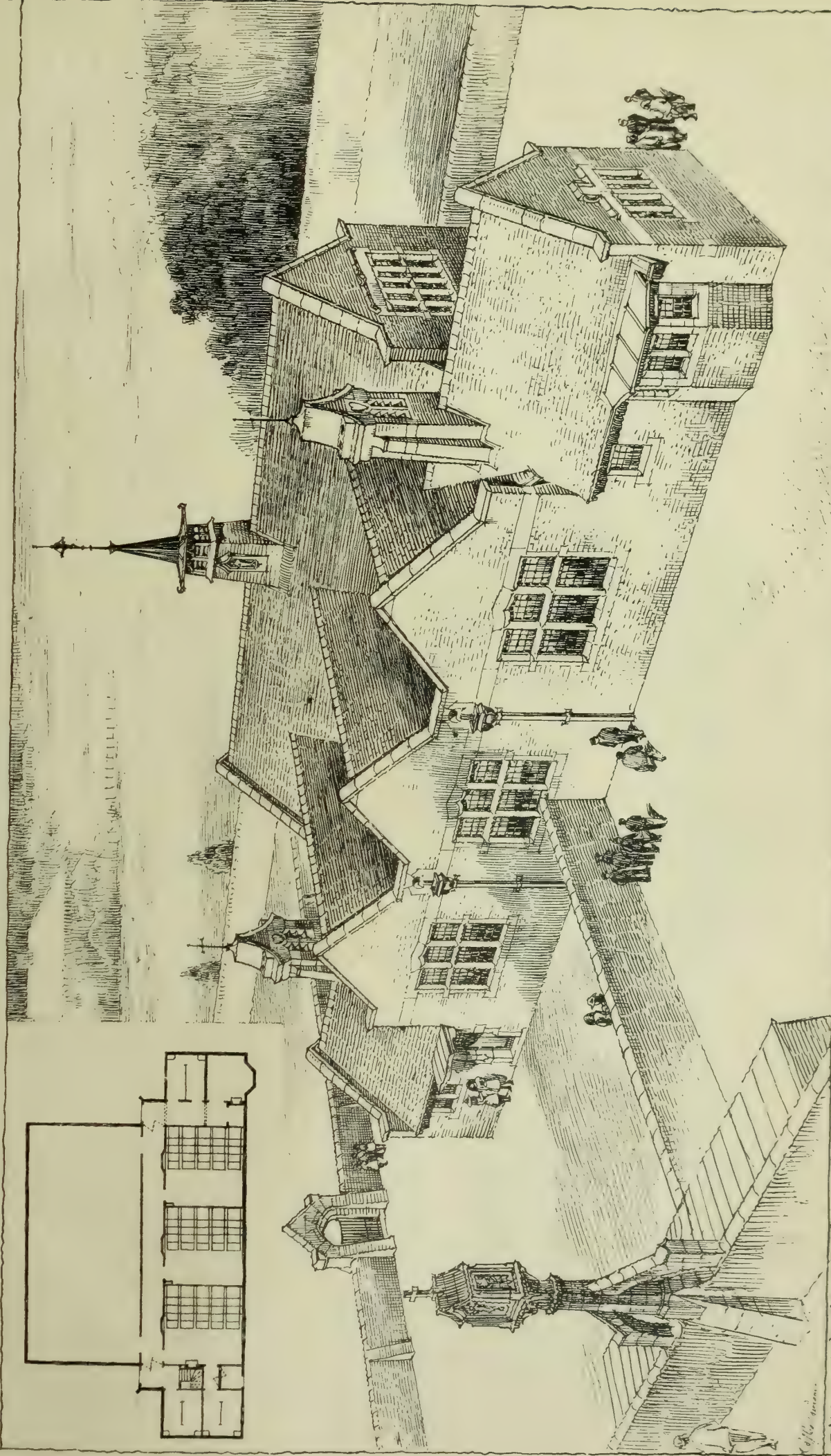
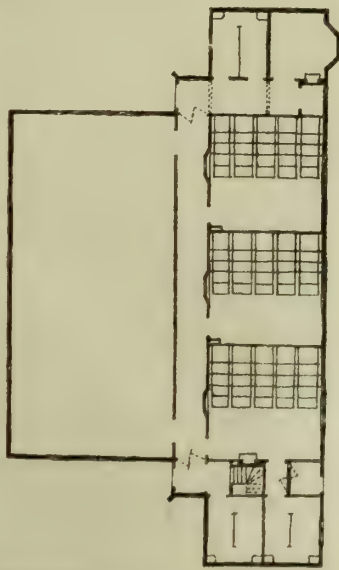








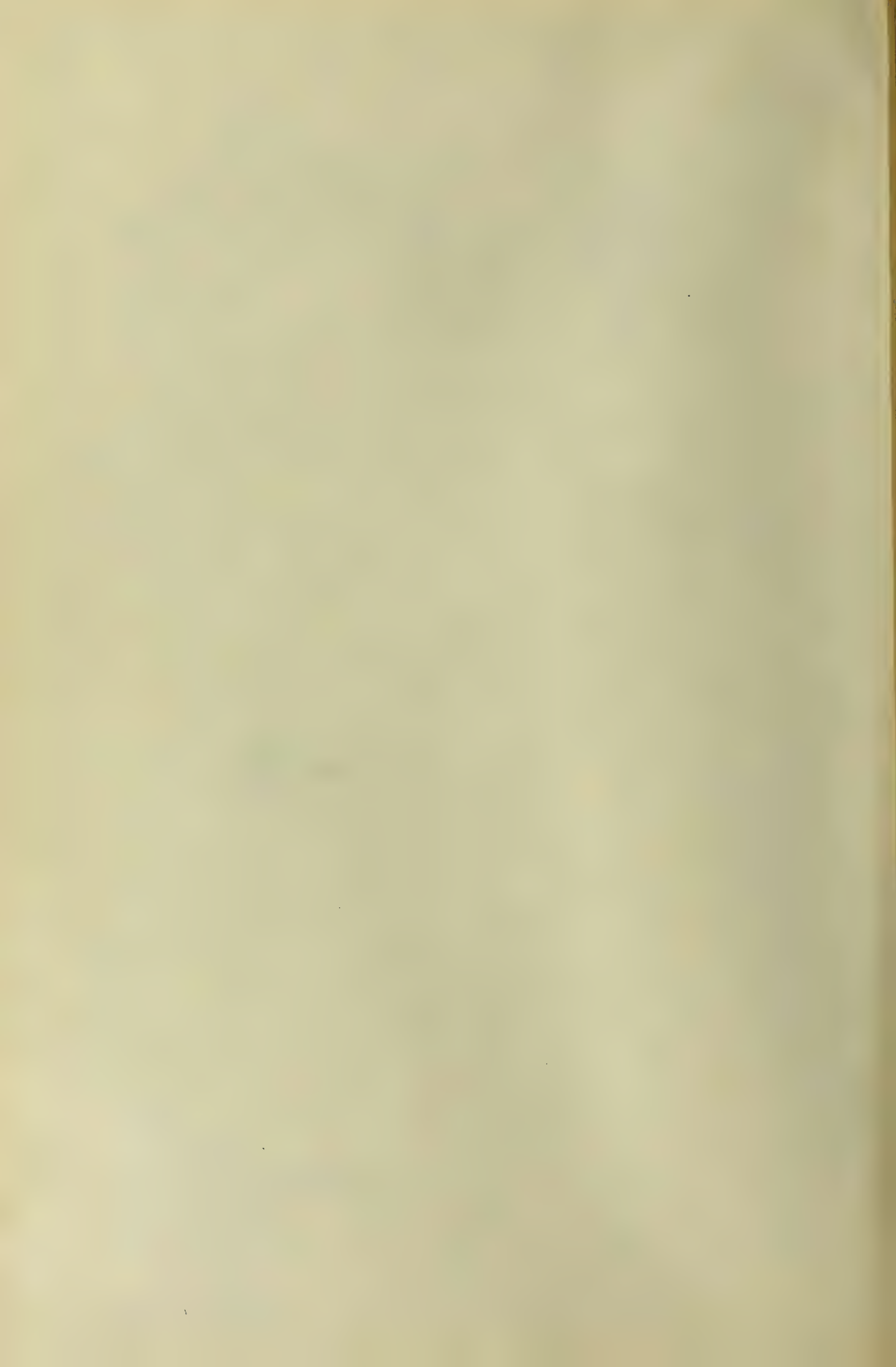




The Schools of the Holy Road at Swindon — T. B. Silcock B.Sc. F.S.L. and S. S. Gray & R. I. A. Architects. Bath

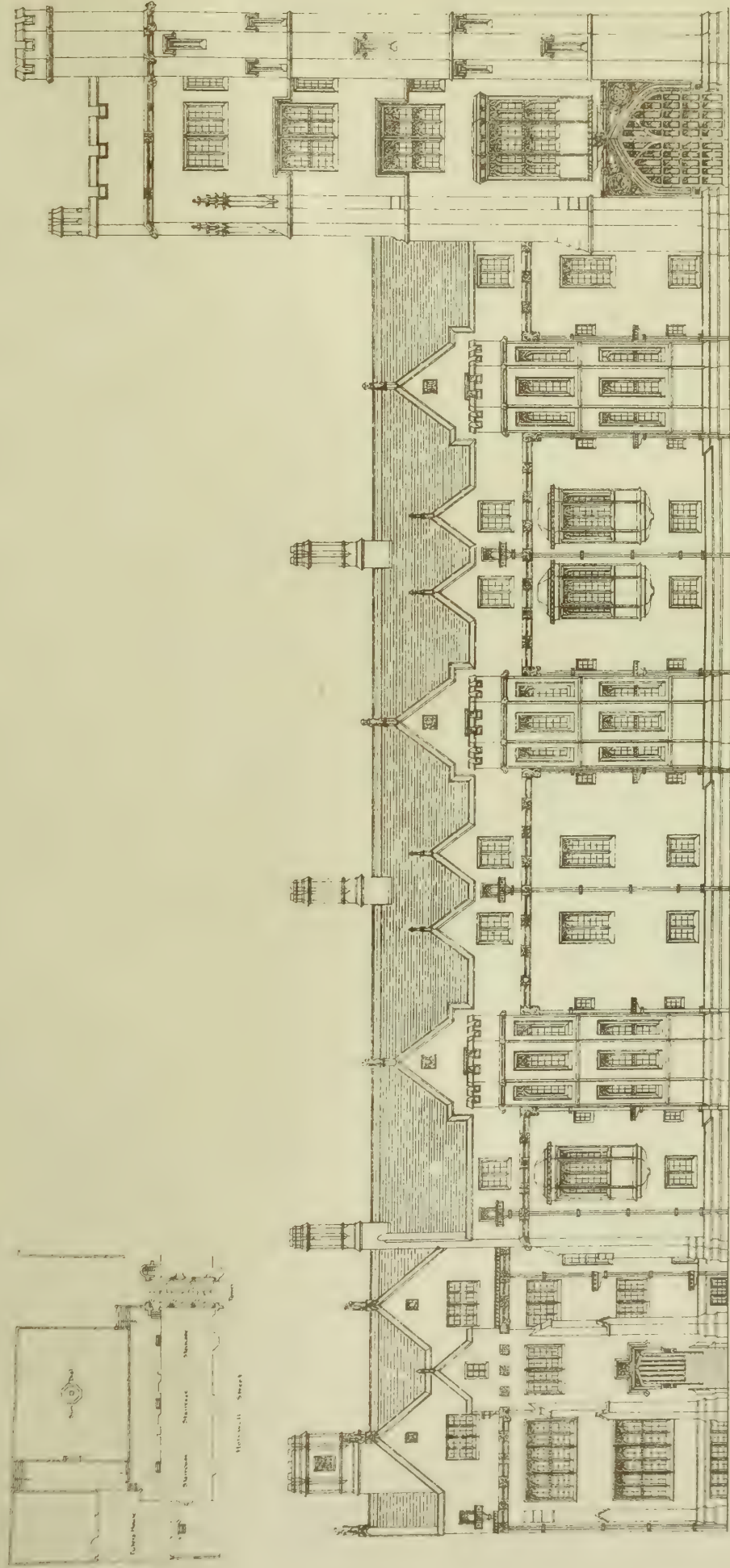
Photo. by Messrs. J. & J. Smith, Bath.







THE BUILDING PEWS, JUNE 16, 1899.



ROBINSON MEMORIAL TOWER & NEW BUILDINGS, NEW COLLEGE, OXFORD.  
HOLYWELL STREET FRONT.

13 June 1899







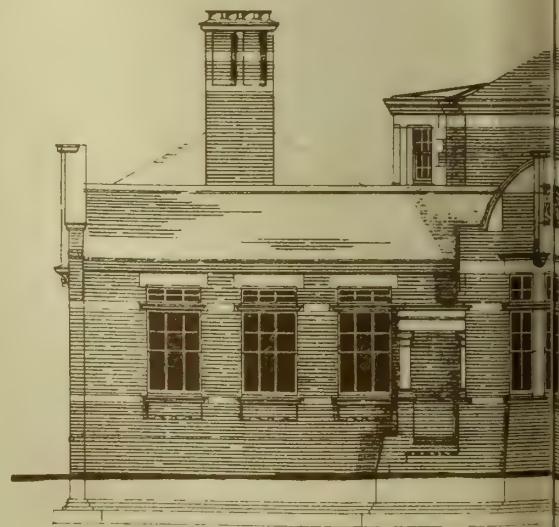
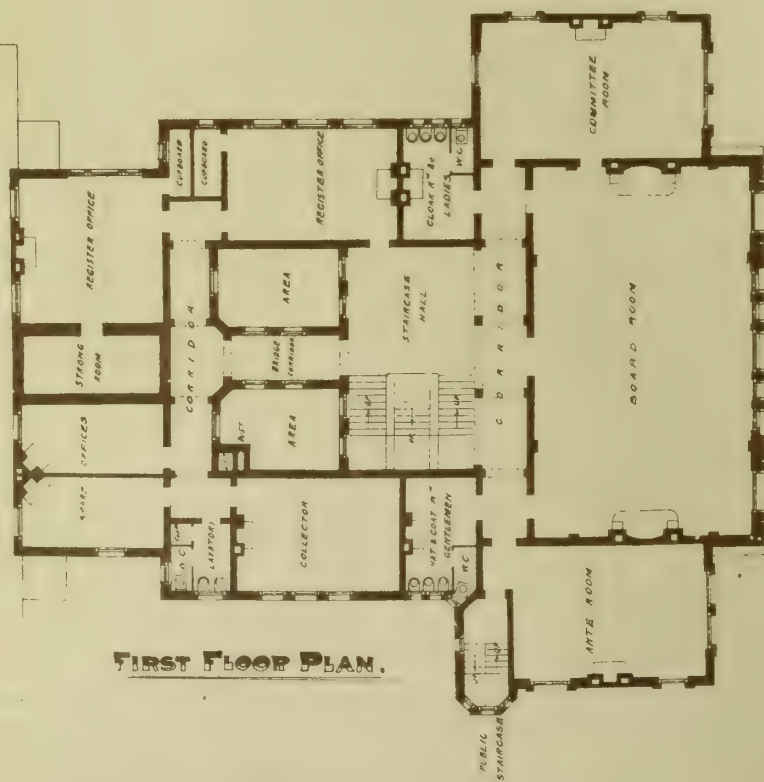




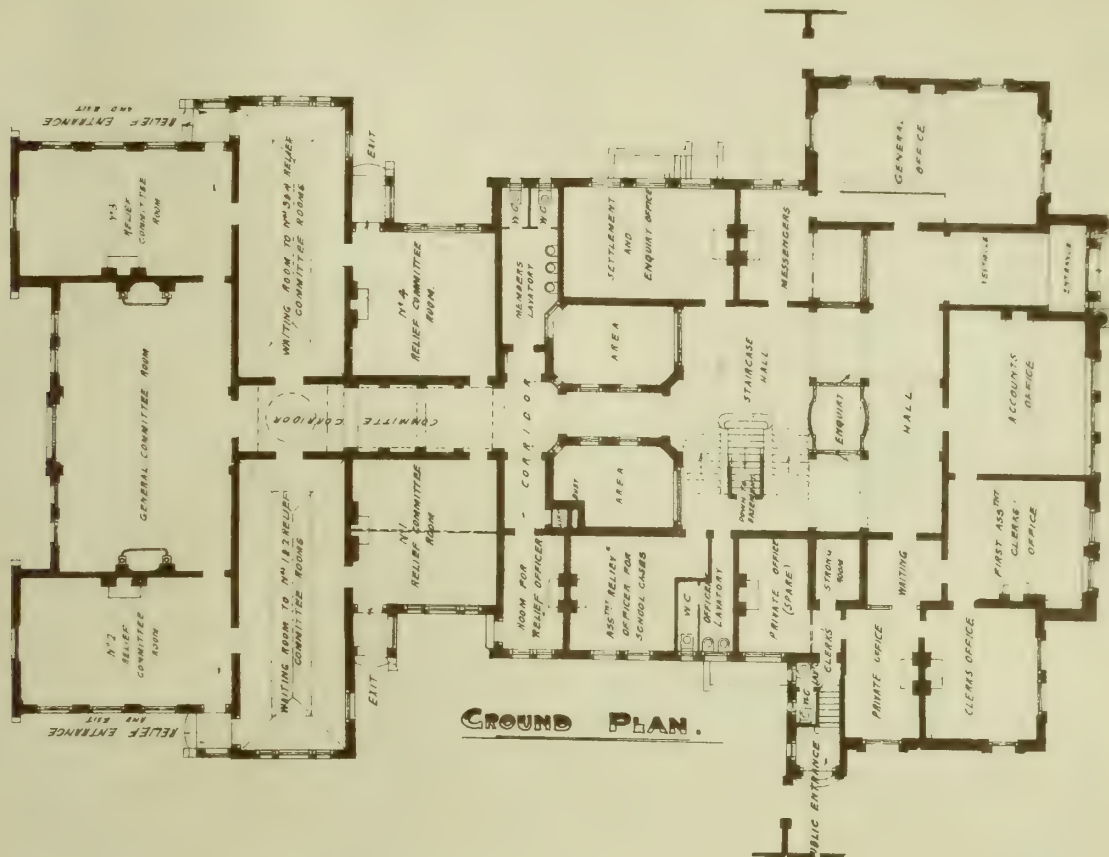
: South Elevation :



: West Elevation :







# NEW BOARD ROOM AND OFFICES WANDSWORTH AND CLAPHAM UNION.

SELECTED DESIGN, CECIL A. SHARP ARCHITECT

Valuation:









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## ILLUSTRATIONS.

SELECTED DESIGN FOR THE NEW BOARD OF GUARDIANS' OFFICES, WANDSWORTH—"HILLINGTON," WALTON-ON-THAMES—SCHOOLS OF THE HOLY ROOD, SWINDON—NEW BUILDINGS, NEW COLLEGE, OXFORD—THE PASSMORE EDWARDS CONVALESCENT HOME FOR RAILWAY MEN AT BELTINGE—ST. LUKE'S CHURCH, MUNICH.

## Our Illustrations.

## WANDSWORTH BOARD ROOM AND OFFICES.

We publish herewith some of the plans and elevations that were accepted in the recent competition. Being placed first, as we mentioned in our last week's issue, the author, Mr. Cecil A. Sharp, A.R.I.B.A., of 59, Fenchurch-street, E.C., and also late of Newcastle-on-Tyne, received the first premium of £100, and has been appointed by the guardians to carry out the work. The building is of the Renaissance style of architecture, and will be executed in a very substantial way. The materials proposed to be used are red brick and stone externally, with green slated roofs. The floors will be of a fireproof construction. The halls, corridors, &c., will be finished with flooring of mosaic paving, the walls cement-faced above a dado of glazed brickwork, the ceilings will be panelled out in asbestos plaster. The various offices will be finished and fitted up in a suitable manner for the purpose for which they are intended to be used. It is possible that electric light may be fitted throughout the building in addition to gas; and there will also be an electrical system of ventilation, the plant for which, together with the hot-water warming apparatus, will be placed in the basement. A complete system of telephones will connect all the offices. The sanitary arrangements have been most carefully planned. The building provides upon the ground floor a suit of clerks' offices, accountants', assistant relief officer for school cases, general, and settlement and inquiry. Strong-rooms, lavatories for officials, also for guardians, are approached by a broad corridor and grand entrance-hall, and staircase to the first floor. At the rear is placed the relief committee-rooms, which necessitated a most carefully considered plan to meet the guardians' requirements. It will be observed by reference to the plan that the applicants for relief enter from East-hill direct to their waiting-rooms, and that they enter the committee-rooms direct from waiting-room and again leave by a different door. Also it will be seen that no corridors whatever are traversed by the applicants, and they do not enter any other part of the building except that allotted for their use. The first floor is occupied by offices for the registrar and collector, spare offices and strong-rooms, lavatories, &c. There will be upon this floor a well-proportioned and commodious board-room overlooking Wandsworth Common, being approached by a spacious hall and corridor; upon the east side of board-room is a committee-room and ladies' cloakroom; upon the west side a gentlemen's cloakroom and ante-room. A separate staircase has been provided for the public, who will occupy a convenient gallery, where

also provision is made for the Press. This staircase also leads to the caretaker's quarters above. In the basement strong-rooms, store-rooms for books and papers, coal-cellars, kitchen and boiler rooms, and electrical-plant rooms are provided. The architect's estimate for this work is £20,311.

"HILLINGTON."

(See description and sketch plans on page 827.)

## THE HOLY ROOD SCHOOLS AND HALL, SWINDON.

THIS block of buildings is now being erected by Messrs. J. Long and Sons, of Bath, from designs by Messrs. Silcock and Reay. The school building contains three classrooms for boys, girls, and infants, each capable of accommodating 40 children, and in addition there are three spacious cloakrooms and a teachers' room, etc. A wide corridor runs the whole length of the classrooms and connects the school with the hall, in which, on occasion, a class of 60 children may be taught. The interior of the hall consists of timber framing filled in with sand-faced bricks to a height of 1 ft., above which are the windows. Features of the room are the decorative plaster panels, which are modelled in low relief and slightly wiped with colour. The walls of the classrooms, etc., are lined throughout with brown salt-glazed bricks to a height of 5 ft., above which they are plastered. The floors of the class-rooms and hall, as well as the galleries, are all of pitch-pine blocks, the corridor and cloak-rooms being tiled. The ceiling joists are exposed and stained dark brown. The walling is of sand-faced bricks and Bath stone dressings. The windows are glazed with lead lights, and the roof covered with green slates. Special provision has been made for efficient ventilation, and the building will be heated with radiators. The latrines, which are of the latest pattern, are situated on one side of the playground.

## NEW BUILDINGS, NEW COLLEGE, OXFORD.

THE elevational drawing which we illustrate is now at the Royal Academy, showing the Memorial Tower to the late Alfred Robinson, M.A., Fellow and Bursar of New College, Oxford. Mr. Basil Champneys is the architect, and at the same time this work was carried out new staircases were added, thus completing that portion of the college buildings. Messrs. Benfield and Loxley were the builders, and Mr. W. Simpson acted as clerk of the works. Chipsam stone was employed.

## PASSMORE EDWARDS CONVALESCENT HOME FOR RAILWAY MEN, HERNE BAY.

THE site of this building adjoins that of the Passmore Edwards Home for Friendly Societies on the Beltinge Estate, on the cliffs east of the town of Herne Bay, and is about a quarter of a mile in a direct line from the sea. It is 3½ acres in extent, with a frontage of over 300 ft. to the road to Reculvers, where it branches from that to Margate. The building will be three stories in height, and contain accommodation for fifty patients, and is so arranged that a further fifty beds can be provided for in the future at comparatively small cost and without difficulty. On the ground floor the entrance-porch leads to a large hall communicating with the main corridor. This corridor gives access respectively to the kitchen and administrative department on the left hand and the patients' rooms on the right. The day accommodation comprises a large general sitting-room and a smaller smoking and bagatelle room, both with south-east aspects overlooking the gardens in the rear. In front of these rooms is a small reading or "quiet" room, fitted as a library, with a large bay overlooking the front garden. Adjoining is a large lavatory, fitted with wash-hand basins and patients' lockers, hat and coat racks, &c., and beyond this latrines for day use. Open verandahs are provided both back and front for the use of the patients. Adjoining the bagatelle room is a dormitory of seven beds for cripples and others whose infirmities render ascending a staircase difficult. Leading directly out of the entrance-hall are the matron's sitting-room and office or waiting-room (both looking on the front), and the large general dining-hall. The last-mentioned is 40 ft. long by 21 ft. wide, and well lighted at end and sides. A platform will be provided in the centre of one side, so that it can be used for concerts and entertainments. A "stage door" gives access to the platform from the adjoining dormitory. To the left of the dining-hall are the kitchen and scullery, stores, washhouse, coal cellars, &c., and the service

staircase leading to the upper floors. On the first floor are five dormitories, respectively for 11, 9, 7, 6, and 3 beds each. On the second floor, and partly in the roof, is another dormitory for 7 beds, but space is provided on this floor for the accommodation of another 16 or 17 beds when required, at comparatively small additional cost. The officers' and servants' bedrooms, linen-room, &c., are placed over the kitchen block. All dormitories allow at least 750c.ft. to each patient. In addition to day-room accommodation on the ground floor, a small spiral staircase leads from the top floor up to an octagonal room in the tower, rising from the main entrance. This will have windows all round above the level of the roofs, thus commanding extensive and beautiful views on all sides. The external facings are to be in Canterbury red bricks, relieved with Monk's Park Bath stone dressings and hanging tiles. The roofs will be covered with Broseley red tiles. The walls internally will be plastered, all day-rooms and corridors having a cement dado. The dining-hall will have a tile dado all round, and the corridors are to be paved with glass mosaic. It has been sought in the elevation of the building, no less than in the grouping of the rooms, to avoid the idea of an "institution" as opposed to a "home." The cost of the building, including fencing and drainage of the land, will be about £7,500. The architect is Mr. A. Saxon Snell.

## ST. LUKE'S CHURCH, MUNICH.

THIS completes our illustrations of this church, of which we gave exterior and interior views and a full description in our issue of May 12, and a cross-section, looking west, and plan the following week.

## CHIPS.

Foundation stones were laid last week of a new Wesleyan Chapel at Rothwell, Northamptonshire. The chapel is 60 ft. by 34 ft., will be faced with Weldon stone, and will cost £2,000. Messrs. Gotch and Saunders, of Kettering, are the architects, and Mr. F. Barlow, J.P., is the builder.

A new cemetery is about to be laid out at Work-sop, from plans by Mr. F. S. Whittell, the surveyor to the urban district council. The land, 16 acres in extent, adjoins the Retford-road, and the chapel will be Early English in style, and built of stone.

A special service has been held in Conssett Parish Church, when two stained-glass windows, affixed in the chancel in memory of the Rev. F. Steggall, for 35 years vicar of Conssett, were dedicated. The windows, which have been designed and executed by Mr. A. O. Hamming, of London, illustrating the subjects "Feeding the Hungry" and "Nursing the Sick."

At Ley, in the parish of St. Neot's, Cornwall, a new mission church was dedicated last week. It is seated for about 100 persons, and has a floor of Venetian mosaic in the nave, and of Roman mosaic in the chancel. The architect is Mr. T. H. Andrew.

At the thirteenth annual meeting in connection with Mansfield College, Oxford, a portrait was unveiled of the first principal of the college, which represents Dr. Fairbairn sitting in an armchair, with a large open book in his hand. It has been painted for the subscribers by Sir George Reid, President of the Royal Scottish Academy.

The Board of Trade have confirmed an order authorising the construction of light railways in the county of Lancaster in the parishes of Barton-upon-Irwell and Stretford, and from Colwyn Bay to Llandudno in the counties of Denbigh and Carnarvon.

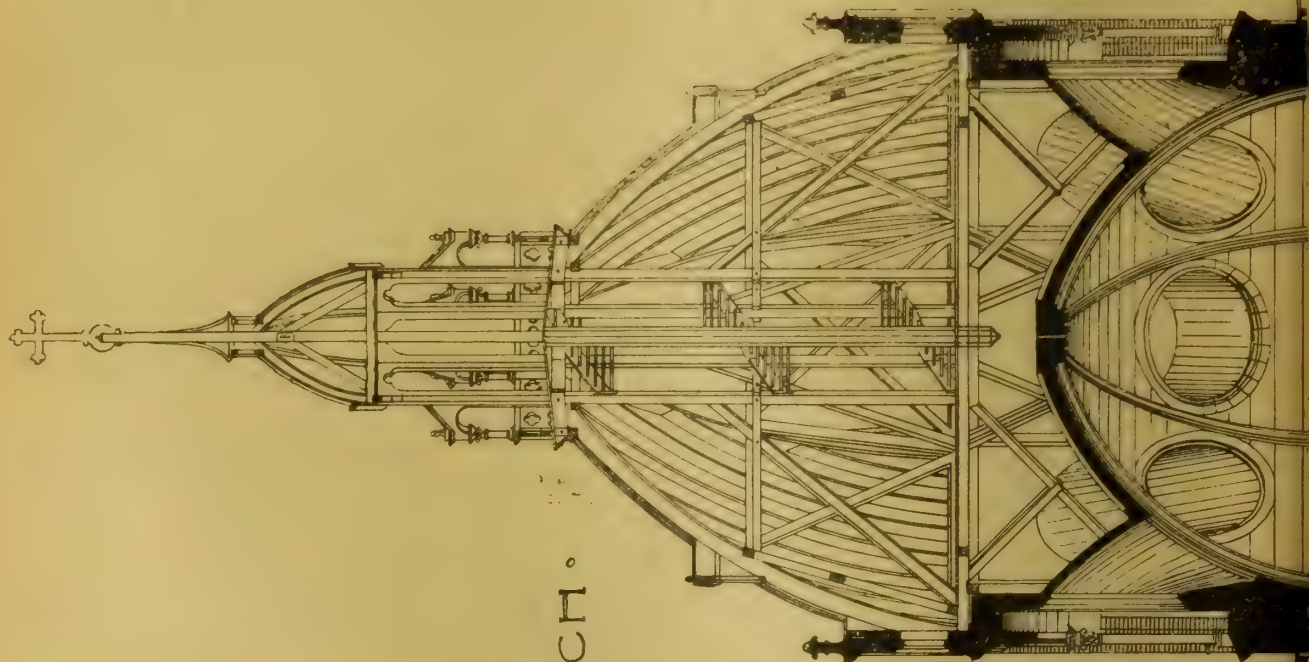
The Technical Education Board of the London County Council will open two new domestic economy schools for girls next session, one situated in the north of London and the other in the south. The former will be in connection with the Northern Polytechnic in Holloway, where a new block of buildings has been recently erected, devoted entirely to the teaching of domestic economy. The other school will be situated in Creek-road, Deptford, and will be under the management of the Deptford Fund House Committee.

A mission church of the Holy Cross, built in Woodbury-lane, Axminster, was opened last week. It is seated for 170 persons, and has been built by Mr. Clound, of Axminster.

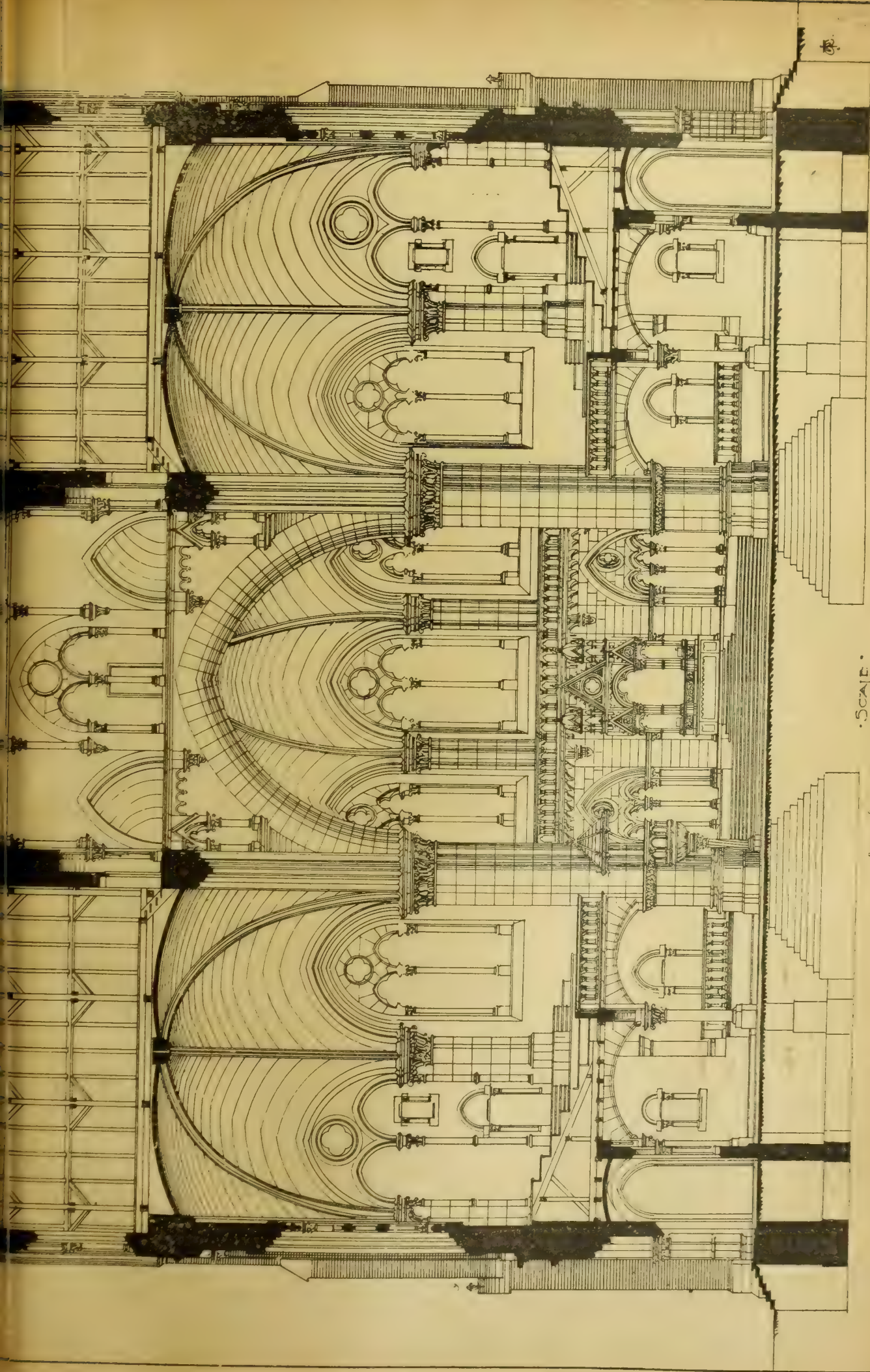
The Chancellor of Lincoln Diocese has granted a faculty for the restoration of Anwick Parish Church in three sections. Upwards of £200 has already been promised, and the contract of Mr. F. Pattinson, of Ruskington, has been accepted for the first stage of the work—i.e., the extension of the chancel to its original length and the raising of the chancel roof to its original height.



• ST LUKES CHURCH  
MUNICH •







CROSS SECTION LOOKING EAST.  
SCALE.  
0 10 20 30 40 Feet

ALBERT SCHMIDT ARCHT

Mannheim



# ROYAL INSTITUTE OF BRITISH ARCHITECTS.

## ELECTION OF PRESIDENT AND COUNCIL.

AT the Institute meeting of Monday, 12th inst., reported on p. 804, the Council for the year of office 1899—1900 were declared duly elected as follows:—

President: William Emerson.

Vice-Presidents: John McKean Brydon, William Milner Fawcett, M.A.Cantab., F.S.A., Henry Louis Florence, Edward Augustus Gruning.

Hon. Secretary: Alexander Graham, F.S.A.

Members of Council: Frank Thomas Baggallay, Thomas Blashill, James Brooks (Past Vice-President), John James Burnet, A.R.S.A. (Glasgow), William Douglas Caröe, M.A.Cantab., F.S.A., Thomas Edward Colcutt, John Alfred Gotch, F.S.A. (Kettering), Edwin Thomas Hall, Henry Thomas Hare, Edward William Mountford, Beresford Pite, John Slater, B.A.Lond., Richard Phené Spiers, F.S.A., Henry Heathcote Statham, Leonard Stokes, Sir John Taylor, K.C.B., Paul Waterhouse, M.A.Oxon., Aston Webb, A.R.A., F.S.A. (Past Vice-President).

Associate-Members of Council: James Sivewright Gibson, Henry Vaughan Lanchester.

Representatives of Allied Societies: David Barclay (Glasgow Institute of Architects), Robert Isaac Bennett (Manchester Society of Architects), James Crocker (Devon and Exeter Architectural Society), Thomas Drew, R.H.A. (Royal Institute of the Architects of Ireland), Robert Evans (Nottingham Architectural Society), Charles Busted Fowler (Cardiff, South Wales, and Monmouthshire Architects' Society), William Glover (Northern Architectural Association), Albert Edwin Sawday (Leicester and Leicestershire Society of Architects), Joseph Smith (Sheffield Society of Architects).

Representative of the Architectural Association (London): George Halford Fellowes Prynne.

## THE STANDING COMMITTEES.

At the same meeting the following members were declared duly elected to serve on the Standing Committees for the ensuing year of office:—

### ART STANDING COMMITTEE.

Fellows: John MacVicar Anderson, F.R.S.E., James Brooks, John McKean Brydon, William Douglas Caröe, M.A., F.S.A., Ernest George, Henry Thomas Hare, Edward William Mountford, Henry Heathcote Statham, Alfred Waterhouse, R.A., LL.D., William Young.

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Associates: Sydney Benjamin Beale, Henry William Burrows, Max Clarke, Bernard John Dicksee, Matthew Garbutt, Assoc.M.Inst.C.E., Charles Henman.

The hon. auditors for the past official year, Messrs. Zeph. King and Frederick William Marks, were re-elected for the ensuing year.

## MR. HAL HURST'S EXHIBITION.

AT the Modern Gallery, 175, Bond-street, a series of clever figure-studies and sketches by Mr. Hal Hurst is on view. These are in oils, water-colours, pastels, silver-point, and black-and-white sketches. The subjects are slight sketches in pen and washes of bright tints of girls in fashionable costumes and evening dress under various diverting moods, coquettish young maidens of "the period," or of the "Gay Parisienne" type, in shimmering silks on drawing-room lounges, ball-rooms, race meetings, swinging in hammocks, or by the seaside. There is much delicacy of line and grace in Mr. Hal Hurst's sketches, which are thoroughly French in style; even the mounts of many are in the Louis Seize style. A few subjects in black and white are very clever in drawing and grouping. "The Last Resource," a poor widow pawning her ring, three children under her charge; and "Down in Trafalgar Square," a group of crouching humanity who have been sleeping under the shelter of one of the bronze lions, one disconso-

late pair with children walking away, are touching subjects. At the other extreme of society we have a clever drawing of "The Coaching Club Meet," a fashionable throng of ladies and gentlemen, and "The Lawn, Ascot," a scene on the course, and some others. A few of the works give evidence of a more serious and solid treatment, as a landscape evening effect. Some of the decorative designs in outline and colour for panels are clever.

## THE DISPUTE IN THE BUILDING TRADE.

THE result of the Conference of Unions held at Manchester on Monday proves that there is no controversy between the men and the masters. The master builders recently held a conference in London with the plasterers under an independent chairman, and agreed on certain terms. These terms they proposed to the combined unions as the basis of a combined conference, for which they also suggested the same chairman. The combined unions, through their representatives, rejected this basis, their main ground of objection being that the terms contained, or conveyed, certain allegations as to the practices of their unions which they repudiated as unfounded. Evidently it was not so much a question of substance as of form upon which disagreement arose. The effect of Monday's conference at Manchester has been the proposal of a representative constitution for the building trades similar to that which was created in the engineering industry at the close of the great dispute in 1898. The men suggest the formation of joint each district, to deal with any differences or disputes that may arise in the district with an appeal to a national conciliation committees of employers and employed for board representing the whole industry. This proposal merely generalises the plan contained in the plasterers' agreement for the settlement of demarcation disputes, and we do not suppose the master builders will object to it. Our opinion is that such a "constitution" is the best, indeed the only trustworthy instrument for dealing with the troubles of the building trades and other industries. The only point left to fight about at present is a question of fact. Are the unions guilty of encouraging or conniving at certain practices, such as compelling foremen to join them, refusing to work with non-unionists, and so forth? One side will continue to say that these are isolated instances, while the other will repeat that they are general practices. The only way of dealing with allegations of this kind is to take each case as it arises, and refer it to a tribunal to be dealt with on its merits. It is, of course, always difficult to arrange a peace while war is being actively waged, and at present war is unfortunately being waged in most of the Yorkshire districts. The Yorkshire employers have explained that they offered to withdraw the lock-out if the conference were arranged on the terms proposed; but this does not alter the fact that their action has been taken independently of the National Association, and that it may seriously prejudice the success of the general agreement which that Association desires. The Yorkshire employers will probably recognise that the proposed basis will make room for an adjustment of the questions in which they are principally interested. Their present action imports an element of weakness into the employers' organisation, while it also makes against the chances of a peaceable discussion of differences. That workmen need to be beaten into reasonableness is a view with which we have no sympathy. What they want is to be taught to distinguish between their real interests as a class and the petty animosities and sectional rivalries which sometimes run away with them. They will learn this best not by being starved into a temporary surrender, but by having constantly to argue their claims and complaints before a competent tribunal composed in part of men of their own trade, and having to make good their case in the eyes of those who have the stability of the trade as a whole to consider. Strikes and lock-outs are war, and all war is wasteful. Arbitration is the one way out. The master builders and their men will find it. That, at any rate, is our belief. We have much too good an opinion of both to dream that they will wait till arbitration in labour disputes is made compulsory, as it ought to be in all industries. The building trades are the pick of the vocations of the people of these

islands, and their leaders and members are bound to maintain their past reputation in this as well as other things.

## OBITUARY.

MR. WILLIAM L. HENDERSON, of the firm of William Henderson and Son, architects, of Aberdeen, died on the 5th inst., from an affection of the heart. He was the eldest son of the late Baillie William Henderson, architect, wood merchant, valuator, &c., who carried on business for many years in Loch-street. Under the title of W. Henderson and Son, the firm carried out a large number of architectural and building contracts both as under the former arrangement when the business was carried on in Loch-street, and in more recent years since the firm's premises were removed to Union-street, and the business more strictly confined to architectural and valuation work. Among the many Free Churches erected by the firm may be mentioned those at Old Aberdeen, Culter, Crathie, Torry (old), Gallowgate, Macduff, Ellon, Braemar, Newmachan, Greyfriars, and Rutherford, and they also designed the parish church of Laurencekirk. About the time of the passing of the Education Act the firm were architects for a large number of schools in the north of Scotland, particularly in Orkney and Shetland. In more recent days (and partly while Mr. Alexander Mayer was a partner in the business) the firm were architects for numerous buildings of a public character. These included the Morningfield Hospital, numerous branches for the Union Bank, and the New-hills Cottage Hospital. The firm were architects for the Aberdeenshire County Council, and built a number of police-stations throughout the county, and carried out contracts for many commercial firms in Aberdeen. Mr. Henderson, who was a member of the Aberdeen Society of Architects, had been married twice, but at the time of his death was a widower. He leaves three sons and a daughter.

## CHIPS.

The excavations now being made in the Roman Forum by order of Signor Baccelli, Minister of Public Instruction, have led to the discovery, under the Lapis Niger, in the midst of a number of votive offerings, a *cippus* of tufa rock, remaining in its proper site, bearing a Latin inscription written in the most ancient Latin characters.

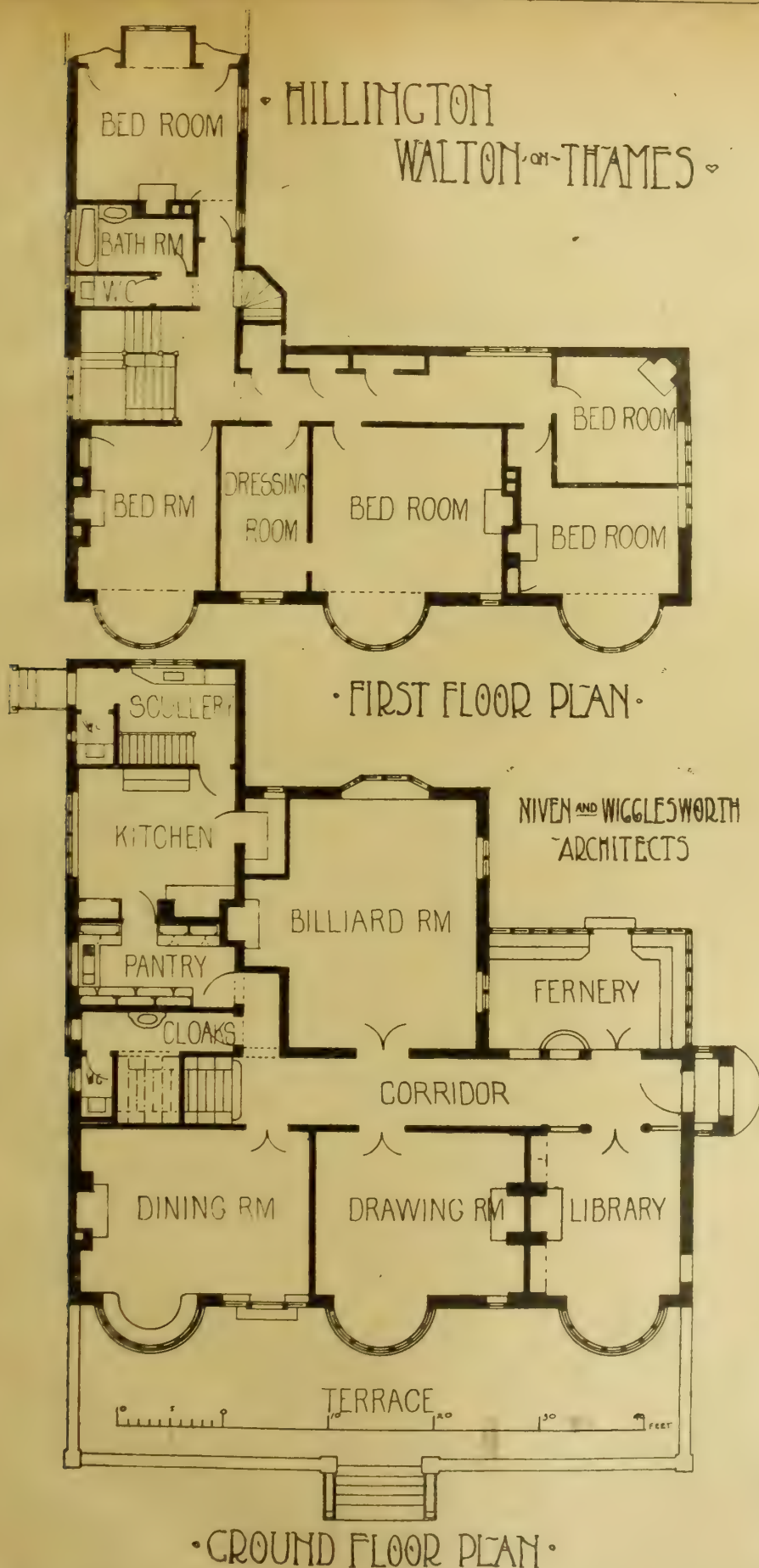
A Select Committee of the House of Commons has passed the preamble of the Harrow and Uxbridge Railway Bill, which provides for the making of a short line to connect the authorised Harrow and Uxbridge Railway with the Metropolitan Railway, so as to provide alternative routes from Uxbridge, the one via the Ealing and South Harrow Railway, now being made, and the District Railway to Victoria, and the other by the Metropolitan Railway to Baker-street and the City.

A new Masonic Lodge for the convenience of professors of the arts of sculpture and painting was consecrated on Tuesday night at Freemasons' Hall, London, by the Grand Secretary of England, Mr. E. Letchworth. The lodge is named the Arts Lodge, and is numbered 2,751 on the roll of Grand Lodge of England. At the conclusion of the ceremony of consecration, Mr. George Simonds, Past Grand Steward, was installed as the lodge's first Worshipful Master, and Mr. Graham G. Nicholas and Mr. Francis J. Short were invested as Wardens. The other offices were bestowed on Messrs. J. Erskine Knox, Thomas Stirling Lee, William S. Frith, C. Harrison Townsend, Francis Bate, Alfred Hartley, H. Harris Brown, and C. J. Harold Cooper.

A mural monument has been erected in St. Botolph's Church, Bishopgate, to the memory of the Rev. William ("Hang Theology") Rogers, for 33 years rector of the parish. It is of Cipollino marble, from the ancient quarries in Euboea, and of Pentellic marble from the neighbourhood of Athens, and contains a portrait in low relief placed within a wreath, and below this an inscription. Mr. J. F. Bentley, under whose supervision St. Botolph's was restored in the lifetime of Mr. Rogers, designed the memorial, which has been executed by Messrs. Farmer and Brindley, of Westminster Bridge-road.

You want to read George Griffith's new story, "BROTHERS OF THE CHAIN," in the *Weekly Times and Echo*, don't you? Better order that paper for June 13 at once of your newsagent, then, or you may miss the first chapter. You remember the demand for his "Angel of the Revolution," "Olga Romanoff," "The Outlaws of the Air," and "The Romance of the Golden Star," and how you couldn't rest till you got *Pearson's* every week to read them. This is as good as the best of them—some say better.





Gallery, Mr. Sidney R. J. Smith, F.R.I.B.A., who is able to give this system the unqualified recommendation that the work done at the Gallery has stood a "most severe test during the recent high gales." No better test can be applied to any system of glazing than this. As our readers acquainted with the "Invincible" system know, the glass is held firmly between a water channel of metal (copper or zinc) fixed to a wooden rafter or steel bar, and a metal cap fixed with screw-bolt and nut, so that there is no vibration or shaking of the glass; the channel and condensation gutters underneath carry away all leakage or condensed moisture, and all the wood or ironwork is covered by the glass. The "Invincible" system has been used over the four great spans of the Liverpool-street Station roof, 493ft. long, also on the roofs of the Moor-gate-street Station, Eastbourne Station, Windsor Station of the G.W.R., the Leicester Station, and numerous other station roofs, the Brighton Baths, the swimming baths of the Northampton Institute, Clerkenwell, and other baths in London, and over numerous other buildings where top lights are required. The Rendle bar allows of squares of glass of 10ft. long. The system is readily applied, durable, and is not affected by heat or cold, or expansion and contraction, as other systems are.

We omitted last week on p. 797 to state that the new lounge at the Opera House at Covent Garden Theatre was glazed by Messrs. W. E. Rendle and Co., on their well-known patent system. Messrs. W. E. Rendle and Co. have also just signed a contract with the London, Brighton, and South Coast Railway for reglazing the whole of the roof at Brighton Station, containing an area of 60,000ft. super., and the greater part of London Bridge Station, containing an area of about 40,000ft. super. Better testimony to the superiority of this well-known system can hardly be desired.

#### PROFESSIONAL AND TRADE SOCIETIES.

GLASGOW ARCHITECTURAL ASSOCIATION.—The annual business meeting was held in the rooms, 187, Pitt-street, on Tuesday evening, June 6, at 7.30, the president, Mr. Geo. S. Hill, A.R.I.B.A., in the chair. The business of the evening comprised the reading of the secretary's, treasurer's, and librarian's reports, which were adopted, and the election of new office-bearers for the ensuing session. The following gentlemen were elected to office:—President, Mr. John Fairweather, A.R.I.B.A.; vice-presidents, Messrs. Chas. E. Whitelaw and Wm. J. Blain; secretaries, Messrs. Alex. Wingate and Thos. Ramsay; treasurer, Mr. Walter S. Tucker; librarian, Mr. Andrew Rollo; general committee, Messrs. Geo. S. Hill, A.R.I.B.A., Jas. Lochhead, A.R.I.B.A., Alex. McGibbon, A.R.I.B.A., Jas. McKisack, Alex. Davie, Wm. Vickers, Wm. S. Lukeman, and Robert J. Walker. A vote of thanks to the retiring president, Mr. Geo. S. Hill, concluded the business.

Mr. Victor Wilson, of Bacup, has been appointed surveyor to the Wardle Urban District Council from among 37 candidates. Mr. Wilson, who is 25 years of age, has hitherto been engaged as assistant-surveyor to the Atherton Urban District Council.

The Duke and Duchess of York have arranged to open the new homes of the National Society for Employment of Epileptics at Chalfont St. Peter, on Friday, June 23, instead of June 22, as previously announced.

The Leyton Urban District Council, who at first hoped to provide public baths for £8,000, then for £15,000, and thirdly for £23,000, have taken another leap forward and have adopted, though only by the narrow majority of 12 votes to 11, a scheme which is estimated to cost £31,000.

Mr. W. O. E. Meade-King, C.E., held an inquiry at the council chamber, Darlington, on Friday, into an application on the part of the corporation of Darlington for sanction to borrow £30,000 for the purpose of electric lighting, and £591 for the purchase of land in Haughton-road for the extension of the depot.

A syndicate representing some leading City firms has been registered which proposes to erect a new building, to be called the City of London Exchange, as a common rendezvous for the representatives of houses engaged in all branches of commerce. A site has been acquired in Jeffrey-square, St. Mary Axe, near Leadenhall-street, on which it is intended to erect, at a cost of not less than £250,000, a building with an area of 27,500sq.ft.

#### "HILLINGTON," WALTON-ON-THAMES.

THIS illustration, from the current exhibition at the Royal Academy, is of a drawing by Mr. F. L. Griggs, of a house recently erected at Walton-on-Thames, from designs by Messrs. Niven and Wigglesworth. A feature is made of the regular bay window treatment; the bays being enriched by modelled cement, and surmounted by ornamental lead gutters.

#### RENDLE'S "INVINCIBLE" GLAZING.

THE perfected system of glazing introduced some years ago by Messrs. W. E. Rendle and Co., of 5, Victoria-street, Westminster, still remains in high estimation among architects. Every additional application that is made of the system proves its efficacy. The most recent testimonial received by Messrs. Rendle and Co. comes from the architect of the National British



## COMPETITIONS.

**FORFAR.**—At a meeting of the Forfar County Council it has been decided to approve of the recommendation of Mr. Morham, assessor, to place first the design lodged by Messrs. M'Arthy and Watson, architects, Edinburgh, for the new fever hospital. The second premium has been awarded to Mr. Alex. Cullen, architect, Glasgow, and the third to Mr. T. Martin Cappon, architect, Dundee. There were thirty-four competitive designs sent in.

**GLASGOW.**—The Springburn Halls competition has been settled. The assessors were Messrs. J. J. Burnet, A.R.S.A., T. L. Watson, F.R.I.B.A., and Mr. A. B. McDonald, M.Inst.C.E. The following is their award which has been adopted by the Corporation of Glasgow:—1st premium, Mr. Wm. B. White, 196, St. Vincent-street; 2nd premium, Messrs. Thomson and Sandilands, West George-street; and the 3rd premium Messrs. Watson and Salmonds, St. Vincent-street. The plans have been on view in the Corporation Galleries, Sauchiehall-street, this week. Springburn is one of the districts added to the Glasgow municipal area some years ago, and one of the conditions of annexation was that suitable public halls were to be built. After being under consideration by the authorities for a considerable period, the matter has recently been somewhat hastened by the munificence of a well known local family, who offered to provide a winter garden in Springburn Park on condition that the Corporation agreed to proceed with the erection of the halls without further delay. This offer was at once accepted, and a competition confined to architects in Glasgow was instituted. Although no premiums were offered, nineteen sets of drawings were sent in, and from these the choice just given was made. The site is central, and is situated at the corner of Keppockhill-road and Millarbank-street. The cost is estimated at about £12,000. We are promised the loan of the premiated plans, which we hope to illustrate shortly.

**NEW YORK.**—The list of names of the architects chosen to compete for the New York Custom House is as follows:—Of the New York architects, those invited are Messrs. McKim, Mead and White, George B. Post, Bruce Price, Carrère and Hastings, Francis H. Kimball, James B. Baker, Cady, Berg and See, Clinton and Russell, Robert W. Gibson, Israel and Harder, Babb, Cook and Willard, Henry J. Hardenbergh, Cass Gilbert, Trowbridge and Livingston, George Martin Huss, and Howard, Cauldwell, and Morgan; from Boston, Messrs. Peabody and Stearns and Shepley, Rutan and Coolidge are invited; and Messrs. D. H. Burnham and Co. and Henry Ives Cobb from Chicago. This selection is said to have been made by Mr. James Knox Taylor, the supervising architect of the Treasury. Under the terms of the invitation the architect whose design is placed first is to be employed to carry it out at the regular commission of 5 per cent. for drawings and general superintendence, while no provision is made for second and third premiums, or for any compensation to other competitors than the one given first place.

The monthly report for May of the Labour Department states that employment in the building trades has continued good. The percentage of unemployed union members among carpenters and plumbers at the end of May was the same as in April—viz., 1.3. The percentage for May, 1898, was 1.2. In the furnishing trades employment has continued brisk. The percentage of unemployed union members at the end of May was 0.9 compared with 0.8 in April and with 1.0 per cent. in May of last year.

The Duchess of Albany on Wednesday last laid the foundation stone of the new buildings at St. John's Hospital, Lewisham. The architects are Messrs. Barnes-Williams, Ford, and Griffin. The buildings, which will provide for the reception of 33 additional patients, will be of red brick, with Monk's Park stone dressings and tiled roofs, and the contract has been let to Mr. H. L. Holloway at £5,370. The clerk of works is Mr. J. J. Trim.

At the last meeting of the Court of the Stationers' Company, it was unanimously decided to confer the honorary Freedom of the Guild upon Mr. John Passmore Edwards, in recognition of his generosity towards the Caxton Convalescent Home and the Printers' Corporation, and as a mark of the members' appreciation of his liberality, judgment, and foresight in establishing Free Libraries in many parts of the United Kingdom.

## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

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"BUILDING NEWS" DESIGNING CLUB.

DRAWING RECEIVED.—"Virginia."

## Correspondence.

## BIRTHDAY HONOURS.

To the Editor of the BUILDING NEWS.

SIR,—The fact that the commonplace list to which you refer in a recent issue contains names representing most of the professions and callings with the exception of that of architecture, has been very generally commented on; but is it not the natural result of a system which forces the individual to share the drawbacks belonging to the class to which he is attached?

Can we wonder that so long as the profession of architecture is not recognised by the State, those on whom the responsibility of selecting candidates for titular honours rests do not look upon us as a body with any degree of favour?

It is not the honours in themselves which are so desirable; but the want of that mark of appreciation implied by their being conferred is deplorable.

Does not this suggest that compulsory registration (which would result in the closing of the profession and the rendering of it collectively worthy of being placed on a level with the other closed professions) is a legitimate ambition, and one which it is worth while making some effort to achieve?

It is to be regretted that the R.I.B.A., who are unquestionably the proper body to take the lead in this matter, not only stand aloof, but collectively oppose the Bill now before Parliament, although individually largely in favour of it.

Is it not time that broader-minded views should prevail, and that the allied societies (many of whom have passed resolutions in favour of registration) and architects generally should combine, with the object of showing what the feeling of the profession really is on this vitally important subject?

In the interest of the profession, it cannot be too widely known that the Society of Architects has been for years, and is still, actively engaged in upholding and propagating the principle of compulsory registration.—I am, &c.

C. MCARTHUR BUTLER, Sec.

Society of Architects, St. James' Hall, Piccadilly, W.

## Intercommunication.

## QUESTIONS.

[12251.]—**Quantities for Moulded Cornice.**—Will someone acquainted explain how to take the quantities out for a moulded cornice return at the angle, and oblige?—A STUDENT.

[12252.]—**Expanded Metal in Plaster.**—Does not the employment of expanded metal in plaster or concrete considerably strengthen the work, and render fewer intermediate supports necessary, say for a fireproof floor ceiling? Any information about the increased strength and cost will be of value to—A. K. S.

## REPLIES.

[12246.]—**The Soot Nuisance.**—"Perplexed" complains of soot falling and dirtying carpets. The fault is in the construction of the flues, which ought to be so bent or curved as to avoid any great length of straight flue. An anti-down-draught cowl may be of some service. I should recommend corbeling out the brickwork in the throat of the flue so as to form a break.—G. H. G.

[12247.]—**Foundations by the Sea.**—The railway line east of Dawlish—over which I usually travel twice every morning before breakfast—was built by the late Brunel close to the sea beach. Although exceedingly picturesque (I know none more so, save, perhaps, parts of the similarly-situated railroad between Cape Town and Simon's Town, S. Africa), there has always been much trouble with the foundations, and on several occasions in places the line has collapsed, or been totally washed away.

It now stands, in the main, upon wicker-work, and the wattle proves itself a better foundation in close proximity with the sea, than anything else. This query was put through the *Builder* several weeks ago, but elicited no reply.—HARRY HEMS.

[12247.]—**Foundations by the Sea.**—Various means have been adopted to protect the shore—bundles of faggots or fascines, rows of piling, concrete, local rock, &c. Excavation between rows of piles, and filling in with concrete in block or rammed, is probably the best means for preparing foundations. The beds of shells may be utilised in the foundations, and will form a good aggregate for the cement grouting.—G. H.

[12249.]—**Right to Drains.**—I do not think A has any remedy against B. The drain is probably not large enough for both houses. It is a matter for the local authority.—S. A.

[12250.]—**Architect's Responsibility.**—I presume the word "spans" means spaces under floors. I am of opinion that an architect should provide for air bricks to ventilate the space under floor joists. If specified, the contractor is liable if they have been omitted. An architect can scarcely be held responsible for every timber put in, whether it was unseasoned or "green"; but for omissions in design he is liable.—G. H. G.

## Our Office Table.

The gilded rosettes in the coffered ceilings of the transepts of St. Pauls, which were among the things most attacked by the critics of Sir William Richmond's decorations, are being removed. Sir William himself (a correspondent assures the *Daily News*) says that it is felt that while they are beautiful in themselves, they are not in consonance with the architectural stability effect which it is so desirable to preserve. The lettering on the frieze is also to be removed; the reason given being that it makes a transverse line at a place where that is not desirable, breaking the columnar effect which the upper portion of the dome demands. In answer to a remark that the colour of the ornament in certain places seemed to be too grey and cold, Sir William assented, and pointed out that this was much due to the fact that the windows in the dome are of cold green glass, and throw a cold light upon the colours, which, otherwise lit, would be warm. The windows are to be changed. "It is easy," says Sir William, "for a man to come in and in five minutes point out that this is wrong and that is bad, but only posterity can judge; and when the burst of praise or blame, either of which must be wrong, is over, we may all go on quietly. The decoration must go on: nothing will stop that."

At the meeting on Tuesday of the London County Council, the Establishment Committee announced the retirement of Mr. John Hebb, chief assistant architect, and recommended that applications be invited for the appointment, which is to carry a salary of £800 a year. This was agreed to. At the same meeting of the County Council it was resolved after considerable discussion that a portion of the site of Reid's Brewery, bounded by Clerkenwell-road, Gray's-inn-road, Portpool-lane, and Leather-lane, should be acquired for £200,000 under Part III. of the Housing of the Working Classes Act, and that application should be made to Parliament in the Session of 1900 to enable the Council to acquire compulsorily other lands adjoining this site. On the complete site it is proposed to re-house 3,000 persons of those who will be displaced by the Holborn to the Strand and Claremarket improvement schemes. The remainder of the people to be displaced are to be accommodated on the Millbank site.

MR. G. D. LESLIE, R.A., writes protesting against the proposal to destroy in the extension of South Kensington Museum the open quadrangle which at present forms the southern boundary of the refreshment rooms. Through the very centre of this little quad it is proposed to construct a broad and lofty inclosed passage. He suggests that this new corridor between the refreshment-room and the main entrance should be abandoned, and that the architect should instead complete the fourth side of the quadrangle, and substitute a fountain for the statue which is at present in its centre.

At a meeting of the election committee of the Institute of Sanitary Engineers, held on the 7th inst., the following members were elected:—Fellows: H. A. Chadwick, Durban, Natal; J. V. B. Collie, Cape Town. Associates: E. Box, Bexley Heath; W. Jenkinson, Worsley, Manchester; E. E. Rice, Teddington; H. T. Sidwell, Herne Bay; J. Whelan, Dublin.



## MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Carpenters' Company. Practical Examination at the Company's Schools, Great Titchfield-street. 9.30 a.m. to 5.30 p.m.

SATURDAY (TO-MORROW).—Carpenters' Company. *Viva voce* Examination at their Hall. 12.0 noon.

Architectural Association. Visit to Gaton Park and Church. Train 2.6 p.m. from Charing Cross to Merstham.

## THE ARCHITECTURAL ASSOCIATION.

JULY 1st.—VISIT TO SHOOTER'S HILL HOUSE, Pangbourne (Leonard Stokes, Architect), and to a large House in course of erection (J. Belcher, Architect). Meet on platform at Paddington for 1.33 train. P.O. 5s., to be sent to Mr. FRANCIS HOOPER, 12, Norfolk-street, Strand, before June 28th.

G. B. CARVILL } Hon. Secs.  
R. S. BALFOUR }

## Trade News.

## WAGES MOVEMENTS.

THE DISPUTE IN THE BUILDING TRADE.—The result of the plasterers' ballot, declared at Westminster on Saturday, shows 4,559 votes in favour of accepting the terms arranged at a conference held in London, and 368 against. Four retiring members of the executive have been re-elected by an overwhelming majority. The very satisfactory result is that the men will return to work after the official withdrawal of the lock-out notices by the employers, and the local rules will be amended to meet the requirements of the agreed terms. An important meeting of the representatives of the unions concerned in the present dispute in the building trade was held in Manchester on Monday. At the Derby conference a week previously the withdrawal of the lock-out in Yorkshire was made conditional on the representatives of the men agreeing to a basis for a joint conference, submitted by the editor of the *Daily News*. The men could not accept the basis, and suggested that they could only deal with the question of conciliation. The men were asked to submit their alternate proposals within a fortnight, and Monday's meeting was held to consider their position. The chair was occupied by Mr. Wilson, president of the Amalgamated Society of Carpenters and Joiners. The question of a basis for a conference was discussed at great length, and a basis of settlement by the appointment of a joint conciliation board to consider all questions in dispute was drawn up. This will have to be submitted to the executive committees of the various bodies represented for their special consideration, and the reports thereon will be received at another meeting to be held next Monday. It will thus be impossible to forward the reply to the employers within 14 days.

GRIMSBY.—The whole of the Grimsby bricklayers came out on strike on Monday for an advance in wages of 1d. per hour. The period is most favourable for the men, as there is a great demand for houses, and building operations were in full swing.

LANCASTER.—The master plasterers and operatives have come to terms, and by the settlement the men will get an advance in wages from 8½d. to 9½d. per hour. Work was resumed on Monday.

MIDDLESBROUGH.—A joint meeting of the representatives of the masters and men in the building trade was held at the Albany Restaurant on Thursday night in last week. A protracted meeting resulted in the masters offering the men an advance of ½d. per hour, making a wage at the rate of 9½d. per hour for ordinary purposes, with a rate of 10d. per hour in the works, but without allowing walking time. They also suggested that a committee of masters and men should be formed to consider the question of working rules, and to act as a board of conciliation for the trade in the town. The men's representatives promised to lay the masters' suggestion before the men.

NEWCASTLE-ON-TYNE.—On Saturday the joiners of Newcastle and district, numbering about 700, struck work for an advance of wages from 9½d. to 10d. per hour. The men decline to submit the matter to arbitration.

SHIELDS.—The house joiners of North and South Shields came out on strike on Monday in accordance with the decision previously arrived at on the masters refusing to concede an advance from 9½d. to 10d. an hour. Upwards of 400 men are affected. The men decline to submit the question to arbitration.

THE GREAT STRIKE IN THE DANISH BUILDING TRADE.—The Danish employers have sent a letter to the German association of employers in the building trade explaining the motives which induced them to declare a general lock-out, and requesting the latter not to give employment to any Danish workmen during the continuance of the lock-out. They add that they will readily do the same for the German employers in the event of future troubles in the German building trade. It is

reported that owing to the magnitude and seriousness of the lock-out attempts are being made to induce the Crown Prince of Denmark to offer his mediation.

WALSALL.—The builders' labourers' strike, which had existed for the last ten weeks, has now been settled. The demand of the men was for an advance of ½d. per hour, while the masters were willing to give ½d. now and ½d. in six months. Terms have been arranged by which the men receive an advance of ½d. an hour, with no arrangement for any further sum in the future.

WIGAN.—The stonemason's strike, after lasting six weeks, has come to an end. At a meeting of representatives of employers and operators, called on Tuesday by the editor of the *Wigan Observer*, who was asked to preside, terms were mutually agreed to, concessions being made by both sides. The wages are advanced to 9½d. per hour from July 1. Certain alterations were made in the rules, and a conciliation board consisting of joint representatives was appointed to deal with minor disputes. In case of future proposed alterations in rules six months' notice is to be given, terminable on May 1 in each year. The President of the Board of Trade was empowered to appoint an umpire failing settlement by the joint arbitration board. Work will be resumed at once.

YORKSHIRE BUILDING TRADE AND CONCILIATION.—At a meeting of the Northern Centre of the Master Builders' Federation, held in Leeds on Wednesday, a resolution was passed approving the suggested national conciliation board for the building trade, but declaring that steps must first be taken to clear up the matters contained in the Yorkshire masters' manifesto. It was proposed that a conference of the Yorkshire masters and trade union representatives be arranged for, in which case the lock-out of 25 per cent. would be withdrawn.

## CHIPS.

An adjudication in bankruptcy has been made in the case of George Haines, of Ross, surveyor.

Mr. W. Vincent Vale, accountant, 16, Darlington-street, Wolverhampton, has been appointed secretary to the Wolverhampton branch of the National Association of Master Builders of Great Britain and Ireland, to whom all communications should be addressed, Mr. George Gough having resigned.

A busy week's transactions at the Auction Mart, Tokenhouse Yard, closed on Friday, yielded a return of £326,510. Although the chief event, the Thorp Perrow Estate, failed at the hammer, several residential estates of less magnitude changed hands thus, with general satisfaction.

Considerable alterations are being made to the council-chamber and police-court at Devonport, from the designs of Mr. J. F. Burns, the borough surveyor, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

At Winchester on Thursday in last week the Prince of Wales laid the foundation-stone of the new rifle barracks. They will replace the older ones destroyed by fire 3½ years ago, and which were built from designs by Sir Christopher Wren, originally being intended as a palace for Charles II. The new barracks will be 496ft. long and about 32ft. deep, and will be four stories in height. They are being constructed on a War Office contract, the principal officers being Colonel Mascall, commanding R.E., Southern District, Colonel Maycock, C.R.E., Gosport, Captain Harvey, R.E., and Mr. E. North, R.E.C.S. The foundations have been put in by Mr. Henry Gough, principal of the firm of J. and M. Patrick, of Wandsworth and Rochester.

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A Washable Sanitary Distemper for Whitening and Disinfecting Walls and Ceilings of Passages, Cellars, Stables, Kennels, Sheds, Farm Buildings, Railway Trucks, Horse Boxes, and for General Use.

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THE "SANITAS" COMPANY, Limited,

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Manufacturers of Disinfectants and Sanitary Appliances.

## LATEST PRICES.

IRON, &c.		Per ton.	Per ton.
Rolled-Iron Joists, Belgian.....	£8 0 0 to	£8 10 0	
Rolled-Steel Joists, English.....	6 10 0 "	7 0 0	
Wrought-Iron Girder Plates.....	5 15 0 "	8 10 0	
Bar Iron, good Stuffs.....	7 5 0 "	8 5 0	
Do., Lowmoor, Flat, Round, or Square.....	17 0 0 "	17 5 0	
Do., Welsh.....	5 15 0 "	5 17 6	
Boiler Plates, Iron—			
South Staffs.....	7 17 6 "	8 5 0	
Best Snedshill.....	10 0 0 "	10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £8 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
8ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge.....	£10 15 0 "	£11 0 0	
Best ditto.....	11 5 0 "	11 10 0	
Cast-Iron Columns.....	£8 10 0 to	£9 0 0	
Cast-Iron Stanchions.....	6 10 0 "	9 0 0	
Rolled-Iron Fencing Wire.....	8 5 0 "	9 5 0	
Rolled-Steel Fencing Wire.....	8 5 0 "	9 5 0	
" Galvanised.....	11 10 0 "	12 10 0	
Cast-Iron Sash Weights.....	4 12 6 "	4 15 6	
Cut Clasp Nails, 3in. to 6in.....	9 0 0 "	10 0 0	
Cut Floor Brads.....	8 15 0 "	9 15 0	
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 B.W.G.			
9/6 10/- 10/6 11/3 12/- 13/- 14/- 15/9 17/9 per cwt.			
Cast-Iron Socket Pipes—			
3in. diameter.....	£6 7 6 to	£6 12 6	
4in. to 6in.....	6 2 6 "	6 7 6	
7in. to 24in. (all sizes).....	5 12 6 "	5 17 6	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			
Cold Blast, Lilleshall.....	105s. to	110s.	
Hot Blast, ditto.....	57s. 6d. to	62s. 6d.	
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:—			
Gas-Tubes.....		67½ p.c.	
Water-Tubes.....		62½	
Steam-Tubes.....		55	
Galvanised Gas-Tubes.....		52½	
Galvanised Water-Tubes.....		47½	
Galvanised Steam-Tubes.....		40	
10cwt. casks. 5cwt. casks.			
Per ton.	Per ton.	Per ton.	
Zinc, English.....	£30 10 0 to	£31 10 0	
Do., Vieille Montagne.....	31 10 0 "	32 15 0	
Sheet Lead, 3lb. per sq. ft. super.....	16 2 6 "	17 2 6	
Pig Lead, in 1cwt. pigs.....	15 7 6 "	16 7 6	
Lead Shot, in 28lb. bags.....	19 0 0 "	20 0 0	
Copper Sheets, sheathing and rods.....	83 0 0 "	84 0 0	
Copper, British Cake and Ingot.....	79 10 0 "	80 0 0	
Tin, Straits.....	106 0 0 "	107 0 0	
Do., English Ingots.....	117 0 0 "	118 0 0	
Speiter, Silesian.....	27 10 0 "	28 10 0	
TIMBER.			
Teak, Burmah.....per load	£13 5 0 to	£16 5 0	
" Bangkok.....	11 10 0 "	15 5 0	
Quebec Pine, yellow.....	4 7 6 "	6 10 0	
" Oak.....	4 10 0 "	6 5 0	
" Birch.....	2 5 0 "	3 0 0	
" Elm.....	4 12 6 "	5 15 0	
" Ash.....	3 2 6 "	4 7 6	
Danish and Memel Oak.....	3 5 0 "	4 0 0	
" Fir.....	1 10 0 "	3 10 0	
Wainscot, Riga p. log.....	3 15 0 "	6 5 0	
Lath, Danish, p.f.....	4 10 0 "	5 10 0	
St. Petersburg.....	4 0 0 "	6 10 0	
Greenheart.....	7 15 0 "	8 0 0	
Box.....	4 0 0 "	15 0 0	
Seak, U.S.A. ....per cube foot	0 1 9 "	0 2 0	
Mahogany, Cuba, per super foot			
lin. thick.....	0 0 5 "	0 0 7½	
" Honduras.....	0 0 4½ "	0 0 6	
" Mexican.....	0 0 3½ "	0 0 4	
" African.....	0 0 3½ "	0 0 5	
Cedar, Cuba.....	0 0 4½ "	0 0 4½	
" Honduras.....	0 0 3½ "	0 0 4½	
Sassawood.....	0 0 10 "	0 1 9	
Walnut, Italian.....	0 0 3 "	0 0 7½	
Deal, per St. Petersburg Standard, 120—12ft. by 1½in.			
by 1½in.—			
Quebec, Pine, 1st.....	£19 0 0 to	£25 10 0	
" 2nd.....	14 0 0 "	17 5 0	
" 3rd.....	6 15 0 "	10 0 0	
Canada Spruce, 1st.....	8 5 0 "	10 5 0	
" 2nd and 3rd.....	7 0 0 "	8 5 0	
New Brunswick.....	7 0 0 "	7 15 0	
Riga.....	8 5 0 "	9 6 0	
St. Petersburg.....	10 0 0 "	14 0 0	
Swedish.....	10 0 0 "	17 0 0	
Finland.....	9 15 0 "	10 5 0	
White Sea.....	11 0 0 "	15 0 0	
Battens, all sorts.....	5 0 0 "	15 0 0	
Flooring Boards, per square of lin.:—			
1st prepared.....	£0 11 6 "	£0 14 9	
2nd ditto.....	0 10 0 "	0 10 9	
Other qualities.....	0 5 0 "	0 6 3	
Staves, per standard M.:—			
Quebec pipe.....	—	—	
U.S. ditto.....	£35 0 0 "	£40 10 0	
Memel, cr. pipe.....	210 0 0 "	220 0 0	
Memel, brack.....	180 0 0 "	190 0 0	
OILS.			
Linseed.....per ton.	£20 5 0 to	£20 10 0	
Rapeseed, English pale.....	23 5 0 "	23 10 0	
Do., brown.....	21 15 0 "	21 5 0	
Cottonseed, refined.....	16 6 0 "	16 15 0	
Olive, Spanish.....	30 0 0 "	32 0 0	
Seal, pale.....	18 5 0 "	18 10 0	
Cocconut, Cochin.....	28 15 0 "	29 0 0	
Do., Ceylon.....	25 10 0 "	25 15 0	
Palm, Lagos.....	24 5 0 "	24 10 0	
Oleine.....	18 15 0 "	19 15 0	
Lubricating U.S.....per gal.	0 6 8 "	0 7 6	
Petroleum, refined.....	0 0 6 "	0 0 6½	
Tar, Stockholm.....per barrel	1 0 0 "	1 6 6	
Do., Archangel.....	0 18 0 "	1 0 0	
Turpentine, American...per ton	£5 15 0 "	£9 0 0	



## LIST OF COMPETITIONS OPEN.

Wakefield—Central Premises .....	£50, £30, and £20	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	June 30
Buckie—Bridge over Buckie Burn (£1,600 limit)	25gs.	J. L. Naughton, Clerk to Commissioners, Buckie, N.B. ....	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor)	£150, £100, £75.	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	July 3
Lichfield—Grammar School .....	£20	H. H. Brown, Clerk to Grammar School Governors, Lichfield .....	" 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor)	£100, £75, £50	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead .....	" 27
Wharfedale—Isolation Hospital .....	£30 (merged), £15	C. V. Newstead, Clerk, Union Offices, Boroughgate, Otley .....	Sept. 1
Edinburgh—Midlothian County Buildings, Parliament-square.	£30 (merged), £10	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh ..	—
Aldershot—Masonic Hall (£2,500 limit) .....		John Youd, Secretary, The Triangle, Aldershot .....	—
Hawick—Houses and Cottages .....		W. Haddon, Solicitor, Sec. Building Co., Hawick .....	—

## LIST OF TENDERS OPEN.

## BUILDINGS.

Harrington—Alterations to House, Church-road .....	J. B. Little .....	W. G. Scott and Co., Architects, Victoria Buildings, Workington... ..	June 17
Branderburgh—Alterations to Premises, High-street .....		John Milne, Architect, Elgin .....	" 17
Ashton-under-Lyne—Villa Residence .....		T. D. Lindley, Architect, Market-avenue, Ashton-under-Lyne .....	" 17
Cookstown—Iron School at Rear of Premises in Loy Houses .....	M. and E. J. Houston .....	J. M. Robinson, Cookstown .....	" 17
Trarbert—Alterations at Carmel Chapel .....		Jacob Rees, Architect, Pentre, R.S.O. ....	" 17
Bramley—Mechanics' Shop .....		F. W. Rhodes, Architect, Upper Wortley-road, Wortley .....	" 17
Londonderry—House, Spencer-road .....	James Conroy, C.E. ....	Daniel Conroy, Architect, 2, Bishop-street, Londonderry .....	" 17
Altire—Cottage .....		Robert Murray, Mannachie Lodge, Altire .....	" 17
Chester-le-Street—Hall, &c. ....	Market Committee .....	W. and T. R. Milburn, Architects, 20, Fawcett-street, Sunderland ..	" 17
Belfast—Weighing House, Boundary Wall, &c. ....		The City Surveyor's Office, Belfast .....	" 17
Milford Avon—Intermediate Schools .....		Walter J. Wood and J. B. Gaskell, Architects, Milford Haven .....	" 17
Carnarvon—Hospital .....	Building Committee .....	Rowland Lloyd Jones, Architect, Market-street, Carnarvon .....	" 17
Alves—Cooking-Room at Public School .....	C. Hodgson .....	A. and W. Reid and Wittet, Architects, Elgin .....	" 17
Richmond—Residence .....	Corporation .....	Frank Martin, Architect, South End Chambers, Darlington .....	" 17
Hull—Additions to St. Charles Catholic Church .....		Brodrick, Lowther, & Walker, Architects, 77, Lowgate, Hull .....	" 17
Tunbridge Wells—54 Cottages and Five Blocks of Tenements .....		The Borough Surveyor's Office, Town Hall, Tunbridge Wells .....	" 19
Broomhill—Alterations to Railway Inn .....		Boulds and Hardy, Architects, Morpeth .....	" 19
Easton—Additions to Farm Buildings, Cottage, &c. ....	Bolckow, Vaughan, and Co., Ltd. ....	The Engineers' Office, Cleveland Steelworks, South Bank, R.S.O. ....	" 19
Loughborough—Extensions to Corn Exchange .....		A. H. Walker, Borough Surveyor, Town Offices, Loughborough .....	" 19
Springvale—Hospital .....	Ardrossan & Saltcoats Jnt. Hospital .....	Fryers and Penman, Architects, Large .....	" 19
Broomhill—Stables, Coach-house, &c. ....		Boulds and Hardy, Architects, Morpeth .....	" 19
Morley—Stable, Hay-Loft, and Shed, Bakery-street .....	Metcalf and Bradshaw .....	T. A. Buttery, F.I.A.S., and S. B. Birds, Archts., Queen-st., Morley ..	" 19
Belfast—Rebuilding, Reseating, &c., Whiteabbey Church .....	John Roan .....	N. Fitzsimmons, Architect, 32, Royal-avenue, Belfast .....	" 19
Whitehaven—Alterations to 1, King-street .....		J. S. Moffat, Architect, Whitehaven .....	" 19
Dewsbury—Alterations to Dewsbury Moor Prim. Meth. Chapel .....	West Riding County Council .....	C. H. Marriott and Son, Architects, West Park-street, Dewsbury ..	" 19
Wadley—Large Dining Hall at Asylum .....	Guardians .....	The Clerk of Works, at the Asylum, Wadley, Sheffield .....	" 19
Bristol—Bakery .....	Urban District Council .....	W. S. Skinner, Archt., Edinburgh Chambers, Baldwin-st., Bristol..	" 19
Sandbach—Detached Villa .....	J. Robertson and Sons, Paisley .....	John Pring, Elworth, Sandbach .....	" 19
Wimbledon—Alterations to Cottage at Pumping Station .....		C. H. Cooper, M.I.C.E., Broadway, Wimbledon .....	" 19
Catford, S.E.—Jam Works and Stabling, Bromley-road .....		George Tolley, Architect, Bank Chambers, Forest Hill .....	" 19
Halwell—Two Cottages .....	Ardrossan & Saltcoats Jnt. Hospital .....	W. F. Tolly, Architect, Gate House, Totnes .....	" 19
Swansea—Alterations to Dyfatty Board School .....	U.D. School Board .....	Fryers and Penman, Architects, Large .....	" 19
Mullion—Six Coastguard Houses .....	William Metcalf, Ltd. ....	The School Board Offices, Dynevor-place, Swansea .....	" 19
Carlisle—House near Grinsdale .....	Trinity House Corporation .....	James Roberts, Mullion, Cornwall .....	" 19
Carlisle Point—Fog-Signal House, &c. ....		James Leslie, Architect, 71, Broad-street, Carlisle .....	" 19
Clayton West—Rectory House and Stable Buildings .....		Chas. A. Kent, Secretary, Trinity House, London, E.C. ....	" 19
Southall, W.—Infirmary and Cottages at Schools .....	St. Marylebone Guardians .....	William Watson, Architect, Barstow-square, Wakefield .....	" 19
Carlisle—Twelve Houses at Newtown .....	Mrs. Henderson .....	A. Saxton, F.R.I.B.A., Archt., 22, Southampton Bldgs., W.C. ....	" 19
Gatcliffe—Farm Buildings .....	Urban District Council .....	James Leslie, Architect, 71, Broad-street, Carlisle .....	" 19
Beckenham—Technical Institute and Swimming-Baths .....	Properties Committee .....	John H. Brearley, Architect, Hanover-street, Batley .....	" 19
Lancaster—Roofing-over Pen at Cattle Market .....	West Riding County Council .....	J. A. Angell, Surveyor, Council Offices, Beckenham .....	" 19
Wakefield—Epileptic Wards at West Riding Asylum .....		The Borough Surveyor, Town Hall, Lancaster .....	" 20
Croydon—Repairs, &c., at Slaughter-Houses, Pitlake .....	School Board .....	J. Vickers Edwards, County Surveyor, County Hall, Wakefield .....	" 20
Penarth—Alterations at Albert-road Board Schools .....	Corporation .....	The Borough Engineer's Office, Town Hall, Croydon .....	" 20
Bradford—Market Extension .....	School Board .....	Seddon & Carter, Architects, Bank Buildings, St. Mary-st., Cardiff ..	" 20
Rawtenstall—Extension of Cloughford Board Schools .....		J. H. Cox, City Surveyor, Town Hall, Bradford .....	" 20
Cork—Alterations to Warehouse, North Main-street .....	Samuel Webster and Son, Ltd. ....	T. Bell, Architect, 14, Grimshawe-street, Burnley .....	" 20
Halifax—Eleven Houses at Orvendon Wood .....	City Hospitals Committee .....	W. H. Hill and Son, Architects, 28, South Mall, Cork .....	" 20
Sheffield—Infectious Diseases Hospital, Lodge Moor .....		Jackson and Fox, Architects, 7, Rawson-street, Halifax .....	" 20
Rathkeale—Repairing the Spire of St. Mary's Church .....	School Board .....	Flockton, Gibbs, & Flockton, Archts., 15, St. James's-row, Sheffield ..	" 20
Oldham—Wood-block Flooring, Roundthorn School .....	Archibald and Co. ....	John Horan, M.I.C.E., 50, George-street, Limerick .....	" 20
Dalton-in-Furness—Middenstead and Tank at Leece Farm .....	Corporation .....	A. J. Howcroft, 12, Cleg-street, Oldham .....	" 21
Glasgow—Tenements in High-street .....	T. Hudson Harrison .....	W. Butler and Sons, Solicitors, Dalton-in-Furness .....	" 21
Denholme—Billiard-Room at Mechanics' Institute .....	Guardians .....	The City Engineer, 64, Cochran-street, Glasgow .....	" 21
Bridlington Quay—Dwelling-Houses, Lansdowne-road .....	Rev. J. O. Evans, R.D. ....	G. H. Knowles, Architect, Burlington Chambers, Keighley .....	" 21
Southampton—Workshops at Workhouse .....		Samuel Dyer, Architect, Bridlington Quay .....	" 21
Perth—Offices and Tenement .....	Royal Bank of Scotland .....	Mitchell, Son, and Gutteridge, 9, Portland-street, Southampton .....	" 21
Elgin—Block of Dwelling-Houses, Grant-street .....		David Smart, Architect, Perth .....	" 21
Wisbech—Casual Wards .....	Guardians .....	A. and W. Reid and Wittet, Architects, Elgin .....	" 21
Manstone—Cottage Homes Buildings .....	Ile of Thanet Union Guardians .....	W. H. H. Davis, Architect, Lynn-road, Wisbech .....	" 21
Cowbridge—Vicarage .....	Rev. J. O. Evans, R.D. ....	Leonard Grant, Architect, High-street, Sittingbourne .....	" 21
Walsgrave-on-Sowe—Schoolmaster's Residence .....	Corporation .....	George E. Halliday, F.R.I.B.A., Architect, Cardiff .....	" 21
Southwold—Converting Casino into Cloakroom .....	Education Committee .....	T. F. Tickner, Architect, 7, Bishop-street, Coventry .....	" 21
Chippenhams, Wilts—Technical and Secondary Schools .....	Urban District Council .....	The Borough Surveyor, Southwold .....	" 21
Basingstoke—Joint Isolation Hospital .....	Urban District Council .....	R. E. Brinkworth, F.S.I., Architect, Chippenhams, Wilts .....	" 21
Roths—House, North-street .....	Urban District Council .....	James Gibson, 3, New-street, Basingstoke .....	" 21
Abram—House at Sewage Outfall Works .....	Urban District Council .....	10, Sleaford-square, Roth's .....	" 21
Warminster—Pumping Station at Smallbrook Mill .....	Urban District Council .....	Heaton, Ralph, and Heaton, Architects, Wigan .....	" 21
Dublin—Renewing Copper Roof of Custom House .....	Guardians .....	A. F. Long, Town Engineer, Warminster .....	" 21
Hemsworth—Vagrant Wards at Workhouse .....	Whitehaven Colliery Co. ....	H. Willi ams, Secretary, Office of Public Works, Dublin .....	" 21
Harrington—Alterations to 23, Church-road .....		T. H. Richardson, Architect, Hemsworth .....	" 21
Cork—Coal Stores and Offices at Lapp's Quay .....	Corporation .....	J. S. Moffat, Architect, Whitehaven .....	" 21
Cairnie—House at Bogmoon .....	Great Central Railway Co. ....	W. H. Hill and Son, Architects, 28, South Mall, Cork .....	" 21
Lostwithiel—United Methodist Free Church .....		The Factor's Office, Huntly, Scotland .....	" 22
Cairnie—Stable and Room at Upper Tullochs .....	Corporation .....	Sampson Hill, Architect, Green-lane, Redruth .....	" 22
Carlisle—Artisans' Dwellings at Willow Holme .....		The Factor's Office, Huntly, Scotland .....	" 22
Huntly—Repairs to Farm Offices at Gibston .....	Great Central Railway Co. ....	Henry C. Marks, A.M.I.C.E., City Engineer, 35, Fisher-st., Carlisle ..	" 22
Guidebridge—Waiting-Rooms, Roofing, &c. ....		The Factor's Office, Huntly, Scotland .....	" 22
Lawrence Cove, Co. Cork—Coastguard Station .....	Corporation .....	The Engineers' Office, London-road Station, Manchester .....	" 22
Huntly—Repairs to Offices at Tullochs .....		The Office of the Carpenter-in-Charge, Queen's College, Cork .....	" 22
Glasgow—Alterations to Polmadie Old Police Buildings .....		The Factor's Office, Huntly, Scotland .....	" 22
Bogmoon—House (plasterers' work) .....		Office of Public Works, City Chambers, 64, Cochran-st., Glasgow ..	" 22
Halifax—Stabling and Caretaker's House, Square-road .....		The Factor's Office, Huntly, Scotland .....	" 22
Neyland—Police Station .....	Pembrokeshire County Council .....	J. F. Walsh, Architect, L. and Y. Bank Chambers, Halifax .....	" 23
Kelvedon—Four Almshouses .....	Standing Joint Committee .....	H. Thomas, A.R.I.B.A., Haverfordwest .....	" 23
Wigmore—Alterations at Police Court .....	Cornwall County Council .....	Chancellor and Sons, Architects, Cheshford .....	" 24
Bodmin—Alterations to Cornwall Constabulary Headquarters .....	Corporation .....	A. Dryland, County Surveyor, Shire Hall, Hereford .....	" 24
Manchester—Additions at Monsall Hospital .....	Selby Steam Laundry Co. ....	H. J. Snell, Architect, Plymouth .....	" 24
Selby—Steam Laundry, &c. ....	English Cong. Church Trustees .....	The City Surveyor, Town Hall, Manchester .....	" 24
Blaina—New Schoolroom and Heating Chapel .....	Board of Guardians .....	G. F. Pennington, Architect, Central Chambers, Castleford .....	" 24
Hursley—New Workhouse .....		W. S. James, Secretary, 77, High-street, Blaina .....	" 24
Fontcarreg—Addition to Carmarthenshire Infirmary .....		Chancellor and Hill, Architects, 12, Jewry-street, Manchester .....	" 26
Cwm—Classrooms, &c., Cwmtydderch Infant School .....	Aberystwith School Board .....	H. Howell, Secretary, Pontcarreg .....	" 26
Avon—Two Cottages on Box Farm .....	Governors Gloucester U.E. Schools .....	R. L. Roberts, Architect, Victoria Chambers, Abercrom .....	" 26
Edinburgh—Extension of Boiler House, &c. ....	Magistrates and Council .....	Thomas Cadie, Surveyor, Lynwood, Denmark-road, Gloucester .....	" 26
Wardle—Slatting and Pointing Board Room .....	Urban District Council .....	The Borough Engineer, 1, Parliament-square, Edinburgh .....	" 26
Leeds—Slatting Roof of Coal Store at New Wortley Gasworks .....	Gas Committee .....	Samuel Brierley, Surveyor, Board Room, Wardle, Lancs .....	" 26
Thornham—Repairing and Slatting Roof of Church .....		R. H. Townsley, General Manager, Municipal Buildings, Leeds .....	" 26
Carlisle—Alterations to House .....	Lunacy Committee .....	The Vicar, Thornham Church, Norfolk .....	" 26
Hursley—Workhouse .....	Guardians .....	Geo. Dale Oliver, F.R.I.B.A., Architect, 5, Lowther-street, Carlisle ..	" 26
Bundoran and Belleek—Stationmasters' Houses .....	Great Northern (Ireland) Ry. Co. ....	Chancellor and Hill, Architects, 12, Jewry-street, Winchester .....	" 26
		The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin ..	" 27



## BUILDINGS—continued.

Woolwich—Lodge, Shelter, and Mortuary, Sun-street	Local Board of Health	Church, Quick, & Whinop, Architects, William-street, Woolwich	June 27
Great Horton—Shop and House, High-street	Leonard Chorley	J. Spencer, Architect, 314, Great Horton-road, Bradford	" 27
Sedbergh—Extensions to Black Bull Royal Hotel	Yorkshire Banking Co., Ltd.	Stephen Shaw, F.R.I.B.A., Architect, Kendal	" 27
York—Enlargement of Office, High Ousegate	Visiting Committee	Bedford and Kitson, Architects, Greek-street Chambers, Leeds	" 27
St. Alban's—Isolation Hospital, &c., Hill End	Corporation	G. T. Hine, F.R.I.B.A., Archt., 35, Parliament-st., Westminster	" 27
Witney—Blanket Manufactory	Coast Development Co., Ltd.	John Kirk and Sons, Architects, Dewsbury	" 28
Barrow-in-Furness—Extensions to Elec. Works, Bucleuch-st.	Corporation	The Borough Engineer, Barrow-in-Furness	" 28
Halifax—Villa Residence on Greenroyd Estate	Corporation	Medley Hall, Architect, 29, Northgate, Halifax	" 28
Walton-on-the-Naze—Hall and Buildings in Round Garden	Baths Commissioners	Chas. H. Miliham, Architect, i, Lincoln's Inn Fields, W.C.	" 28
Barrow-in-Furness—Extensions to Sewage Pumping Station	Watch Committee	The Borough Engineer, Barrow-in-Furness	" 28
Pillaton—Restoration of Tower of St. Odolph's Church	St. Mary (Islington) Guardians	Spalding and Cross, Architects, 15, Queen-street, Cheapside, E.C.	" 29
Wandsworth—Baths, James' yard	Guardians	John Atkinson, A.M.I.C.E., Borough Surveyor, Stockport	" 29
Stockport—Fire Station, Wellington-road North	H.M. Commissioners of Works	Wm. Smith, Architect, 65, Chancery-lane, W.C.	" 29
London, N.—Works at Highbury Relief Offices, Corsica-street	Overseers of All Saints, Poplar	Henry Young, Architect, 35, Maitland-street, Bedford	" 30
Bedford—Converting Vagrant Wards into Receiving Wards, &c.	Lancashire County Council	The Postmaster, Chatham	" 30
Chatham—Post-Office	Guardians	William Clarkson, Architect, 135, High-street, Poplar	July 3
Poplar, E.—Additions to Town Hall, Newby-place	Guardians	T. Taylor Scott, F.R.I.B.A., Architect, Carlisle	" 10
Carlisle—Alterations to Business Premises, Devonshire-street	Guardians	Henry Littler, Architect, County Offices, Preston	" 10
Preston—County Sessions House	Guardians	J. H. Morton, F.R.I.B.A., Architect, 50, King-st., South Shields	" 17
Stamford—Workhouse	Guardians		
Brighton—Alterations and Additions to Public Library, Museum, and Art Gallery	School Board	Francis J. C. May, M.I.C.E., Boro' Engineer, Town Hall, Brighton	" 27
Rochdale—New Infirmary at Dearnley	School Board	S. Butterworth and Duncan, Architects, 4, South Parade, Rochdale	" 27
Thornaby-on-Tees—Church	School Board	Hicks and Charlewood, Architect, 67, Westgate-road, Newcastle	" 27
Woodford, Essex—School Buildings, Cowslip-road	School Board	E. Tidman, Architect, 34, Victoria-street, Westminster, S.W.	" 27
Nottingham—Three Villas, Wiverton-road	School Board	Collier and Slater, Architects, 8, Bridlesmith Gate, Nottingham	" 27
Crouch End, N.—Sixteen Semi-detached Villas	School Board	Macer and Co., 39, Cheapside, E.C.	" 27
Woodford—School Buildings, Cowslip-road	School Board	Edward Tidman, Architect, 34, Victoria-street, Westminster, S.W.	" 27
Utteter—Twenty Houses, &c.	James Wright and Son	C. H. Cowlishaw, Solicitor, Utteter	" 27
Bradford—Three Houses, Newark-street	James Wright and Son	F. Moore, Architect, 40, Sunbridge-road, Bradford	" 27
Market Drayton—New Crown Brewery	School Board	T. Tindal, Architect, Longton, Staffordshire	" 27
Walton-on-Thames—Cottage	School Board	George L. Crickmay, 13, Victoria-street, Westminster	" 27
Duffield—Villa Residence, King-street	School Board	Sands and Walker, Architects, Angel-row, Nottingham	" 27
Sheerness—Schools, &c., at Broadway	Edwin Ogden	Leonard Grant, Architect, Sittingbourne	" 27
Hemsworth—Workshops, Offices, &c.	Ind, Coope, and Co.	The Hemsworth Collieries, near Wakefield	" 27
Brynmawr—Premises	D. L. Evans and Co.	J. Watkins, Beaufort-street, Brynmawr, Wales	" 27
Deepcar—Eight Cottages	Parish Council	J. Dobson Townend, Surveyor, 21, Fargate, Sheffield	" 27
Leeds—Alteration of Premises, Wade-street and Wade-lane	Parish Council	J. E. Preston, Architect, Chapel-Allerton, Leeds	" 27
Exeter—Two Residences, Summerland Hill Estate	Parish Council	J. Archibald Lucas, F.S.I., Architect, Guildhall Chambers, Exeter	" 27
Cardiff—Repairs to British Volunteer Hotel, The Hayes	Parish Council	Veall and Sant, Architects, Cardiff	" 27
Treborh—Residence near Treborh Railway Station	Parish Council	Grierson and Ballis, Architects, Bangor	" 27
Willesden, N.W.—Three Cottages	Parish Council	T. F. Shaw, Architect, 60, Nicoll-road, Harlesden	" 27
Barry Dock—Alterations to 104 and 106, Holton-road	Parish Council	D. E. Knapman, M.S.A., Metropolitan Bank Buildings, Barry Dock	" 27
Middlesbrough—Five Shops, Ormesby-road	Parish Council	T. H. Bulmer, Atlas Works, Ormesby-road, Middlesbrough	" 27
Leeds—Engine House	Parish Council	J. Routledge, Waterloo Main Colliery Offices, Pontefract-lane, Leeds	" 27
Shawford—Caretaker's Residence at Compton Parochial Hall	Parish Council	Colson, Farrow, and Nisbett, 45, Jewry-street, Winchester	" 27
East Kirby—Alterations to Co-operative Stores	Parish Council	Lawrence Bright, Architect, 9, St. Peter's Church Walk, Nottingham	" 27
Dunbar—Four-Story Tenements, High-street	Parish Council	Swanston and Legge, Architects, Kirkcaldy	" 27
Trebanog—Manager's House	Parish Council	Veall and Sant, Architects, Cardiff	" 27
South Croxson—Residence	Parish Council	W. Towell, Architect, 21, Buckingham-street, Strand, W.C.	" 27
Scarf—Block of Offices, Mount Stuart-square	Parish Council	H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff	" 27
Scunthorpe—Day Schools	Parish Council	John M. Dossor, A.R.I.B.A., Architect, 2, Manor-street, Hull	" 27
Bradford—Four Houses, Ounsouth-street, Wakefield-road	Parish Council	James Young and Co., Architects, 62, Market-street, Bradford	" 27
Worthing— Wesleyan Church and Schools	Parish Council	John Wills, Architect, Victoria Chambers, Derby	" 27
Rochdale—Extension to Premises in Lower Tweedale-street	Parish Council	Smith and Cross, Architects, Town Hall Chambers, Rochdale	" 27
Limerick—Roofing Houses, Henry-place	Parish Council	R. Fogarty, Architect, Limerick	" 27
Ulverston—Alterations to Bryer's Smithy	Parish Council	Settle and Farmer, Architects, Ulverston	" 27
Harrietham—Master's House at National Schools	Parish Council	Hubert Benstead, Architect, Maidstone	" 27
Leeds—Alterations to Premises, Wade-street	Parish Council	J. E. Preston, Architect, Chapel-Allerton, Leeds	" 27
New Benwell—Laundry, &c.	Parish Council	J. P. Bennett, Architect, 32, Ridley-place, Newcastle	" 27
Wauullwyd—Twenty Houses	Parish Council	Swalwell and Creighton, Architects, Dock-street, Newport, Mon	" 27
Eccehill—Additions to Undercliffe Infants' School	Parish Council	J. Crawshaw, Architect, Ecclehill	" 27
Ulverston—Alterations to 13, Market-street	Parish Council	Settle and Farmer, Architects, Ulverston	" 27
Clacton-on-Sea—Detached Residence, Coachhouse, and Stable	Parish Council	George Gardener, Architect, Clacton-on-Sea	" 27
Wauullwyd—Seventeen Houses	Parish Council	Swalwell and Creighton, Architects, Dock-street, Newport, Mon	" 27
Nottingham—House at Sherwood Rise	Parish Council	Arthur Marshall, A.R.I.B.A., King-street, Nottingham	" 27
Middleton—Branch Shops in Cheapside	Parish Council	F. W. Dickson, Architect, Trevelyan Buildings, Manchester	" 27
York—Additions to Sledmere Vicarage	Parish Council	Broderick, Lowther, and Walker, Architects, Hull	" 27
Wauullwyd—Nineteen Houses	Parish Council	Swalwell and Creighton, Architects, Dock-street, Newport, Mon	" 27
Hucknall Torkard—Two Houses	Parish Council	F. Graton, Architect, Hucknall Torkard	" 27
Wauullwyd—Twenty Houses	Parish Council	Swalwell and Creighton, Architects, Dock-street, Newport, Mon	" 27
Sandylands—Detached House	Parish Council	Walker and Collinson, Architects, Market-street, Morecambe	" 27

## ENGINEERING.

Dudley—Electric-Lighting Plant	Electric Lighting Committee	Wilson and Story, 66, Victoria-street, Westminster	June 17
Tewkesbury—Weighing-Machine at Workhouse	Guardians	H. A. Badham, Clerk, 22, High-street, Tewkesbury	" 19
Ilkley—Reservoir at Gill Head	Urban District Council	W. B. Woodhead and Son, Engineers, 19, Exchange, Bradford	" 19
Southampton—Widening Quartley's Bridge, Christchurch	Urban District Council	W. J. Taylor, County Surveyor, The Castle, Winchester	" 19
Egremont—Pier Work at New Brighton Ferry	Wallasey Urban District Council	The Ferry Manager, Egremont, Cheshire	" 19
Rotherham—Lattice Girder Bridge (60ft. span) to carry Gas Main	Gas Committee	F. A. Winstanley, Engineer, Rotherham	" 19
Huddersfield—Electrical Equipment of Steam Tram Service	Corporation	The Borough Engineer, 1, Peel-street, Huddersfield	" 19
Todmorden—Resheating Telescopic Gasholder	Gas Committee	H. Hawkins, Engineer, Gasworks, Todmorden	" 19
Blackfriars and Deptford—Gangways, Landing Stages, &c.	London County Council	The Chief Engineer's Dept., County Hall, Spring-gardens, S.W.	" 20
Berie—Trenches (2½ miles) for Electricity Mains	Corporation	Henry Fielding, Town Clerk, 15, Burgate-street, Canterbury	" 20
Berie—Water Supply	Gas Committee	James Andrew, Town Treasurer, Berrie	" 21
Salford—Elevators, &c., at Liverpool-street Works	Hailsham Rural District Council	The Gas Engineer, Gas Offices, Bloom-street, Salford	" 21
Hellingley—Iron Girder Bridge	Wokingham Rural District Council	J. Huxley, Surveyor, Winstor House, Hailsham	" 21
Wargrave—Cast-Iron Water-Mains (600 yards of 3in.)	St. Pancras Guardians	J. Berriss, Waterworks Pumping Station, Wargrave	" 21
Dartmouth Park Hill, N.—Fire-Escape Staircases at Infirmary	Gas Committee	Browett and Taylor, Surveyors, 9, Warwick-court, Holborn, W.C.	" 21
Carnarvon—Purifiers, Engines, &c.	Rural District Council	The Gas Manager, Guildhall, Carnarvon	" 22
Nantwich—Bridge over the Crewe Brook	Hardingstone Rural District Council	Joseph Bebbington, District Surveyor, Willaston, Nantwich	" 23
Denton—Sinking Well	Basford Rural District Council	John Haviland, Clerk, 2, St. Giles'-square, Northampton	" 23
Selby—Steam Laundry Plant	Rural District Council	G. F. Pennington, Architect, Central Chambers, Castleford	" 24
Gotham—Covered Service Reservoir (53,900 gallons) and Laying	Rural District Council		
Cast-Iron Pipes (2½ miles of 3in.), &c.	Rural District Council	G. and F. W. Hodson, Engineers, Loughborough	" 26
Alwrick—Reservoir (250,000 gallons), &c., at Snabeleaze	Rural District Council	H. W. Walton, Clerk, Alwrick	" 26
Carlisle—Extending Water-Mains	Rural District Council	George Armstrong, Surveyor, 24, Bank-street, Carlisle	" 26
Asheldam—Reservoir	Rural District Council	H. G. Keywood, M.S.I., Engineer, Market Hill, Maldon	" 26
Guildford—Reconstructing Wiseley Bridge	Rural District Council	N. Lailay, A.M.I.C.E., 16, Great George-street, Westminster	" 26
Alwrick—Repairs to Two Highway Bridges	Rural District Council	H. W. Walton, Clerk, Alwrick	" 26
Horbury—Railway, &c.	Lancashire and Yorkshire Railway Corporation	The Engineer's Office, Hunt's Bank, Manchester	" 27
Barrow-in-Furness—Engine and Generator	Urban District Council	Kincaid, Waller, and Manville, 29, Gt. George-st., Westminster	" 28
North Walsham—Waterworks	Urban District Council	J. C. Melliss, M.I.C.E., 264, Gresham House, Old Broad-st., E.C.	" 29
Withington—Culvert over Leigh Brook, Fallowfield	Urban District Council	A. H. Mountain, A.M.I.C.E., Surveyor, Town Hall, Withington	" 30
Rusdon—Storage Reservoir	Municipal Council	Dennie and Son, Engineers, Rusdon	" 30
Shanghai—Electric Trolley Tramways (23 miles)	Urban District Council	Charles J. Pook and Co., 8, Jeffrey's-square, St. Mary Axe, E.C.	" 30
Bishop's Stortford—Repair of Engines at Sewage Waterworks	Urban District Council	The Council's Surveyor, Bishop's Stortford	July 1
Weston-super-Mare—Sea Retaining Wall and Brick Piers	Urban District Council	Hugh Nettleton, Engineer, Town Hall, Weston-super-Mare	" 5
Hunstanton—Water-Tower and Tank at Waterworks	Urban District Council	Stevenson and Bursall, Engineers, 38, Parliament-st., Westminster	" 6
Naples—Harbour and Docks (estimated cost £162,400)	Corporation	The Public Works Department, Rome	" 10
Grimby—Boilers, Engines, Dynamoes, Pumps, &c.	Gas Commissioners	Marshall Petree, A.M.I.C.E., Town Hall, Grimsby	" 10
Edinburgh—Four-Lift Telescopic Gasholder	Harbour Management	W. R. Herring, Gasworks, Edinburgh	" 22
Christiana—Harbour Works	Harbour Management	The Commercial Department of the Foreign Office, Whitehall, S.W.	" 23
Blackpool—Electric Lighting Fittings, Masonic Hall	Harbour Management	J. A. Nuttall, Architect, Birley-street, Blackpool	" 23
Cape of Good Hope—Railway from Port Elizabeth to Avontuur	Harbour Management	The Offices of the Agent-General, 112, Victoria-street, S.W.	" 23
Frimmingham—Deep Borehole Pump	Harbour Management	Jackson and Priestman, Surveyors, Bradford	" 23
Portaferry, Co. Down—Wooden Pier at Harbour	Harbour Management	J. H. Muir, Engineer, 140, Bath-street, Glasgow	" 23

## FENCING AND WALLS.

Ilkley—Stone Wall (14 rods, 6ft. high) near Hollin Hall Farm	Urban District Council	The Surveyor, Council Offices, Ilkley	June 21
Leeds—Wrought-Iron Fencing, &c., 1.75/yd., Hunslet Moor	Corporation	The City Engineer's Office, Municipal Buildings, Leeds	" 21
Knaresborough—Boundary Wall at Gasworks	Urban District Council	The Clerk, Council Offices, Kirkgate	" 21
Tottenham—Oak Fence, &c., Bruce-grove	Urban District Council	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham	" 27
Knuttsford—Wrought-Iron Fencing (512 yards)	Urban District Council	W. J. Downes, Surveyor, Knuttsford	" 29
Kingston-on-Thames—Unclimbable Iron Fence at Workhouse	Guardians	W. H. Hope, Architect, Portsmouth-road, Kingston-on-Thames	July 2



## FURNITURE AND FITTINGS.

Kingston-on-Thames—New Infirmary and Nurses' Home .....	Guardians .....	J. Edgell, Clerk, Portsmouth-road, Kingston-on-Thames .....	June 19
Tottenham—Fitting-up Kitchen Department, North-Eastern Hospital, St. Ann's-road .....	Metropolitan Asylums Board .....	H. and C. Harston, Architects, 15, Leadenhall-street, E.C. ....	" 21

## PAINTING.

Wolverhampton—Swimming-Baths, Bath-place .....	Parks and Baths Committee .....	J. W. Bradley, A.M.I.C.E., Town Hall, Wolverhampton .....	June 17
Colchester—Cavalry Barracks .....	Guardians .....	The Royal Engineer Offices, Colchester .....	" 17
Bury—Brunswick Day School .....	Corporation .....	P. Smith, North-street, Bury, Lancs. ....	" 19
Darlington—Houses and Offices .....	Corporation .....	The Borough Surveyor, Town Hall, Darlington .....	" 19
Bury—Florence Nightingale Hospital .....	Corporation .....	The Borough Engineer's Office, Bank-street, Bury, Lancs. ....	" 19
Hayfield—Bethel School and Chapel .....	Guardians .....	Wm. Lowe, High-street, Hayfield .....	" 20
Epsom—Workhouse Infirmary .....	School Board .....	J. T. White, Workhouse Master, Epsom .....	" 20
Portsmouth—Schools .....	Urban District Council .....	A. H. Bone, Surveyor, Town Hall, Portsmouth .....	" 20
Halifax—St. John's Church, West Vale, and Sunday Schools .....	Guardians .....	R. Horsfall and Sons, Archts., 22A, Commercial-street, Halifax .....	" 20
Normanton—Small-pox Hospital .....	Corporation .....	C. B. L. Fernandes, Clerk, Council Offices, Normanton .....	" 21
Derby—Various Buildings in Cattle Market .....	Guardians .....	J. Ward, Borough Surveyor, Babington-lane, Derby .....	" 21
Paddington, W.—Infirmary, Harrow-road .....	Corporation .....	E. Howley Sim, Architect, 8, Craig's-court, Charing Cross, S.W. ....	" 21
Darlington—Waterworks Pumping Station .....	School Board .....	The Borough Surveyor, Town Hall, Darlington .....	" 22
Leeds—Schools .....	Gas Committee .....	W. Packer, Clerk, School Board Offices, Leeds .....	" 23
Southampton—St. Andrew's Presbyterian Church .....	Guardians .....	Mark Smith, 30, Bellevue-road, Shirley .....	" 23
Macclesfield—Two Gasholders at Tytherington .....	School Board .....	J. Newbigging, Engineer, Town Hall, Macclesfield .....	" 27
Lambeth, S.E.—Infirmary .....	School Board .....	W. Thurnall, Clerk, Brook-street, Kennington-road, S.E. ....	" 23
Swindon—Schools .....	School Board .....	J. Clark, 130, Princess-street, Swindon .....	" 30
West Ham—Fourteen Schools .....	Guardians .....	Wm. Jacques, F.R.I.B.A., Architect, 2, Fen-court, E.C. ....	July 4
Stanton-on-Wye—Charity Buildings .....	Guardians .....	R. James, Clerk to Trustees, Stanton-on-Wye .....	" 10
Longbenton—Benton-square and Walker Schools .....	U.D. School Board .....	T. M. Sturgess, Clerk, Board Room, Newcastle-on-Tyne .....	" —
Hull—East Hull Liberal Club .....	Guardians .....	W. Loftthouse, Sec., Yorkshire Insurance Buildings, Lowgate, Hull .....	" —
Burslem—Workhouse, Hospital, Chapel, &c. ....	District Lunacy Board .....	W. H. Walley, Architect, Queen-street, Burslem .....	" —
Crossness—Two Sets of Engines at Pumping Station .....		The Foreman Engrs., Fleming & Ferguson, Ltd., Crossness Outfall .....	" —
Glasgow—Woodilee Asylum, Lenzie .....		J. R. Motion, Clerk, 38, Cochrane-street, Glasgow .....	" —

## ROADS AND STREETS.

Wolverhampton—Making-up Griffin-street .....	Streets Committee .....	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	June 19
Tunbridge Wells—Sewering and Making-up New Roads .....	Corporation .....	The Borough Surveyor's Office, Tunbridge Wells .....	" 19
Erith—Private Street Works in Riversdale-road .....	Urban District Council .....	The Surveyor, High-street, Erith .....	" 19
Isleworth—Making-up and Sewering Worpole-road .....	Heston and Isleworth U.D.C. ....	W. A. Davies, A.M.I.C.E., Town Hall, Hounslow .....	" 19
Alnwick—Private Street Works at New Town Waggon Way .....	Urban District Council .....	G. Wilson, Town Surveyor, Alnwick .....	" 20
London, N.—York Paving (2,160 yards), Seven Sisters-road .....	Tottenham Urban District Council .....	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham .....	" 20
Droyliden—Flagging and Kerbing (2,500 yards), Edge-lane .....	Urban District Council .....	W. Curry, Surveyor, Droyliden .....	" 20
Tong—Making Good Railway-terrace .....	Urban District Council .....	James Smith, Surveyor, 14, Oddly-street, Dudley Hill .....	" 20
Halifax—Kerb and Channel (460 yards) .....	Rural District Council .....	T. Gordon, Surveyor, Clifton, Brighouse .....	" 21
Dartford—Paving Footways .....	Urban District Council .....	H. H. Hoston, Surveyor, A.M.I.C.E., High-street, Dartford .....	" 20
New Barnet—Tar Paving (7,640 yards) and Kerbing (3,300 yards) .....	Urban District Council .....	Henry York, Surveyor, Station-road, New Barnet .....	" 20
Ilkley—Constructing Chantry Drive .....	Urban District Council .....	The Surveyor, Council's Office, 14, The Grove, Ilkley .....	" 21
Clacton-on-Sea—Tar Paving Works .....	Urban District Council .....	R. Robinson, Surveyor, Town Hall, Clacton-on-Sea .....	" 21
Surbiton—Making-up Victoria-avenue and St. Andrew's-square .....	Urban District Council .....	S. Mather, A.M.I.C.E., Surveyor, Victoria-road, Surbiton .....	" 23
Kempston—Private Street Works .....	Urban District Council .....	W. Payne, Clerk, Bedford-road, Kempston .....	" 24
Withington—Various Street Works .....	Urban District Council .....	A. H. Mountain, A.M.I.C.E., Surveyor, Town Hall, Wolverhampton .....	" 24
Cheriton, Kent—Roads (1,320ft.), &c., Ashley Grange Estate .....	Board of Works .....	Marler and Co., Surveyors, 95A, Gloucester-rd., South Kensington .....	" 26
Limhouse, E.—Relaying Carriageways .....	Urban District Council .....	S. G. Ratcliff, Clerk, White Horse-street, Commercial-road, E. ....	" 26
Tredegar—Street Works .....	Corporation .....	W. C. Widdowson, Surveyor, Town Hall, Tredegar .....	" 26
Southampton—Private Street Works, Bitterne Park Estate .....	Highways and Bridges Committee .....	W. B. G. Bennett, Boro' Engineer, Municipal Offices, Southampton .....	" 27
Hales Owen—Paving Works on Main Road Footways .....	Steel, Iron, and Coal Co., Ltd. ....	J. H. Garrett, County Road Surveyor, Shire Hall, Worcester .....	July 5
Harrogate—Making and Draining Road (24ft.) .....		Bland and Bown, Surveyors, Harrogate .....	" —
Waulwylwyd—Forming Roads, &c. ....		Swalwell and Creighton, Architects, Dock-street, Newport, Mon. ....	" —

## SANITARY.

Tunbridge Wells—Sewering and Making-up Roads .....	Corporation .....	The Borough Surveyor's Office, Town Hall, Tunbridge Wells .....	June 19
Carlton—Sewers in Gedling-road .....	Urban District Council .....	R. Whitbread, Surveyor, Vine House, Carlton .....	" 19
Leith, N.B.—Pipe Sewer, Dudley-crescent .....	Magistrates and Council .....	The Burgh Surveyor's Office, Town Hall, Leith .....	" 19
Whitehaven—Latrines, &c., at St. Nicholas Schools .....	Heston and Isleworth U.D.C. ....	J. S. Moffat, Architect, Whitehaven .....	" 19
Hounslow—Sewering Wood-lane and Heston-road .....	Town Council .....	W. A. Davies, A.M.I.C.E., Engineer, Town Hall, Hounslow .....	" 19
Maidenhead—Sewering Bell-street .....	London County Council .....	P. Johns, A.M.I.C.E., Boro' Surveyor, Guildhall, Maidenhead .....	" 19
London, S.W.—Reconstruction of Victoria-street Sewer .....	Urban District Council .....	The Engineer's Department, County Hall, Spring-gardens, S.W. ....	" 20
Tottenham—Fixing Urinals within District .....	Town Council .....	P. E. Murphy, M.I.C.E., Engineer, 712, High-road, Tottenham .....	" 20
Dover—Surface Drains and Sewers .....	Urban District Council .....	Henry E. Stilgoe, Borough Engineer, Town Hall, Dover .....	" 20
Warminster—Sewage Pumping Plant .....	Urban District Council .....	A. F. Long, Town Engineer, Warminster .....	" 20
Broughton—Sewering and Paving Ramsgate-street .....	Urban District Council .....	The Borough Engineer's Office, Town Hall, Salford .....	" 20
Matlock—Surface-Water Drain (800 yards of 9in.) .....	Garstang Urban District Council .....	A. M. Clarke, Surveyor's Office, Town Hall, Matlock .....	" 20
Grassendale—Pipe Sewer (590 yards of 18in.) .....	Urban District Council .....	F. W. Bowden, A.M.I.C.E., Surveyor, Grassendale, Lancs. ....	" 20
Tring—Stoneware Pipe Sewer, Western-road .....	Urban District Council .....	Bentley Asquith, C.E., Resident Engineer, Park-road, Tring .....	" 20
Grange-town—Sewer (368 yards) .....	Urban District Council .....	C. McDermaid, District Surveyor, Grange-town, R.S.O., Yorks. ....	" 21
Croydon—Sewering Parish of Coulsdon .....	Rural District Council .....	R. M. Chart, Surveyor, Union Bank Chambers, Croydon .....	" 21
Wallsend—Surface-Water Sewers .....	Corporation .....	The Borough Surveyor's Office, Bridge-street, Wallsend .....	" 21
Sutton Coldfield—Stoneware Pipe Sewer (4,270 yards of 9in.) .....	Penybont Main Sewerage Board .....	W. A. H. Clarry, A.M.I.C.E., Boro' Engineer, Sutton Coldfield .....	" 22
Salford—Pipe Drain at Borough Cemetery, Weaste .....	Town Council .....	The Borough Engineer's Office, Town Hall, Salford .....	" 22
Brigden—Sewerage Works .....	Corporation .....	E. Cousins & Son, Engineers, Palace Chambers, Westminster, S.W. ....	" 26
Brighton—Underground Convenience, Queen's-road .....	Guardians of Plumagegate Union .....	Francis J. C. May, M.I.C.E., Town Hall, Brighton .....	" 30
Hythe—Sewers, Castle-road and Horn-street .....	Corporation .....	E. S. Wilks, Surveyor, 2, Douglas-avenue, Hythe .....	July 1
Wickham Market—Reconstruction of Sanitary Arrangements .....	Corporation .....	Henry J. Wright, 4, Museum-street, Ipswich .....	" 3
Dublin—Drainage Works .....	Sewage Syndicate .....	Spencer Harty, City Engineer, City Hall, Dublin .....	" 15
Brest—Sewage Plant and Machinery .....		The Commercial Dept. of the Foreign Office, Whitehall, S.W. ....	" —

## STEEL AND IRON.

Matlock—Steel Grippers for Cable Tramway (One Year) .....	Urban District Council .....	Albert M. Clarke, Surveyor, Town Hall, Matlock .....	June 17
London, E.C.—Galv. W.I. or Steel Corrugated Plates (3,000) .....	Mexican Railway Co., Ltd. ....	J. T. Denniston, Sec., 45, New Broad-street, E.C. ....	" 17
Leigh—Cast-Iron Pipes .....	Gas and Water Committee .....	J. Foster, Engineer, Gasworks, Leigh .....	" 17
London, E.C.—Galv. Strand Wire (3,607 coils of 140lb. each) .....	Bengal and N.W. Railway Co., Ltd. ....	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C. ....	" 19
Belfast—Cast-Iron Pipes (815 tons) .....	Water Commissioners .....	L. L. Macassey, M.I.C.E., Belfast .....	" 19
Totnes—Eighteen Fire Hydrants and Boxes, &c. ....	Town Council .....	W. F. Tollit, Borough Surveyor, Totnes .....	" 19
Belfast—Valves, &c. ....	Water Commissioners .....	L. L. Macassey, M.I.C.E., Belfast .....	" 19
Belfast—Steel Pipes, Collars, and Troughs (202 tons) .....	Water Commissioners .....	L. L. Macassey, M.I.C.E., Belfast .....	" 19
India Office, S.W.—Steel Rails, Fishplates, Sleepers, and Fish-bolts, and Wrought-Iron Spikes .....		The Director-Gen. of Stores, India Office, Whitehall, S.W. ....	" 20
Glasgow—Tubular and Lattice-work Lamp-Posts .....	Clyde Navigation Trustees .....	T. R. Mackenzie, Sec., 16, Robertson-street, Glasgow .....	" 26
Alnwick—Cast-Iron Fingerposts (18) .....	Rural District Council .....	H. W. Walton, Clerk, Alnwick .....	" 26
Uganda—Steel Trestle Viaducts, &c. ....	Uganda Railway Committee .....	The Crown Agents, Downing-street, London, S.W. ....	" 26
Halifax—Steel Girders, Plating, Parapets, &c. ....	Corporation .....	E. R. S. Escott, M.I.C.E., Borough Engineer, Town Hall, Halifax .....	" 26
Newtown, Mon.—Steel Girders for Two Bridges .....	Rural District Council .....	T. Edmunds, District Surveyor, Newtown, Mon. ....	" —

## STORES.

Oswestry—Bricks, Drain-Pipes, and Lime, Wood Fencing, &c. ....	Cambrian Railways Co. ....	The Stores Offices, Cambrian Works, Oswestry .....	June 17
London, W.—Springs, Tires, Axles, &c. ....	Great Western Railway Co. ....	The Stores Superintendent, Swindon .....	" 19
Market Bosworth—Broken Granite .....	Rural District Council .....	William Thorpe, Surveyor, Nailstone, Nuneaton .....	" 19
Bermondsey, S.E.—Wood Paving Blocks .....	Vestry of St. Mary Magdalen .....	Frank Sumner, Surveyor, Bermondsey Town Hall, S.E. ....	" 19
Hounslow—Granite Kerb, Channelling, and Stone Paving .....	Heston and Isleworth U.D.C. ....	W. A. Davies, A.M.I.C.E., Town Hall, Wolverhampton .....	" 19
Wolverhampton—Granite Kerbing (3,600ft.) .....	Streets Committee .....	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	" 20
Bury—Ironmongery, Oils, Paints, Timber, &c. ....	Corporation .....	The Borough Engineer's Office, Bank-street, Bury, Lancs. ....	" 21
Braintree—Granite (600 tons) .....	Urban District Council .....	H. H. Nankivell, Surveyor, Waterworks, Braintree .....	" 21
Manchester—Bolts and Nuts, Iron and Steel, Paints, &c. ....	Gas Committee .....	C. Nickson, Supt., Gas Dept., Town Hall, Manchester .....	" 22
Grays—Granite, Setts, &c. ....	Urban District Council .....	A. C. James, Surveyor, High-street, Grays .....	" 22
Inverness—Bar and Plate Iron, Brass and Copper, Colours and Paints, Timber, Wire Fencing, &c. (One Year) .....	Highland Railway Co. ....	O. Kennedy, Stores Superintendent, Inverness .....	" 24
Tewkesbury—Artificial Paving Flags (320sq. yd.) .....	Corporation .....	W. Ridler, Borough Surveyor, Tewkesbury .....	" 24
Leeds—Iron, Grate-Bars, Steel, Nails, Bolts and Nuts, Lead, &c. (One Year) .....	Gas Committee .....	R. H. Townsley, Gen. Manager, Municipal Offices, Leeds .....	" 26
North Walsham—Granite (175 tons) .....	Urban District Council .....	J. S. Empson, Clerk, North Walsham .....	" 23
Winton—Broken Granite (200 tons) .....	Urban District Council .....	W. T. Streather, Surveyor, Winton, Bournemouth .....	" 23
Little Woolton—Macadam (500 tons), Granite (30 tons) .....	Urban District Council .....	R. Simmonds, Surveyor, Grange-lane, Gatacre, near Liverpool .....	" 30
Wolverhampton—Granite Setts (5,700 tons) .....	Streets Committee .....	J. W. Bradley, Borough Engineer, Town Hall, Wolverhampton .....	" 30
London, E.C.—Steel Tires, Rails, and Fishplates, Brass Boiler Tubes, Copper Plates, &c. ....	East Indian Railway Co. ....	A. P. Dunstan, Secretary, Nicholas-lane, E.C. ....	July 5
Lewes—Granite and Flints .....	Town Council .....	The Borough Surveyor's Office, Town Hall, Lewes .....	" 22



# THE BUILDING NEWS

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### ARCHITECTS' SUPERVISION.

A DECISION likely to establish a dangerous precedent has been lately given in a judgment pronounced in an action for alleged breach of contract in the Edinburgh Court of Session, in which Miss Mary Hope Jameson sued Mr. Frank Worthington Simon, architect, for damages for £80. We refer the reader to our report of the proceedings given in our "Legal Intelligence" last week for the details, and we simply here deal with the main question involved and the broader features of the case. In brief, the question raised was, What kind or amount of supervision is implied in an architect's employment? or, Is an architect responsible for any failure in the carrying out of the specification by the tradesman employed? According to the evidence given, it appears the pursuer built a villa near Edinburgh, and employed an architect who, in the ordinary course of his duty, had to supervise the contractors. These were, it is stated, a mason and a carpenter, between whom the responsibility rested of seeing that the work was carried out in accordance with the design and specification. Each threw the blame on the other, and so the pursuer sought redress against the luckless architect, who appears to have taken a good deal of trouble on the pursuer's behalf. The defendant architect stood high, there was no imputation on his competence, all the pursuer alleged being that, as the result of want of proper supervision, dry rot was introduced into the building, which had caused much trouble and expense to eradicate. According to the evidence summed up by Lord Kyllachy, the dry rot originated in the materials used in the "bottoming" which formed the foundation or substratum of the cement floors of the scullery, coal-cellar, &c., forming part of the ground floor of the villa. The materials to form this "bottoming" were specified to consist of 2½ ft. of broken stone, the uppermost 3 in. layer to be of small stones, and to be supplied by the plasterer, and the rest was described as "dry stone filling," to be supplied by the mason. This upper layer was substituted by rubbish, and, it is alleged, consisted of chips of stone with about "25 per cent. of shavings, pieces of wood, plaster, sacking, and general sweepings." Being covered by cement and the air excluded, it is thought this rubbish generated the dry rot fungus on the rotten wood core, and from thence the rot spread to the door-posts of the kitchen and scullery, which posts were imbedded in the "bottoming," and thus involved the other woodwork.

Probably this is the first time the spread of dry rot has been attributed to the want of supervision on the part of the architect. There is apparently no direct evidence to show that the dry rot originated in, or was generated by, the decayed wood rubbish; it might have been in the woodwork of the posts. That the material upon which the cement paving was laid was improper will not be disputed; but we should like to know how it is possible for an architect to so arrange his visits to a building in progress that he should be able to examine at the exact time the mixture of the materials, to see if they are strictly in accordance with the specification standard. Much less can it be expected that an architect should so time his visits as to see that every yard of concrete for the foundations has been composed of the right proportions of Portland cement or lime with ballast, or aggregate, or that every hod of

mortar contains just the right quantity of fresh-stone lime and clean sharp sand that is necessary to substantial building. But are such ideas of supervision entertained by any practical man? Concrete and mortar are, in fact, of much greater importance than "bottoming" materials, and yet we cannot imagine any Court holding an architect responsible for any defect caused by an improper admixture of these materials. If we remember rightly, some years ago an architect was sued by a client for some imperfection in the laying of drains, whereby illness was caused to a tenant, and the owner was put to expense; but the judge held that it was not reasonable to expect an architect to see that every drain-pipe was properly laid in accordance with the specification. Details of this kind could not be reasonably expected of him to look to.

In the present case, a very different view has been upheld. His Lordship, while admitting that there was no special contract as to the kind or degree of supervision which an architect should exercise, lays it down that as an architect certifies that the work done has been done according to contract, "he *prima facie* must be held to warrant that, so far as he could ascertain by reasonable care and skill, there had been no scamping of the work or serious deviation from the plans and specification." "Reasonable care and skill" implies a degree. But this construction of the duty of the architect carries with it responsibilities which, on the face of the matter, are both unreasonable and unjust. The certificates of an architect can hardly be understood to imply the meaning here attached, or to warrant that the work is "done according to the contract." If it does, the ruling of such cases as "Laidlaw v. The Hastings Pier Company" and "Lord Bateman v. Thompson" cannot be maintained. In both these cases the ruling was practically that the architect's certificate is to be conclusive, even if certain defects appear, that the architect is to be judge of the soundness and sufficiency of the materials. In his important judgment given in "Chapman v. Walton," Tindal, C. J., speaking on an action arising out of alleged want of care and skill, said, "The question whether a person has exercised reasonable and proper care and skill appears to us to rest upon the inquiry whether other persons exercising the same profession or calling, and being men of experience or skill therein, would or would not have come to the same conclusion as the defendant. For the defendant did not contract that he would bring to the performance of his duty on this occasion an extraordinary degree of skill, but only a reasonable and ordinary proportion of it," &c. And he said the most reasonable mode of determining such question is to show whether nine out of ten professional men would have done the same as the defendant has done under the circumstances. If we were to apply this principle, which is a reasonable one, to the question of architect's supervision, such a decision as that of the Court of Session could hardly have been given. An architect naturally assumes that work he does not see has been honestly carried out according to the contract. Without such ordinary reliance on the contractor, it would be impossible to carry out any contract. If there is no clerk of works, there is the greater reason why the architect should rely on the good faith of the contractor. But Lord Kyllachy says the question of the architect's obligation as to whether the work was duly and properly executed was one not for the profession to decide, but for the Court. So that, in fact, the usual custom of the profession as to these points is to be set aside. His Lordship, applying this view, held that the defender had failed to show he gave due and reasonable supervision, or did not materially contribute to the cause of mischief.

We cannot see how the defender in this case could, without constant daily attendance, have averted the mischief. It is suggested that he might have sent down an assistant during the day or two when this particular work was going on; or that the layer might be left open for his inspection until he had seen it, which proposals are more easily made than acted on. The question is a momentous one for the profession, and the judgment, as it stands, imposes upon the architect obligations that cannot with any justice be fulfilled by him. We are not surprised to hear that it has evoked much surprise. One correspondent speaks strongly of its unfairness, and proposes an appeal.

### ADMINISTRATION OF BUILDING BY-LAWS.

WE have lately drawn attention to the present very unsatisfactory working of building by-laws outside the Metropolis. Many of these are under private Acts of Parliament, the larger number of urban districts having adopted by-laws under the Public Health Acts. Even these by-laws are not based on one uniform code, the Local Government Board Model By-laws not being adhered to in all cases. These local district by-laws vary from each other, and when the districts adjoin, considerable inconvenience and friction to building owners and the profession are experienced. Not only is this the case. Rural sanitary authorities can obtain "urban powers" from the Local Government Board, and adopt the by-laws of the urban districts, so that builders in country and half-rural districts have to comply with the same severe building regulations as obtain in closely-built towns. A great hardship is inflicted by this uniformity of regulation, without any corresponding advantage. The builder in a rural district has to conform to many details which are quite unnecessary and often objectionable.

The report of the Special Committee of the Royal Institute of British Architects, suggesting that the Model By-laws should be grouped in divisions, and which we published *in extenso* last week, is a step in the right direction. By this arrangement it is thought the present anomalies may be removed, that by-laws relating to the same class of building may be made uniform, and that buildings in rural districts may be relieved from regulations which are inapplicable and vexatious. Our readers will notice six general divisions are proposed:—A, definition of terms; B, new streets; C, spaces about buildings and areas of windows; D, structure of party-walls; E, structure of walls, foundations, roofs, and chimneys; F, sanitation, preparation of site and drainage. The committee think that for rural districts divisions A, D, and F will suffice, though for some purposes B and E might be added when any part of the rural district was likely to become urban, or when large public buildings or factories of considerable height were erected. Under the class of domestic buildings would be placed the ordinary shop. On the other hand, in towns where there is a building surveyor, the whole of the by-laws should be, it is thought, in force, and exemptions should apply to certain buildings rather than to districts; but no buildings should be exempted from supervision as to sanitation and drainage, which rule should extend to railway stations.

These suggestions are equivalent to saying that the by-laws, as a whole, should apply to towns of any size, and only partially to the rural districts. It would be better to say they should apply to certain conditions of building. In country buildings the main structural requirements are a proper party-wall between houses belonging to different owners, and proper drainage. These are certainly conditions precedent to all safe and healthy building everywhere;



protection against fire and sewer-gas are absolutely essential to all. To a lesser extent the rules about the materials for external walls and cross-walls apply. It is absurd, as we have pointed out, that half-timber walls should be prohibited, or so fenced round with restrictions that no dwelling should be constructed with them unless distant 15ft. from any adjoining building; it is also vexatious to require structural provisions, such as those in clauses 23, 33, 34, as to openings in external walls, girders, bresssummers and their bearings.

The appendix to the report contains proposed amendments and substitutions of the existing Model By-laws. Under division A it is proposed to substitute for by-law No. 2 sub-clauses (h), (i), and (j), which relate to exemptions. The first of these clauses exempts buildings used for plant-houses, summer-houses, &c., detached and at a distance of 10ft. at least from any other building, and heated by hot water, the second exempts any building not exceeding 30ft. in height and not more than 125,000c.ft. not being a public building and not constructed wholly or partly for human habitation and distant 30ft. from the nearest building, &c.; the third exempts any building which shall exceed in height 30ft., shall exceed the above area, not being a public building or used for habitation, and which shall be distant at least 60ft. from the nearest building, &c. The committee's report proposes to substitute for the above the following amended clauses:—

Any building not being a public building or factory except those of only one story in height and is without a gallery and is situated not less than 15ft. from the boundary of the curtilage; two domestic buildings being regarded as one provided they are separated by a party-wall: any building within 15ft. of the boundary of the curtilage distant 15ft. from any public way, and from any other building within the curtilage, and that does not exceed 600sq.ft. in area, nor 15ft. in height, provided that its external wall or party-wall towards the boundary is constructed as a party-wall prescribed; also greenhouses not attached, and those attached to other buildings, so far as regards the necessary woodwork, &c.

These clauses are more simple in phraseology; the distances from the nearest building have been in each case reduced 15ft. On the other hand, the height is also cut down to half, and the area lessened. Practically the clauses exempt smaller buildings. No public building or factory is exempted from any by-laws regulating exits and stairs.

By-law No. 54 provides an open space in the rear of a new domestic building of an aggregate extent of 150sq.ft. free from any erection above the level of the ground, except a w.c., &c. As it stands, this beneficial provision provides an area unenclosed. The proposed amendment is to add to it section 41 of the London Building Act slightly modified, the effect of which is to permit the open space, required to be provided, to be above the level of the ground story ceiling. It would be better in the case of new buildings in crowded parts to provide for an open space from the ground or pavement level. The clause as it stands appears to allow the existence of a ground story, "not constructed or adapted to be inhabited," a not very desirable condition for a town building. Other London Building Act sections relating to open spaces are suggested as desirable, as sections 45 and 52.

Division D deals with party-walls, and refers to various by-laws, Nos. 19, 20, 21, 22, &c. The amended clauses fulfil fairly the necessary conditions and follow those of the by-laws; in certain cases they provide that the party-wall be carried up above the flat, gutter, or roof of the highest adjoining building to such height as will give a distance of 15in. at right angles to the slope of roof

and be properly coped. These cases are as follows:—When the adjoining building is not covered with slates, tiles, or other incombustible material; when either of the adjoining buildings exceeds 30ft. in height; when either is intended to be used as a public building, a warehouse or factory. When of the latter class, and it exceeds 30ft. in height, the party-wall is to be carried up 36in. above the roof-flat or gutter, and to extend 12in. higher and wider on each side of any turret, dormer, lantern light, &c., if within 4ft. of said wall. These clauses practically are the same as the present by-laws; but they do not apply to buildings under 30ft. in height, or those covered with slate or other incombustible materials. We prefer the existing clauses.

A more desirable addition to the model by-laws (No. 11, Division E) will allow any story in a roof, or below it, of a detached or semi-detached house to be inclosed with timber studding 4in. thick, covered externally with weather tiling or plastering, and such story may be corbelled out or overhang the wall below. The old by-laws unduly restrict the architect in semi-rural and suburban districts, and only brick walls or stud walls filled with brickwork is allowed, and then only in cases where the house is distant not less than 15ft. from any adjoining building. Tile-hung walls also should be exempted from the rules as to ordinary walls in the case of single stories. We postpone for consideration other alterations of the By-laws as to the structure of walls and sanitation. The provincial practitioners and builders will have something to say to the suggested amendments, and it is well that the allied societies have been consulted. The subject is one that appeals most directly to the provincial architect, and it would be an error to imagine that one set of rules, even when arranged in divisions, will suit all the localities or authorities concerned.

### ESTIMATES.—XI.

#### MASON'S WORK, WALLING, SLATING.

IN pricing columns, it is best to take out rough quantities, as in other cases we have shown. We ascertain first the cube stone in shaft by squaring the diameter at base of each frustum, and multiplying by the height of each stone in the shaft. Then we take the cube stone in cap and base by the full outside dimensions of each. We next measure the "plain work" of shaft, take each stone on two sides, the dimensions being taken thus:—Supposing the bottom stone to be 5ft. high by 2 5/8 1ft. 6in. in largest diameter, the next stone would be, say, 4ft. 9in. by 1ft. 2 4/9 5in. diameter, and the dimensions would be put down as in margin. Each sum is "twiced" to take the four sides of each stone. Next, the "circular work" of shaft is taken, the dimensions being the height of each stone as before by the circumference as in the margin.

The "plain work" of base and cap is taken the full width of each squared, and the "circular moulded" work to each. The circumference (average) by the girt of mouldings, the dimensions appearing as follows:—

1 11	
1 11	Cube stone in capital.
9	
1 11	Plain work to bed.
1 11	
2 1 11	
9	Plain work to sides.
6 3	
8	Circular moulded work.

The base would be similarly taken. In addition to these there would be "sunk work" to bed of joggle. Then price the items as before.

#### YORK STONE WORK.

We resume the items of York stone work, commenced in our last article. Laxton gives the following prices per foot cube, including all labour and profit:—

	£	s.	d.
"Robin Hood" in block (20ft. average)	0	3	2
"Potter Newton" ditto.	0	3	0
Hard York ditto.	0	3	3

Ditto, including waste and cartage within four miles of depot, per foot cube:—

	£	s.	d.
"Robin Hood" .....	0	4	0
"Potter Newton" .....	0	3	9
Hard York .....	0	4	1

8ft. run. 9in. by 3in. rubbed step, back-jointed.

Sawn York may be priced at 1s. 2d. per foot super. delivered, say—

	£	s.	d.
Sawn York, 9in. at 1s. 2d. ....	0	0	10 1/2
Waste, 10 per cent. ....	0	0	1
Half-sawing to edges, 6in. ....	0	0	2
Rubbing to face and edge, 1ft. ....	0	0	2
Setting, &c. ....	0	0	3
	0	1	6 1/2

8ft. run. 12in. by 3in. rubbed step, back-jointed.

	£	s.	d.
Price of sawn landing of this length, per foot run, as last .....	0	1	6 1/2
Add one-quarter for extra 3in., say .....	0	0	4 1/2
Profit, &c. ....	0	0	3
	0	2	2

60ft. super. Purbeck stone paving in straight courses laid.

This may be done at about 1s. 6d. per foot super., including profit, &c.

No. 1. York stone sink, 4ft. by 2ft. 6in., 7in. deep, tooled and dished, rounded at corners, with rebated hole for trap, cut and pinned to wall.

This may be priced at about 3s. 6d. to 4s. per foot super. There would be 10ft. super. in this sink, which at, say, 3s. 6d., is £1 15s. Add labour, rounding corners, making perforation, 4ft. pinning to wall, say 4s. 6d., or in all £2 for price of sink. When quarry worked, 30s. is a usual price.

#### STONE WALLING.

In pricing items of this description, the estimator should ascertain the cost of stone at the quarry, or the price per ton in truck at the station, the railway rate, &c. The practice of measuring differs considerably in different localities. In Scotland it is measured by the super. yard to a reduced thickness of 24in., any thickness over being reduced to this. In London Kentish rag is generally used for rubble walling, and is measured by the cube yard. Generally it is used as a facing to brickwork. For solid rubble walls, where the facings are of the same sort of stone, the whole is taken at per yard cube, and the facing taken per foot super., as "extra on rubble." Dressings, as stringcourses, jambs, quoins, &c., should be priced as extra, taking care to consider the labour, beds and joints. For facing consider the average size and number of through stones per yard super. average bed of facing, &c.

Rough stone is sold by the ton, and it may be taken approximately that a yard super. of rubble walling 20in. thick will require about 1 1/2 tons of stone, including waste. Quarry-prepared facings are also sold by the ton, and this quantity will roughly equal about three yards super. with a 6in. bed.

Laxton gives the following data. Assuming the price of 5s. per cube yard for the stone delivered:—

	£	s.	d.
Rubble in walls of 20in. thick per yard super. would be .....	0	10	6
Ditto ditto 14in. thick .....	0	8	0
Extra on above for scapped face and struck joint, per yard super. ....	0	3	0
Extra for rock-worked facings and pointing with parallel joint .....	0	5	3
Ditto, scapped facings for quoins, &c., per foot run .....	0	0	4

These prices are only to be taken as a guide,



and the builder ought to obtain a price for this particular work.

Rough Kentish rag delivered within four miles of the Thames is quoted at 6s. 10d. per ton, and Kentish rag random walling, including labour, scaffolding, profit, &c., per yard cube, 16s. 6d.; random-coursed walling at £1 per yard cube.

The elements of cost are: price put on trucks or barges at Maidstone, railway rate to nearest station, rate by barge, unloading and loading into carts, distance of site. Let us say the random-dressed ragstone in trucks at quarry is 7s. per ton; add railway carriage 2s. 3d., unloading 6d., cartage to site, say 3s., equal to 12s. 9d. per ton. In courses of irregular height the price is about 11s. to 12s. per ton on trucks. Allowing a bed of 7in., a ton will cover about 3½ yards super. Extra cost on brickwork per foot super. for facing of Kentish ragstone may be put at 4d. or 5d. This includes extra value of stone, mortar, labour facing, striking joints, &c.

210 yards cube. Random walling, including labour and scaffolding.

This may be priced at 16s. 6d. per yard cube; if random-coursed, add 4s. per yard cube.

1,014ft. super. Facing of Kentish rag stone in courses, hammer-dressed, average 7in. in bed, in mortar, pointed with joint in blue-ash mortar.

If we take hammer-dressed facing in courses of irregular height at, say, 12s. per ton on trucks, railway carriage 3s. 6d., unloading and loading 6d. per ton, cartage, say, 3s. per ton = 19s.; then 19s. ÷ 30ft. (feet super. in 3½ yards, 7in. on bed) will equal about 7½d. per foot super.

Cost of foot super .....	£ s. d.
Blue ash mortar, say .....	0 0 7½
Striking joints .....	0 0 0½
Per super foot .....	0 0 8½

This is equal to about 30s. per yard cube.

536ft. super. Extra on rubble walling for stone facing, roughly hammer-dressed, raking out, and pointing with blue-ash mortar, well bonded to the work behind.

This item may be priced at 4½d. to 5d. per foot super.

130ft. run. Extra on facing, dressing quoins, with tool chisel draft on each angle.

Put this down at, say, 10d. per foot run.

No. 4. Extra relieving arches. 5ft. long, 12in. on bed, including all cutting.

If we suppose the arches are 12in. high on face, there would be 10ft. super. in each. We may price the extra labour at about 6d. per foot.

35ft. run. Labour to roughly squaring quoin stones to random work.

A fair price for this item would be 6d.

18ft. run super. Rough cutting to rakes and splay.

This item would be for cutting to gable ends, and splayed corners and jambs. For rough cutting, 2d. to 2½d. per foot would be sufficient. These prices include scaffolding and profit.

#### SLATER.

Pricing the items of this trade ought not to be difficult if proper rules to cover extra labour and waste were followed. Sometimes an allowance is made in the superficial quantity for eaves, hips, and valleys; but the better plan is to describe each. All voids should be deducted, and make allowance for cuttings to deductions by the length of the edges of the void by 6in., also for all irregular edges. Cutting to hips and valleys is generally measured by the length by 6in. on each side. Dormers and skylights should be deducted and described. Certain rules of measurement have been adopted by leading

slate firms. For eaves, the length by half the length of full-size slate used at eaves; cuttings and valleys as described above; dormer sides, length by 6in. on each side; skylights and chimneys the same; for deductions, all openings more than 4 sup.ft. For work circular on plan, allow in price at least one-third extra; if the radius is small, as to a conical turret roof, allow one-half extra.

Prices for the best Portmadoc slates may be obtained from Davies Bros., Portmadoc, N. Wales. North Wales Slate Co., Portmadoc:—

50sqs. 25ft. super. Best Bangor Countess slating, 20in. by 10in., laid to a 2½in. lap, with two 1½in. copper nails to each slate.

Best Bangor Countess slates cost about £12 per "thousand" of 1,200, delivered, and 150 slates covers a square.

Cost of 150 slates at above rate .....	£ s. d.
Copper nails, say, 2lb. at 1s. ....	1 10 0
Labour .....	0 2 0
Profit .....	1 15 0
	3 6
	1 18 6

This works out rather high for a large quantity. £1 17s. is a fair price.

73sqs. 10ft. super. Best green Westmoreland slating, laid to a 3in. lap in diminishing courses, with two 1½in. copper nails to each slate.

Cost of best Tilberthwaite green slates on truck at Coniston is £5 15s. per ton. One ton will cover, say, 30sq. yds. If we take a third to the square, cost will be about .....	£ s. d.
Railway rate, &c. ....	1 18 0
Copper nails as before, say .....	0 6 0
Labour, say .....	0 2 0
	0 5 0
	2 11 0
	5 0

Profits 10 per cent. ....	5 0
Per square .....	2 16 0

We see Laxton gives £2 15s. per square for best Tilberthwaite slates, 3in. lap, with copper nails.

Slating is often let to a firm, and this is the cheaper way.

10 squares 35ft. super ditto, but in smaller graduated sizes to curved eaves.

Add to the former price labour cutting to slates.

Cost of a square, say .....	£ s. d.
Cutting to graduated sizes .....	2 15 0
Waste, 5 per cent. ....	0 2 6
	3 0 0

56ft. run. Cut and mitred hip in oil cement.

Put this down at about 8d. per foot run for small quantities, but for large orders 6d. is sufficient.

25ft. run. Double course at eaves.

Put the extra course at .....	£ s. d.
Cement, fillet, and labour .....	0 0 4½
	0 0 2
	0 0 6½

26 squares 80ft. super. Slating with Whitland Abbey green slates, laid with 2½in. lap, and with zinc nails.

This item may be put down at the same as the Bangor, £1 18s. 6d. Laxton prices it at £2 5s. per square.

22ft. run. Patent slate ridging, with 2in. roll and flat sides.

This will cost from about 1s. to 1s. 6d. per foot run.

56ft. run. Bedding, eaves, labour only.

Price this at a 1d. per foot.

56ft. run. Filleting to ditto.

Price this also at a 1d. per foot.

40ft. run. Undercloak of slate to verge, bedded in cement.

Put 4d. for this, add for cement 2d.

25ft. run. Mitred hip with wide slates, and bedded in cement.

Price at 8d. or 9d.

1 cistern of sawn Welsh slate in five pieces, 6ft. long, including bolts, &c., and fixing.

Suppose the slabs are 1½in. thick, put, £ s. d.	
say, per foot super. ....	0 2 0
Cartage, ditto .....	0 0 1½
Oil and cement, ditto .....	0 0 1½
Fixing, ditto .....	0 0 1½
Per foot super. ....	0 2 4½

22ft. super. 1in. sawn slate shelf, quarry planed in slabs 5ft. long and 3ft. wide, rounded nosings.

These slabs cost about 1s. 2d. per foot super. Add fixing 2½d., and for rounded nosings 4d.; in all, 1s. 8½d. per foot.

72ft. run. Slate skirting, 9in. wide and ¾in. thick, and fixing.

This item may be priced at 10d. per foot run, including profit.

No. 3. Enamelled slate chimneypieces, with 8in. jambs and 9in. shelves.

Obtain price from some leading firms of slate merchants. The prices vary from about £1 10s. to about £3. Chamfered and moulded shelves, panels, and trusses increase the cost.

#### "BUILDING NEWS" DESIGNING CLUB.

##### A SMALL PARISH SCHOOL.

THE designs submitted for this subject are numerous and fairly good, even if specialists in school-planning may look in vain for any exact degree of freshness or originality of arrangement. The hillside site specified gives an individuality to the contrivance consequent upon the fall of the land from front to back, the building-line being level with the frontage, which is considerably above the playground on the south side at the back of the buildings. Here is the text of the conditions issued for the guidance of competitors:—A Small School for a country parish, situated on a hill-side, and having a frontage towards the main road, which is level. The ground falls some 10ft. southwards from the frontage line, so that a covered playground is to be contrived under the main buildings, the ground-floor level of which is to be 1ft. above the footway. The building-line is to be fair with the frontage. The accommodation to provide a central hall 46ft. by 25ft., with four classrooms opening out of it, and adapted to be thrown into the hall on the occasion of general assembly and for public meetings. Cloak-rooms and conveniences for both sexes, and distinct entrances to be provided, also a bell-turret. Economy of contrivance and proper arrangement of classroom seating to receive careful attention, and be shown on the plan. The treatment of the building externally to be simple and picturesque, adapted for stone, with slab slates for the roof. Sufficient representations of the design to be furnished to illustrate the scheme properly, and a view sketch from the roadside to be given. Scale, 8ft. to the inch for elevations and section. Plans may be to the scale of 16ft. to the inch.

We place "Thistle" first, "Dachs" second, and "Swan" third. The plans which come next in merit run "Swan" very hard for the position we have just accorded him.

"Thistle" provides no stairway or steps down into the playground, trusting to slopes, which scarcely was what we intended, though, as seen in the side elevation, this arrangement looks unobjectionable, and at least there are no steps to fall down. In wet weather it would have been an advantage, perhaps, to reach the covered playground without necessarily going outside down a well-trodden slippery slope. The classrooms are lighted from the left-hand side of the pupils seated in their places, and there are separate cloak-rooms and entrances as required. The master and mistress have office-rooms and a lavatory each. The children's latrines are at the back of the playground. Externally the building looks like its purpose, with a regard to the specified materials of stone and slab stone slates. There is, no doubt, a thoroughly modern look about the building, and archaeological considerations cannot be complained of. That, with some



is an advantage. For our own part, we should have liked the design better if the gables had been more symmetrical, and the porch heads not so heavy, while the bell-turret does not look very happy in perspective.

The second design, of which "Dachs" is the author, has the merit of becoming its parts, and this, too, in a modern style of treatment; but we cannot ignore the side dormers to the central hall as "Dachs" has done in making his perspective and north elevation. These dormers show in the east and west façades. The classrooms are not in two instances lighted from the left hand of the pupils, as they ought to be. The teachers have a common room, but no private convenience of their own. The steps down to the lower playground seem an advantage, though it is not clear how the heating chamber is managed. The general effect of the external treatment is pleasing, and the low hipped roofs to the cloak rooms would be reckoned quaint, and with this idea the twirly clip-irons to the eaves-guttering are made much of. Such expedients are not worthy of so much prominence. We again observe that "Dachs" was unfair in leaving out the dormers, as they would really interfere with the simple lines depended on for the effect of the front elevation. In spite of this protest, we consider "Dachs" must take the second place, and so we accord it to him. "Swan's" plan, put third, brings the cloak-room wings right up to the frontage entering the boys' and girls' doorways directly off the highway. The central hall is lofty, but the valley over the middle is an objection, and the interior of the roof is ugly. The front elevation is one of the best, but we do not approve of the trick adopted by "Swan" of blacking in some of the window panes in symmetrical line and leaving some of the others quite white. "McGilligan" is very mannered, gaining nothing by drawing in his trees so oddly or his building so crudely. His plan includes staircases down to the playground inside the building; but there is no need to have separate corridors, thus sacrificing space where every inch has to be economised. The hall-end gable windows would run down hard upon the gutter over the corridor in rather a risky way. The porches are not very pretty, and generally the effect is not happy. "Quadrant" is another design which runs "Swan" very hard, but the class-rooms do not group so well out of the central hall. The elevation towards the street is too cut up and fanciful in a plain sort of way. Long openings like those through the front gables are strange, but the view makes the effect stranger still by showing the uprights between the range of lights far too thin for the work they would have to do. In the geometrical drawing the true intention of the designer is better indicated. The turret and the dormer below it are rather trumpery. The bald back elevation is really the best part of "Quadrant's" work. "Red Rose" ignores the rule as to the size and proportion of the paper to be used. This is a pity, for his plan shows knowledge and skill. The teacher would have to put up with shortcomings, and the heating-chamber out of the boys' play-shed is a very bad contrivance. The elevations are suitable and unquestionable, though the sketch from the road imparts a commonplace look to the whole thing. "Tokio" gives a common-sense and artistic character to his schools—merit of no common order. His plan is compact, and not bad, in spite of its crowded look. The lead flats over the teachers' places and over the porches are ungainly and ill-considered. "Astragal" delineates with a coarse ink line, to give force presumably to his contribution; but it takes its scale of effect away. The plan is rather good, and we like the elevation; but the drawing is excessively poor. The portals are overdone, and too large. "Tip" marks his school with a tower-like turret and a sprawling hood over the hall main window. His plan, very like some already mentioned, is suitable; but the objection of not being able to reach the playground without coming into the street is a very serious one, and "Tip" has overlooked the condition as to size of the sheets. The heating-chamber to the back of the girls' covered play-shed is cramped and very objectionable. "Vigornia" is not so economical, and shows a plan arranged with a stage for entertainments, all the class-rooms being thrown into the central hall. This is on the lines we suggested. The teachers' rooms then become retiring rooms for ladies and gentlemen. The author has made a pleasing design, and not a bad school plan; but the class-rooms are not well lighted for desk-work, and



DECORATIVE FIGURE ON THE MONUMENT TO THE BOURGMESTRE J. ANSPACH, BRÜSSELS.—JULIEN DILLENS, Sculptor.

"Vigornia" has tried to do too much in providing for the occasional use of a building to the detriment in detail of the school proper. "Arc" gives us ugly windows, and tries to disguise their ugliness by the device before complained of in blacking-in the lights in an artificial manner half-way up the fenestration. The battered chimney stacks add a quaintness, and the bold outline drawings are assertive; but, on a closer inspection, the work is crude and faulty. "Bedouin" is a more careful student, but the master's and mistress's rooms side by side at the end of the hall do not make a good arrangement. The tower is not wanted; but in a general way there is much deserving of commendation in this design. "Vlk" is less successful, and he puts his class-rooms all on one side of the hall. The other designs follow in this order: "Sphilark," "Oak," "Levenach," "Hoopoe," "Tie Beam," "Zox," "First Attempt," "Niche," "Desdichado," and "Clegornie."

#### "ACADEMY ARCHITECTURE."

THE fifteenth volume of this capital quarto publication has just been issued under the directorship of Mr. Alexander Koch, giving selections more or less complete from the architectural drawings and sculpture exhibits in the galleries of the Royal Academy, the Royal

Scottish Academy, and the Glasgow Institute of Fine Arts. Some examples are added from works executed from abroad; but on this occasion the foreign architectural designs hitherto forming so prominent a feature in "Academy Architecture" have been omitted. The pressure of British contributions probably accounts for this, and in the second volume to be issued towards the end of the year it is likely that the Continental illustrations will be included. To give an idea of the manner in which the editor reproduces the sculptured works in his well-printed pages we have, with his permission, made a choice of three of his full-page blocks, and these are given with our present little notice. The two more striking statues are from the monument to the Bourgmestre J. Anspach by the sculptor, M. Julien Dillens, of Brussels. These decorative and spirited figures represent "Literature" and "Fine Art," and may be taken as very obviously typical of Belgian sculpture of to-day, extremely clever and very free, with the draperies studied to give point and shadow, while no attention to technique is spared, so that the extremities of the figures themselves may be as emphatically rendered as possible. In contrast with these we have selected Mr. Alfred Drury's statue of Joseph Priestley, for the City Square, Leeds. This work, shown at the Royal Academy this year, is essentially very different from the Brussels monument, and affords no comparison, of course; but it is the con-





JOSEPH PRIESTLEY, LL.D.—STATUE,  
CITY SQUARE, LEEDS.  
ALFRED DRURY, Sculptor.



DECORATIVE FIGURE ON THE MONUMENT TO THE BOURGMESTRE  
J. ANSPACH, BRUSSELS.—JULIEN DILLENS, Sculptor.

trast which the composition affords which makes all three sculptures the more interesting. It is often, in fact, this element of contrast which gives to a book like Mr. Koch's publication its special value. over and above the record which it makes of contemporary design, by compactly bringing together a variety of subjects garnered very much in a way by the de'termination of mere chance. This is really the case, because more than often it is by chance principally that works are chosen for exhibition, and then, again, it is largely a chance whether an opportunity can be given for reproducing drawings before they are sent to the various exhibitions. This being the case no collection like that under notice can be said to be complete any more than the exhibitions themselves. Both in their degree are representative in a haphazard way, and the wonder is that Mr. Koch, by industry and forethought, has been enabled to render his pages so comprehensive as they actually are. The success which has attended his endeavours has been the best acknowledgment which he could desire. Many of the illustrations necessarily have already appeared in our own pages, and the same remark equally applies to the Royal Academy Exhibition itself, seeing that we gave a goodly number of the drawings now on view before they were sent to Burlington House. Among the contributors to the present volume of "Academy Architecture" appear the well-

known names of Messrs. Aston Webb, A.R.A., Ernest George, John Belcher, Fellowes Prynne, W. D. Caroe, Maurice B. Adams, E. W. Mountford, H. T. Hare, Baillie Scott, Ernest Newton, C. F. A. Voysey, L. Stokes, and A. N. Prentice. Many of the illustrations are supplemented by plans, thus increasing their utility.

The Scotch architects chosen for representation include Messrs. George P. K. Young, J. B. Wilson, Washington Browne, A.R.S.A., Dunn, and Findlay, John James Burnet, A.R.S.A., Balfour Paul, Honeyman and Keppie, Thomson and Sandilands, Watson and Salmond, and D. McNaughtan, I.A. Some of the illustrations are lacking titles, which is an oversight very observable by the reader. The catalogue which we have thus given of the names of the more prominent contributors suffices to show how well the character of the publication to which we draw attention has been maintained, in spite of unstinted competition.

#### THE SANITARY INSTITUTE.

THE preliminary programme of the eighteenth congress, to be held in Southampton from August 29th to September 2nd, has now been issued. The president of the congress is Sir W. H. Preece, K.C.B., F.R.S., Pres.Inst.C.E. Mr. Malcolm Morris, F.R.C.S. Edin., M.R.C.S.

Egg, will deliver the lecture to the congress, and Bailie J. Dick, J.P., chairman of the Health Committee, Glasgow, will deliver the popular lecture. Excursions to places of interest in connection with sanitation will be arranged for those attending the congress. A conversazione will be given by the mayor (Councillor G. A. E. Hussey).

Over 300 authorities, including several county councils, have already appointed delegates to the congress, and, as there are also over 2,200 members and associates in the Institute, there will probably be a large attendance in addition to the local members of the congress.

In connection with the congress, an exhibition of apparatus and appliances relating to health and domestic use will be held, as a practical illustration of the application and carrying-out of the principles and methods discussed at the meetings; it not only serves this purpose, but also an important one in diffusing sanitary knowledge among a large class who do not attend the other meetings of the congress.

The congress will include three general addresses and lectures. Three sections meeting for two days each, dealing with (1) Sanitary Science and Preventive Medicine, presided over by Sir Joseph Ewart, M.D., F.R.C.P., J.P.; (2) Engineering and Architecture, presided over by James Lemon, M.Inst.C.E., F.R.I.B.A.;



(3) Physics, Chemistry, and Biology, presided over by Prof. Percy F. Frankland, Ph.D., B.Sc., F.R.S. Eight special conferences:—Municipal Representatives, presided over by Ald. T. Walton, J.P., Chairman of the Health Committee, Southampton; Port Sanitary Authorities, Millar Wilkinson, Chairman of Port of London S.A., Medical Officers of Health, presided over by T. Orme Dudfield, M.D., L.R.C.P., M.R.C.S.; Medical Officers of Schools, C. G. Shelly, M.A., M.D.; Engineers and Surveyors to County and other Sanitary Authorities, presided over by E. Purnell Hooley, Assoc. M.Inst. C.E.; Veterinary Inspectors, W. Hunting, F.R.C.V.S.; Sanitary Inspectors, presided over by C. MacMahon, Chief Sanitary Inspector, Torquay; Domestic Hygiene, presided over by Mrs. Patey.

The local arrangements are in the hands of an influential local committee, presided over by the Mayor of Southampton, with A. Wellesley Harris, M.R.C.S., D.P.H., W. B. G. Bennett, Assoc. M.Inst. C.E., W. Matthews, M.Inst. C.E., and C. H. Russell, M.R.C.S., D.P.H., as honorary secretaries.

#### THE CARPENTERS' COMPANY'S EXAMINATIONS IN CARPENTRY AND JOINERY.

THIS has been a record year in regard both to the numbers attending the series of lectures delivered to candidates previously to the examination, and the number of entries for the examination itself. The lectures are intended primarily for candidates for the carpentry and joinery examination, and although, of course, purely technical, have attracted audiences of over a hundred. The examination took place as usual at the company's hall and at their schools in Great Titchfield-street last week. The number of candidates sitting this year exceeded that of all previous years by at least a third, and the number of successes is more than proportionately higher. The examiners included among their number Sir Alexander Binnie, Professors Banister Fletcher and T. Roger Smith, and Mr. Randall, President of the Institute of Builders. The names of the successful candidates in order of merit are:—

FIRST CLASS.—Wm. Bevan, F. J. Griffiths (silver medals), George Ellis, W. H. Richardson Jones, Jno. Lawrence (bronze medals), W. O. Brown, Arthur Norton, J. E. Paynter, J. W. Appleyard, G. H. Griffiths, E. R. Livermore, W. H. Morrish, J. S. Knight, and Tom Pilgrim.

SECOND CLASS.—S. W. Hayward, T. C. Noble, E. W. F. Martin, H. T. Barnes, A. D. Trendall, J. H. Sills, F. Tompkins, F. J. Allan, S. J. Stevens, D. Hunter, E. W. Bell, G. J. Boog, J. R. Heatley, F. Batten, F. C. Brown, A. E. Davis, C. H. Hayward, B. J. Martin, R. H. Griffiths, A. D. White, Thos. Tantor, W. Pither, and J. Perrin.

#### GLASS AS BUILDING MATERIAL.

THE U.S.A. Consul Warner writes from Leipzig:—"Under the name of 'keramo' a new building material, composed principally of glass, and manufactured at Penzig, Silesia, has been placed on the market. As far as known, this material is made from powdered glass waste, which is hardened by a special devitrifying process, and combined by means of strong pressure.

"In this way the transparency, brittleness, and fragility of the glass are destroyed, but other prominent properties—extraordinary hardness, stability against exposure to the weather, non-conduction of heat, non-inflammability, insensibility to oil, grease, acids, &c.—are retained in this new material.

"Keramo can be used for wainscotings in the interior of buildings, for covering floors in houses, kitchens, washing-rooms, verandas, balconies, &c., for rough-casting of walls exposed to the weather, as well as for staircases which are to be fireproof. The colour depends upon the colour of the glass used in the manufacture. The price of keramo is about 6s. 6d. per square yard, and so far the trials which have been made with this product have been most successful."

#### ARCHITECTURAL REGISTRATION IN SOUTH AFRICA.

AN Architectural Association is being started at Cape Town under the title of the South African Society of Architects. The objects are to deal with the matter of competitions, which carry most glaring abuses in the colony—more through ignorance than fraudulent intent, it is thought; and to expose the fraud of incompetent

and low-class persons, who, thanks to the liberties permitted to them by the powers that be, and through ignorance or thoughtlessness, are running riot in every centre of South Africa. It is also hoped in due course that the governments will receive a deputation, who will be appointed to negotiate the terms upon which a charter of incorporation will be granted, to be followed by the licensing of only competent men to practise as architects. Eventually affiliation to the Royal Institute of British Architects, and the holding of local examinations for the associateship of that body, will be arranged if possible.

The moving spirits are Mr. Arthur H. Reid, F.R.I.B.A., F.S.A., &c., past-President of the South African Association of Engineers, Mr. Henry Baker, A.R.I.B.A., and his partner Mr. Massey; Mr. C. H. Smith, A.R.I.B.A., Mr. Ackermann, A.M.I.C.E., &c., Messrs. John Parker, J. C. Tully, A.R.I.B.A., Vize, Boxe, and others are to be invited to join the movement. We heartily wish it success, and only regret that the Institute is not yet prepared to take similar action. All our colonies will have Architectural Registration apparently before we get it here at home.

#### THE DISPUTE IN THE BUILDING TRADE.

A MEETING of representatives of trade-unions in the building trade was held on Monday at Manchester. The draft of a "basis of settlement" to be considered at a joint conference between the National Association of Master Builders and the representatives of the trade-unions, which had been submitted to the executive committees of the trade-unions, was approved and has been forwarded to the secretary of the Master Builders' Association.

There is every reason why the employers should accept the basis proposed. The men offer a tribunal for each district to discuss the points of controversy that have arisen or may arise, with a central or national board to act as a court of appeal. The proposal is very much what the Engineering Employers' Federation instituted as the result of the great dispute in that trade, and it is impossible that the master builders could dictate better terms, even after a successful lock-out of many months' duration. The only practical obstacle is the attitude of the Yorkshire employers. The point at issue between the Yorkshire employers and the men is whether a sectional or a national conference is to be held. On this point we believe the majority of employers agree with us, that the men are right in wishing that the settlement should be national. If the Yorkshire employers do not assent to this view, the National Association should submit the matter to a third party acceptable to both sides.

#### CHIPS.

The rural district council of Wirral have raised the salary of their surveyor, Mr. Hughes, from £120 to £170 a year.

The east window in St. Giles's Church, Cambridge, has been filled with stained glass representing our Lord in Glory adored by angels and by St. Peter and St. Giles. The artist was Mr. C. E. Kempe.

The Martyrs' Memorial at Canterbury was inaugurated last week. It is of grey Cornish granite, and consists of a square pedestal on a rock base, from which rises a shaft 13ft. in height, surmounted by a reproduction of the ancient Canterbury cross. This round form of cross was taken from a cross of bronze gilt, discovered some thirty years since in the course of drainage excavations in the main thoroughfare of Canterbury.

The opening of the new buildings of King's College School at Wimbledon will be performed by the Duke of Cambridge on Thursday, July 6, at 3 p.m.

The rural district council of Truro have elected Mr. John Retallack, of Perranzabuloe, as highway surveyor for the northern district, which comprises eight parishes with about 230 miles of roads. The surveyor will have to devote the whole of his time to the duties, to keep a horse, and reside in a central place in the district. The salary is £145 per annum (to include all travelling expenses).

The Mersey Docks and Harbour Board intend to deepen the Alfred 100ft. lock at Birkenhead from 12ft. to 17ft. below the old dock sill, to alter the sills of the Alfred Dock Inner 100ft. passage, and the Morpeth Dock west passage, and to provide additional pumping machinery at the Wallacey Dock. The estimated cost of the work is £51,000. It is stated that a further expenditure of £24,000 will be needed to complete the work.

#### PROFESSIONAL AND TRADE SOCIETIES.

INSTITUTE OF SANITARY ENGINEERS.—At the half-yearly general meeting, held on the 15th inst., the following resolutions were unanimously carried:—1. That the minutes of the meeting held December 15th, 1898, be confirmed. 2. That the balance sheet and reports of the governing body and auditor for 1898 be presented be adopted. 3. That, in addition to the present classes of Fellows and Associates, a class of Members be established. 4. That for all Fellows, Members, or Associates joining after June 30th, 1899, the entrance fees and annual subscriptions be uniform, irrespective of locality, as follows, viz.:—Entrance fees: Fellows, £2 2s; Members, £1 11s. 6d.; Associates, £1 1s. Annual subscriptions: Fellows, £2 2s.; Members, £1 11s. 6d.; Associates, £1 1s. 5. That all belonging to or joining the institute during the present year, whether Fellows, Members, or Associates, have the privilege of becoming life Fellows, life Members, or life Associates, on the payment of ten guineas—five guineas before the end of the present month, or, in the case of new Members, within fourteen days of receiving notice of election, and five guineas on or before January 1st, 1900. Life Members to be exempt from all further calls for subscriptions during their membership. The fees for life Members after the expiration of the present year to be as follows, viz.:—Life Fellows, 20 guineas; life Members, 15 guineas; life Associates, 10 guineas.

NATIONAL ASSOCIATION OF MASTER BUILDERS.—Arrangements are being pushed forward by the Plymouth Master Builders' Association in view of the visit, next month, of the representatives of the National Association. Most of the visitors will arrive in Plymouth on Tuesday, the 18th prox. The council of the National Association will meet on the morning of the 19th, and the general meeting will take place in the afternoon. In the evening the representatives will be entertained at a banquet in the Guildhall. The next day, Thursday, the 20th, will be devoted to pleasure. A large party of ladies and gentlemen will proceed to Princetown by train, and drive to Tavistock, where lunch will be served. Subsequently the drive will be continued to Morwelham, and thence all will return to Plymouth by the s.s. *Princess Royal*. The Mayor is giving a reception in the evening, and on the following day Sir John Jackson has consented to the visitors being shown over the Extension Works at Keyham. The local committee, of which Mr. W. G. Laphorn is chairman, is doing all in its power to make the first visit of the National Association to Plymouth an enjoyable one.

QUATUOR CORONATI.—The society known as "Quatuor Coronati" held its annual meeting and excursion this year at Exeter. The members, numbering over 150, on the 16th inst. visited the cathedral, where a very interesting lecture was given by Canon Edwards. At the Guildhall the town clerk, Mr. Short, took the party in hand, and first gave an address on the early history of Exeter, showing various treasures and ancient documents; then to Rougemont Castle, Wynard's almshouses, the church of St. Pancras on the site of a Celtic church, the Mint and Priory, and Moll's Coffee House. On the following day the party proceeded by special train to Bovey Tracy, and eight coaches conveyed them across Dartmoor. Local members explained the various objects en route, especially the hut circles, the lofty hills, and at the stone avenues and hut circles near Princetown Mr. Worth, C.E., of Plymouth, delivered a most interesting address on the prehistoric remains on the Moor. The interesting church of Widecombe was visited, and the Church House, erected late in the 15th century. The church is much too large for the population, not a fourth of the space being occupied on Sundays. At the west end there is a board on which is inscribed a quaint account of a great storm in 1638. The very long drive was finished at Tavistock, where a special train awaited the party, and conveyed them to Exeter. Members present not unknown to our readers were Messrs. C. Purdon Clarke, F.S.A., F.A. Powell, J. William Stevens, Henry Lovegrove, and others.

Extensive alterations are about to be carried out at the workhouse at Cheadle, including new drainage works and the addition of an infirmary and laundry. The architect is Mr. J. T. Snape, of Newcastle-under-Lyme.



## Building Intelligence.

**BALSALL HEATH.**—The foundation-stone of the new Church of St. Barnabas was laid in Ladypool-road on the 14th inst. At present it is only intended to erect the chancel, organ-chamber, and vestries; but when funds permit the church will consist, in addition, of a wide nave, aisles, transepts, and morning chapel, and accommodation will be provided for about 900 worshippers. There is to be a tower at the corner of Ladypool-road and Clifton-road. At the west end will be a projecting octagonal baptistry, over which will be a group of lofty traceried windows. The south side will show a range of traceried clerestory windows and buttresses. The building both inside and outside will be of red brick, with moulded terracotta tracery, and will be covered with an open timber roof and green slates. The architect is Mr. T. F. Proud, of Erdington, and the builders are Messrs. E. Giles and Son, Camp Hill, Birmingham.

**BIRMINGHAM.**—On the site till recently occupied by Christ Church, having an area of 2,475 square yards, and bounded by New-street, Paradise-street, Colmore-row, Waterloo-street, and Christ Church-passage, is about to be covered by blocks of business premises. The contract for the first portion of the building—about one half of the entire structure—having frontage to Colmore-row and Waterloo-street, has been taken up by Messrs. J. Barnsley and Sons at about £50,000. The scheme consists of three distinct blocks of buildings. The ground-floor treatment will be suitable for shops, insurance, and professional purposes, and the upper floors, of which there are four, will be devoted to professional offices. Each shop will be provided with basements and sub-basements, lit by pavement lights. There will be six suites of rooms on the ground floor in Christ Church-passage, and over the shops ninety-four offices. The exterior design will be in a Free Renaissance style of architecture, relieved with ornamental windows, perforated balconies, arcaded stories, and stone dormer windows. The stonework to the top of the shops will be of Darley Dale, with red granite pilasters, and the remainder of the frontage will be executed in Bath stone from the Monks Park Quarries. The circular front facing Paradise-street will be surmounted by a dome, and stone bay windows will also be largely used in the principal elevations. The entire work will be carried out under the superintendence of Messrs. Essex, Nicol, and Goodman, architects, Newhall-street. A meeting of the Improvement Committee of the city council was held on Friday, when the tenders for the erection of working-men's dwellings in Milk-street were considered. The scheme adopted by the council was for the erection of six blocks of buildings containing sixty-one tenements, on the dual system, at an estimated cost of £10,100. Fifteen tenders were sent in, and the lowest, that of Messrs. B. Whitehouse and Sons, Monument-road, was accepted.

**DUDLEY.**—The new grammar school in St. James's-road was opened by the Countess of Dudley last week. The buildings, which have cost £67,750, consist of a school to accommodate 160 scholars and a headmaster's house. The style adopted for both blocks of building is Tudor Gothic. Externally each structure is faced with red Ruabon bricks and terracotta dressings, and roofed with brindled Staffordshire tiles. Internally the joinery throughout has been executed in New Zealand "kauri" wood, stained and varnished. The school building contains five classrooms and a central hall, the capacity of the latter being 56ft. by 28ft., and having seating accommodation for 250 adults inclusive of scholars. The central hall has a high panelled dado; and over a fireplace, carved in oak, is the borough coat of arms. In addition there are a chemical lecture theatre, laboratory, &c., which are separated from the school by a covered passage, and can be entered direct from the playground. The lecture-theatre will seat thirty-six students, and the chemical laboratory sixteen. The basement also contains heating-chamber, cooking-kitchen, and mess-room, adjoining which is a partly-covered playground. The building contract has been carried out by Messrs. Webb and Round, of Dudley, to the plans of Messrs. Woodhouse and Willoughby, of Manchester, whose designs were accepted in an open competition, in connection with which fifty-four sets were sent in.

**HAWKESYARD, RUGELEY.**—The new Dominican Priory Church was consecrated by Bishop Halsey last week. The style of the new church is Late Perpendicular, red bricks being used, with dressings of Penkridge stone. The internal dimensions are—length 120ft., width 30ft., height 54ft. The main entrance is deeply recessed and moulded, and above it is a traceried seven-light window. The organ-case, designed by Wren and originally erected at Eton, is a beautiful example of the Renaissance style. On the right of the west entrance is a moulded arch, opening into a chantry chapel. The lady chapel is on the opposite side and occupies the space of two bays. The roof is panelled in wood, and the altar and reredos are of stone. The architect of the church and the adjoining priory is Mr. E. Goldie, of London.

**MAIDSTONE.**—The new Victoria Free Library in Faith-street constitutes a memorial of the Diamond Jubilee. It occupies the site of the old curator's residence next the Museum, and between that institution and the New Technical School. A new curator's house has also been built. The new erections are in the Elizabethan style of architecture, corresponding with the museum. The free library is 54ft. in length and 21ft. wide, with a moulded and panelled plaster ceiling. It is proposed to divide the room by screens and fittings for the purpose of the lending-library and reading-room. An upper apartment of like dimensions styled the County Room, is intended for the exhibition of special collections particularly interesting to the people of Kent. The floor space of this room will be entirely unobstructed, and a narrow and light iron gallery, suspended from the open pitch-pine roof, renders the whole of the wall space available for the fixing of cases containing exhibits. The new rooms communicate by folding-doors with the lower and upper halls of the School of Science and Art on the one hand, and with the ethnographical and fine art rooms of the museum on the other. A small work-room has been provided on the upper floor. There is also a basement for the storage of newspapers, &c. The curator's residence occupies the site opposite the free library, and with the latter the technical school forms a new forecourt, 30ft. wide and receding 38ft. from Faith-street. The cost of the library and the curator's house has been £3,600. Mr. A. W. Smith, F.R.I.B.A., is the architect, and Mr. W. J. Logan the builder. The library will be formally opened to-day (Friday) by the Lord Mayor of London.

**SHEFFIELD.**—The old Athenaeum in George-street is now in course of demolition, preparatory to rebuilding on a much enlarged site. There will be a frontage to George-street of 125ft. The building is of brick with stone dressings, and mullioned and casement bay windows. The central entrance will lead into an outer porch 9ft. square, with porters' offices on either side, opening into an inner hall, 15ft. wide, with staircase beyond. The whole of the basement will be let off. Messrs. Flockton, Gibbs, and Flockton, of Sheffield, are the architects.

**SOUTH KENSINGTON.**—The Prince of Wales will lay to-day (Friday) the foundation-stone of the new buildings for the Royal School of Art Needlework. The site is at the corner of Imperial Institute-road and of Exhibition-road, and the buildings, which will cost about £34,000, will extend 150ft. along the former road, and 120ft. along the latter. In addition to 18 or 20 classrooms, and a workroom extending the whole front of the building on the Imperial Institute side, with a width of 30ft., there will be some extensive show-rooms, the largest of which will be available for exhibition purposes, and also a lecture and committee room. The general plan of the buildings is that of a quadrangle with two courts. The basement story will be of Portland stone, the principal story of red brick with stone dressings, and the upper floor of stone, while at the corners will be pavilions, surmounted by domed roofs. The architect is Mr. F. B. Wade, of Sloane-street.

**WALLASEY.**—The memorial-stone of a Presbyterian Church of England was laid in Village-road on Saturday. The building will consist of nave and transepts, organ-apse, minister's vestry, ladies' retiring-room, &c., and a west gallery can be erected at a future period if necessary. The style adopted is Early Gothic. The building will be faced on all sides with Ruabon brick, the dressings and tracery, strings, and weatherings being of terracotta. The windows will be glazed with cathedral glass, the internal fittings and

pew framing being of varnished pitch pine, and the roofs will be covered with Ruabon red tiles. The heating will be hot-water pipes. According to the present part of the building schemes there will be accommodation for about 450 worshippers. The estimated cost is about £4,000, including the sum which was paid for the site. The architect is Mr. A. W. Smith, Manchester, and the contractor Mr. W. H. Forde, Birkenhead.

**WESTMINSTER CATHEDRAL.**—Progress is steadily being made on Mr. J. F. Bentley's Roman Catholic basilica near Victoria-street. Besides the centring of the monks' choir, that is to carry the dome and pendentives which span the square formed by the intersection of the transept with the nave, rests have been placed in position for laying the mass of concrete of the dome, as well as that of the vault and apse beyond, while some of the small vaults at the west end are complete. The centring of the sanctuary dome and pendentives is also far advanced. The brick and stonework are now carried up to their full height, and it only remains to finish the various turrets, when the external scaffolding will be struck and the brickwork pointed as it descends. The terracotta trellises that will fill in the large semicircular windows of the clerestory and elsewhere are in the hands of the potter, and a sample of the work already fills the upper window of the baptistry.

### CHIPS.

A service for the dedication of the tower and spire and other additions made to Craiglockhart Parish Church was held in the church on Friday.

Under the will of Mr. Myles Birket Foster, of Braeside, Weybridge, a member of the Royal Society of Painters in Water Colours, personal estate is left of the value of £30,391 13s. 7d.

The seventh of the eight works promised by different donors for the mural decoration of the Royal Exchange was placed into position on Monday. The subject of the latest canvas is an historical one, depicting "The Opening of the First Royal Exchange by Queen Elizabeth." The artist is Mr. Ernest Crofts, R.A., and it is the gift of the Mercers' Company. This picture, like the others, is painted in the new medium, "spirit fresco," invented by Messrs. Charles Roberson and Co.

The Chesterton Rural Sanitary Authority have adopted plans, prepared by Mr. Wood, C.E., for the sewerage of the St. John's and Brookfield districts of Charrington, the estimated outlay being £7,000.

Extensive works are in progress by the London and South-Western Railway Company at St. Denys, Southampton. At present the whole of the traffic, main line and to Portsmouth, passes through the station, but the alterations will result in the Netley trains passing over a new set of rails, east of the present lines, and through a new station, which, although connected with the old one by an extension of the passenger bridge, will be a separate one, with a complete set of offices and waiting-rooms.

The parish church of St. Mary, Stratford, Bow, was reopened last week, after having been closed for upwards of two years. In October, 1895, a portion of the chancel roof subsided, and it was then found that the whole church was practically tumbling down. Consequently it had to be closed. A new roof has now been provided to the nave, while the gable roof of 1755 has practically been renewed. The brick gable has been rebuilt, but the old timbers have been left. The tower is now the only part of the church to be repaired, and before that can be done a sum of about £1,800 must be collected. Messrs. W. A. Hills and Son were the architects for the restoration.

The Dean of Norwich, Dr. Lefroy, has written an exhaustive letter to the local Press, in which he sets forth the acoustic and architectural considerations which make it desirable, in his judgment, to erect the new cathedral organ on Lyhart's screen, which spans the nave, and quoting the opinion of Sir Walter Parratt, Sir J. F. Bridge, Sir G. C. Martin, and Professor Mahaffy against using the triforia for such a purpose.

The Chipstead Valley Branch Railway, which has just become the sole possession of the South-Eastern Company, will eventually enable the latter company to become a formidable rival to the Brighton Company for the racing traffic to Epsom Downs. At present the line is  $4\frac{1}{2}$  miles in length, and extends from a junction at Purley in a south-westerly direction by Chipstead to Kingdons; but it is to be carried, by a sharp north-west curve, another  $2\frac{1}{2}$  miles to Tattenham Corner, where a site of 28 acres has been acquired, facing the junction of the long, five-furlong, and straight courses. Mr. A. J. Barry is the engineer, and Messrs. Bott and Lewis Jones are the contractors, Mr. Hawkins being the contractors' agent.



## Engineering Notes.

**COLWYN BAY.**—The first pile was driven on Monday for the new Victoria pier. The work is being carried out from designs of Messrs. Mangnall and Littlewoods, Manchester, the Widnes Foundry Company being the contractors for the first section, including the pavilion, which has to be completed by the end of this year. The pier is centrally situated, being adjacent to the station, and commands an extensive view of the bay and the Welsh mountains. The pier promenade leading to the pavilion will be 40ft. wide, and is constructed with iron piles placed at intervals, braced together, supporting steel riveted girders of spans. The pavilion is situate 50 yards from the entrance to the pier on the right-hand side, and has a large dome and campanile towers treated in the Renaissance style. It is calculated to hold about 1,500 persons. On three sides of the pavilion will be a gallery with tiers of seats in front and a promenade behind, two external balconies for promenade purposes are accessible by doors from the gallery. Cloak-rooms and shops are provided. It is intended next year to complete the second section, which will comprise the continuation of the pier to 350 yards in length and 30ft. in width, the extremity being widened out for open-air music and other entertainments. Shops and shelters will be provided at each side, with a band kiosks in the centre, provision being made round three sides of the pier-head for embarking and landing boats. Shelter kiosks will be placed at intervals along the pier. The cost of carrying out the first part of the pier and concert halls will be £31,750.

**WESTGATE-ON-SEA.**—The rebuilding of the sea-wall is now completed. In the winter of 1897, during the storm which created so much havoc and damage both at Margate and Herne Bay, nearly the whole of the sea-wall and front promenade at Westgate were swept away, leaving the cliffs for the greater part of the distance bare. Immediate steps were taken to protect what little of the sea-wall and promenade remained, and in the early part of 1898 arrangements were made for the reconstruction of the destroyed portion, which extended along the whole front of St. Mildred's Bay. The wall and approaches have been built, the backing filled in, and the promenade has now been tar-asphalted from end to end. In rebuilding great improvements have been made. A wall has been built against the cliff to provide shelter seats at intervals along the whole promenade. Approaches from the promenade to the roadway behind—which is a considerable elevation above the sea-wall—have been formed by slopes at an easy gradient, working through the front gardens to the top of the cliff. Step approaches have also been made, and rustic bridges thrown over the various openings. The whole of the outlay has been met by Messrs. Coutts and Co., the owners of the estate. The design and execution were the work of Messrs. A. McIntosh Valon and Son, engineers, 140, Temple Chambers, Temple-avenue, E.C. Mr. William A. McIntosh Valon (consulting engineer to the corporation of Ramsgate) is advising engineer to Messrs. Coutts and Co., and is also engineer and has charge of the gas and water works which supply Westgate-on-Sea, Birchington-on-Sea, and district.

At a special meeting of the Croydon County Council on Monday it was resolved to purchase by agreement the undertaking of the Croydon Tramways Company for the sum of £50,000.

It was reported at a meeting of the town council of Aberdeen on Tuesday that negotiations had been completed with the City of Aberdeen Land Association for the formation of a street which will form part of a boulevard, which is intended to encircle the city. The street, planted on each side with trees, will be 80ft. in width, a mile long, and cost £7,200. The whole boulevard scheme will probably cost £20,000.

A question as to whether the National Telephone Company, in proposing to lay wires under a license from the Postmaster General, had to obtain the consent of a tramway company as well as that of the local authority for breaking up the streets, was before Mr. Justice North in the Chancery Division on Tuesday. The Bristol Tramway Company contended that they should have been asked to agree to the laying of the wires; but the Judge held that the Acts of Parliament under which the defendants proceeded did not apply to tramway companies, and dismissed the action, with costs.

## COMPETITIONS.

**DOVER.**—In the recent competition for designs for a concert pavilion to be erected on Dover Promenade Pier, the directors have selected the joint design of Mr. Noel Ridley, A.M.I.C.E., and Robt. J. Beale, A.R.I.B.A., of Westminster. The directors have also adopted a report by the same authors on the strengthening of the pier, and given instructions for the working drawings, &c., to be at once proceeded with.

**MANSTONE.**—The secretary to the Wharfedale Union Joint Isolation Hospital Committee has issued a circular stating that in consequence of the very numerous applications for plans of the proposed hospital buildings to be erected at Manstone, it has been decided by the building committee to require a deposit of the sum of one guinea before the plan of the site is issued, which sum will be returned on receipt of a set of *bond-fide* plans for the required buildings. This, although far from being uncommon, is an unjustifiable proceeding, as it is improbable that any architect would apply for particulars unless he proposed to compete, provided the conditions were satisfactory. To demand the temporary deposit of a guinea puts the committee and each competitor to unnecessary trouble and inconvenience. If it is desired to limit the number of plans sent in, why should not the committee invite a few architects of reputation to send in plans, paying each selected competitor an honorarium as some sort of compensation? The cost is limited to £275 per bed inclusive, and for preparing plans for an institution of about six-and-forty beds for patients, besides an administrative block and provision for future extensions, the paltry premiums of £30 and £1 are offered for the selected designs, which are to become the property of the committee. Further comment is needless.

**SEACOMBE.**—In a recent limited competition for a Congregational church to be built at Seacombe, Birkenhead, at a cost of £2,700, the plans of Mr. F. W. Dixon, of Trevelyan Buildings, Manchester, have been accepted, and he has been instructed to proceed with the work at once.

## CHIPS.

A Local Government Board inquiry was held at the Dukinfield Urban District Council offices on Friday by Colonel Luard, in regard to an application of the District Council to borrow about £12,000 principally for the erection of a new town-hall, a small portion being for sewerage. There was no opposition.

Sir Courtenay Boyle presided over a sitting at the Board of Trade on Monday, to consider an order by the Light Railway Commissioners authorising the construction of a short line of light railway from Corringham, Essex, on the Thames, to Kynochtown, mainly for the convenience of the workpeople employed in Kynoch's factory. The scheme is promoted by the Kynoch Company, no objections were taken to it, and the order was passed.

A new organ, which has been erected at St. Anne's Church, Stanley, Liverpool, by Messrs. Richard Tubbs and Sons, of Liverpool, will be opened on Sunday next.

Owing to the continued ill-health of Mr. Farrington, the engineer and surveyor to the town council Conway, he has been appointed consulting engineer, and the council have decided to advertise for a successor as surveyor at £150 a year.

An anonymous donor has promised £3,500 for the purpose of erecting a Municipal Museum and Art Gallery adjoining the Central Free Public Library at Hampstead. The Library was erected in 1897 by Sir Henry Harben, the chairman of the Hampstead Vestry, at a cost of over £5,000.

A petition has been lodged in the Registry Office of the Diocese of London against the application for a faculty authorising the vicar and churchwardens of St. Dunstan's, Fleet-street, to sell the western open frontage to the Law Life Assurance Co., Ltd., and to devote the proceeds of the sale (£4,600) to the erection of a rector's house on the eastern open frontage of the church. The petition is numerously signed, and the matter will be probably carried before the Ecclesiastical Court.

The Society of Arts has recently caused tablets to be erected on the following houses, to mark the former residences of distinguished persons:—"Belmont," Rosslyn Hill, Hampstead, formerly the residence of Sir Harry Vane; No. 50, Wimpole-street, where Mrs. Elizabeth Barrett Browning, wife of Robert Browning, the poet, lived for some time, and from which house she was married. The Society has also decided to erect a tablet on "Bolton House," Windmill Hill, for many years the residence of Joanna Baillie, the dramatist.

## WATER SUPPLY AND SANITARY MATTERS.

**CORLEY.**—The newly constructed works of the North Warwickshire Water Company at Corley, near Foleshill, were opened last week. The well at Corley, of 10ft. diameter, is sunk to a depth of nearly 100ft., and beyond this a bore-hole has been carried down 150ft. A couple of adits have also been cut, by which means the supply of water has been largely increased. A yield of about 250,000 gallons per day can be relied upon. The company's district of supply includes about 16,000 people, but many are not likely for many years to come within the limits of the supply. In addition to the Corley boring, the company are sinking another well at Keresley. The company have constructed a small temporary reservoir to hold about 50,000 gallons, and the accommodation will be increased to a million gallons. The temporary reservoir is situated at a height of about 450ft. above the sea level, while the highest point in the district of supply is not more than 343ft. Mr. J. A. Quick, M.Inst.C.E., was the engineer, and Mr. A. E. Nunn, of Tenterden, the contractor.

**DRONFIELD.**—The new sewage disposal works of the Dronfield Urban District Council recently opened have been completed in accordance with the designs of the council's engineer, Mr. G. White, C.E., of Mexborough, and are on the International system, comprising circular upward flow tanks, with automatic sludge or detritus removal apparatus, clarifiers, and polarite oxidising filter-beds—now popularly termed bacteria beds. The contractors were Messrs. Margerison and Sons, of Dronfield.

**GREAT AYTON.**—The main sewerage and sewage disposal works for Great Ayton, near Middlesbrough, have just been finished. About three miles of sewers were laid, part of them being in very wet and unstable ground. Continuous steam pumping was also necessary in sinking the shaft for the precipitation tank, the bottom being over 28ft. below the normal subsoil water level. The purification of the sewage will be effected by chemical precipitation in a deep vertical tank, the effluent from which is distributed over land on the ridge and furrow system. The contract was let to Messrs. Cruddas and Son, of Guisbrough. The total amount of contract is about £4,000. Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle and London, is the engineer, having won the scheme in open competition about three years ago.

The town council of Plymouth have resolved to engage Mr. H. T. Buckland, of Birmingham, to superintend the execution of his selected design in connection with the buildings to be erected in Tavistock-road, and to supply tracings of plans, &c., for the purpose of builders at a fee of four guineas per site. The town council have also instructed Mr. H. J. Snell to prepare and submit rough sketch plans for providing slaughter-houses and ancillary accommodation at Prince Rock, and also an estimate of the cost, which is not to exceed £5,000 exclusive of the cost of the land.

The Archbishop of Canterbury visited Lancing College, Sussex, last week, on the occasion of the college jubilee and the opening of the new chapel. The chapel is a building of cathedral proportions, though not yet completed. It is in the Early Geometric style. Its internal length is 180ft., the width being 64ft., and the height to the groining 90ft. The ante-chapel will be 43ft. long, 64ft. wide, and about 80ft. high; and on the north side the great tower has been commenced. Beneath the upper chapel is the crypt, which is one of the longest in England.

The Salford Corporation have agreed to purchase, on a 999 years lease, 17½ acres of land on the Crowcroft estate, Longsight, as a public park.

The ceremony of dedicating the newly-erected tower which has been erected as an addition to the Roman Catholic Church of St. Michael's, Aston, near Stone, Staffordshire, was performed on Friday.

At Kirkcaldy, on Saturday, a new infectious diseases hospital, built at a cost of £10,000, was formally opened.

A provincial meeting of the Society of Architects will be held in the Board-room of the Cutlers' Hall, Sheffield, on Friday evening next, at 6.30 p.m., when a paper on "The Statutory Registration of the Profession" will be read by Mr. Ellis Marsland, hon. sec., and a resolution will be proposed.

Tuesday next, the 27th inst., has been fixed for the annual excursion of the Bristol Master Builders' Association, and the visit will be to Bridgwater and the Quantocks. Brakes will be in waiting at Bridgwater at 9.47 to convey the party through Spaxton, Chickercombe, Triscombe, Stone, round Danesboro' Hill to Castle Comfort. Luncheon will be provided at Holford, and after a visit to Holford Glen the return will be via Nether Stowey, Keen-thorne, Cannington, and Wembdon. Dinner will be served at the Bristol Arms, Bridgwater.



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## ILLUSTRATIONS.

NEW SAVINGS BANK, KENSINGTON—UNION CHURCH, QUEEN  
SQUARE, BRIGHTON—STAR ASSURANCE OFFICES, BRISTOL  
—DESIGNS FOR SMALL PARISH SCHOOLS.

## Our Illustrations.

## THE POST OFFICE SAVINGS BANK, KENSINGTON.

THE Prince of Wales will, on behalf of the Queen, lay the foundation-stone of this great pile of buildings to-morrow (Saturday), with State ceremonial. The cost of the new Savings Bank will be about a quarter of a million. Attached to the main premises a regular post office will be erected, chiefly intended to assist in the working of the Savings Bank Department, in which several thousand clerks will be employed. The plan, given with the view and drawing of the front elevation, will show how the building is arranged, with all the sanitary provisions well isolated from the official departments, and cleverly concentrated. Next week we may be enabled to give a description of the building more in detail. Mr. Henry Tanner, F.R.I.B.A., of H.M. Office of Works, is the architect.

## UNION CHURCH, QUEEN SQUARE, BRIGHTON.

THE two drawings reproduced to-day are at the Royal Academy this year. From the same exhibition we published the exterior view and plan of the same building on May 5 last. The present double-page perspective shows the interior of the chapel, which is admirably adapted as an auditorium with three galleries in the apsidal-ended transepts, and the rostrum facing the audience. Ample light is afforded by the arched windows at the base of the dome and the lunettes over. Every seat-holder will obtain a view of the preacher, and the building has the distinct advantage of avoiding any attempt to imitate an ecclesiastical place of worship, wherein the altar necessarily determines a different aim, and imposes an essentially diverse arrangement. The result thus obtained is far more correct architecturally, and the proprietors have done well in allowing their architect, Mr. John W. Simpson, to plan a preaching-hall pure and simple. The second plate shows the group as it will appear from the end of the Western-road.

## THE STAR LIFE ASSURANCE OFFICES, BRISTOL.

THIS building is about to be erected in Bristol as a branch office for the Star Life Assurance Society, London. The site which has been acquired forms part of St. Augustine's Parade, which, until a few years ago, was only accessible from a part of Bristol by means of a drawbridge over the then-existing harbour. This harbour has been filled in, and a portion of it has been laid out as a public garden, the remainder forming a wide open space, which is now the tramway centre of Bristol. The premises comprise shops on the ground-floor, with extensive offices over, which are so arranged as to be easily divided into suites of any required number of rooms. There is a lift to all floors. The whole of the front is to be executed in Ham Hill stone, the

roofs being of slate. The work is being carried out from the designs, and under the superintendence, of the architect, Mr. Arthur Blomfield Jackson, Mecklenburgh-square, London.

## "BUILDING NEWS" DESIGNING CLUB: A SMALL PARISH SCHOOL.

(For description and awards see p. 835.)

## CHIPS.

In the list of tenders published last week we gave those for the enlargement of the Baptist Church Sunday-schools, Swadincote, but omitted the name of the architect, Mr. C. F. Underhill, of Burton-on-Trent.

The new church of St. Aidan's, Middlesbrough, was dedicated by the Archbishop of York on Saturday. The great feature in connection with the erection of the church, which is entirely built of wood, is that it has been built by voluntary workers. The vicar (the Rev. C. H. Sellwood Godwin) having dug the foundations himself, made a special appeal to the people of the town, and at first he was joined by a couple of men. The enthusiasm increased, and within a few weeks ago there were close upon eighty workmen. The whole of the work has been done in the spare time of the men. The edifice is 102ft. by 40ft. and 45ft. in height. There is accommodation for nearly 600 people, and the cost has been between £1,500 and £2,000.

Another step has been taken towards the transformation of the centre of Leeds. The remaining property needed for the construction of the new Cheapside, leading from Briggate into Vicar-lane, has just been acquired by the Leeds Estates Co. by direct purchase from the Pious Use Trustees. Altogether, the company have now paid for properties abutting upon the proposed new street the sum of £190,875, this expense being apart from costs and loss of interests.

A memorial to the late Prebendary Allen, in the form of a stained-glass window, has lately been erected in Christ Church, Eastbourne. The subject of the window is "The Good Shepherd." The canopy and base are examples of Perpendicular work. The work has been carried out by Messrs. Jones and Willis.

St. Peter's Presbyterian Church, Upper Tooting, which was dedicated last week, has been built from American designs. The pulpit, with the organ behind, is placed in one of the corners, and the pews being arranged therefrom in concentric lines. The church, which has a gallery, will seat over 700 persons.

Messrs. Kirk and Randall, of Woolwich, have just completed the erection of a large goods warehouse at Broad-street, City, for the London and North-Western Railway Company, from the designs of Mr. Francis Stevenson, chief engineer, Euston Station, assisted by Mr. E. B. Thornhill, with Mr. Keyte as resident engineer. The building covers an area of 50,000sq. ft., and consists of four floors and two basements, and its cost was rather more than £100,000. It is lighted throughout by electricity.

Dr. Tristram, Chancellor of the Diocese of London, gave judgment on Monday on the application of the vicar and churchwardens of St. Botolph, Aldersgate, for a faculty permitting certain alterations in the churchyard. Some time ago, the Chancellor said, the churchyard was laid out as a garden, which was open to the public. Additional ground had since been, by the liberality of the public, added at a cost of £6,000. A wall would have to be erected separating the churchyard from the street, and Mr. G. F. Watts, R.A., had offered to decorate this wall with frescoes delineating acts of heroism that had occurred among the humbler classes. To protect them from exposure to the atmosphere, Mr. Watts proposed at his own cost to construct a covered way, giving free access from the churchyard and grounds. The Chancellor decreed the faculty to issue.

Messrs. Spalding and Cross have dissolved partnership, and Mr. Cross has commenced practice alone in Conduit-street. The work in hand by the firm at the present time will be completed under the joint supervision of the firm, which has terminated by the effluxion of time.

A beginning has been made with the Whitechapel and Bow Junction Railway. The works were started a few days ago at the Whitechapel station under the superintendence of Sir John Wolfe Barry. The line is being promoted by the London and Tilbury Company and the District Company with a view to joining the two systems. It will be some two and a half miles long, and will run from the existing underground line at Whitechapel to Bromley.

The Woburn Sands Board Schools are being warmed and ventilated by means of Shorland's patent Manchester grates and patent exhaust roof ventilators, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The new buildings which have recently been completed at the London Hospital Medical College will be opened on Tuesday, July 18, by Viscount Knutsford.

The demolition of the front part of Clarendon Buildings, Lord-street, Liverpool, will begin on July 1, and on August 1 the Countess of Derby will lay the foundation-stone of the first section of the Church-house for the Liverpool diocese. This section will include the main entrance and tower, and the builders' contract is for £13,200. The structure will be of brick and terracotta erected on the frame system. Mr. G. Bradbury, of Liverpool, is the architect.

Business at the Mart during the past week fell away to a considerable extent, and the returns of £145,903 represented sales of property mostly within the Metropolitan area, gas stock and shares in various undertakings, and reversions. The highest amount realised for any single property was £6,300, which was paid for the Theatre Royal, Dover.

Mr. J. Passmore Edwards's home for children at Clacton-on-Sea was opened on Thursday. The institution is for the purpose of providing a seaside holiday home for children, and it is capable of accommodating over 100. In the unavoidable absence of the Earl of Aberdeen, Mr. Passmore Edwards himself declared the home open, and announced another subscription on his part of £1,000. The home has been built from plans by the late Mr. Charles Bell, of Salter's Hall-court, at a cost of £6,700. Messrs. Hammond and Son, of Romford, were the builders. The home was illustrated in the BUILDING NEWS for May 20, 1898.

The partnership hitherto subsisting between E. Tewson, E. Farmer, B. J. Bridgewater, E. A. Tewson, F. B. Debenham, and W. A. Drew, auctioneers, house, land, and estate agents, &c., under the style of Debenham, Tewson, Farmer, and Bridgewater, Cheapside, E.C., has been dissolved so far as regards E. A. Tewson.

Mr. William Wright, of Grantham, has been elected county surveyor of Kesteven, Lincolnshire, in succession to Mr. H. Kirk, resigned. The salary is £220 a year, rising to £250.

A Select Committee of the House of Lords passed on Monday the preamble of the Bill of the London and South-Western Railway Company, which deals principally with the improvement of the company's terminus at Waterloo. Under the scheme, that station will be ultimately expanded on both sides, but the proposed widening on the southern side will be first proceeded with. The capital proposed to be expended under the Bill amounts to nearly £700,000. The persons dispossessed are to be rehoused within a mile of their present abodes, instead of, as usual, within half a mile, and the railway company will, instead of widening York-street, hand over to the County Council a sum of £30,000 to be expended by that body for the purposes of metropolitan improvements within the area affected by the Bill in such a manner as will meet with the approval of the Lambeth Vestry.

At Little Wenlock Parish Church a reading-desk of solid oak has been given as a memorial. It was designed by Mr. W. Arthur Webb, A.R.I.B.A., and executed by Messrs. Jones Brothers, of Wenlock.

The War Office programme of new works contemplated at Pembroke Dock include the erection of a new block of buildings on the south-east corner of Barracks Hill, not far from Wesleyan-row, for the accommodation of married non-commissioned officers and men. Plans and builders' quantities of the new buildings have been prepared, but no tenders have as yet been invited for their erection. The estimated cost of the block is about £7,000. The contract for the erection of the new infantry barracks at Pembroke Dock to supersede the present hut encampment will be let in several sections, the first of which is estimated to cost £38,000.

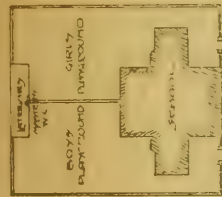
Plans for the erection of a mission-hall (to accommodate over 500), with a caretaker's house, recreation, and classrooms adjoining, have been recently approved by the Bishop of London's Fund, a site in Allamouth-road, South Hackney, having been given by the committee of the fund to the vicar of the parish (St. Mark's, Victoria Park, N.E.) Mr. Charles E. Hewitt, of 118, Queen's-road, Brighton, is the architect.

The new premises of the National Telephone Co., Ltd., Belfast, have been fitted with an entirely new installation for the complete warming and ventilation by Messrs. John King, Ltd., engineers, Liverpool, by means of their Rajah ventilating radiators and their patent tubular exhaust ventilators.

New school board offices are being built at Tottenham from the designs of Mr. Thomas E. Murray, architect, Lewisham, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

Mr. G. Wise, chief assistant to the works department of the London County Council, has been elected manager to the West Ham Corporation.





SKETCH PLAN OF SITE

PLACED FIRST



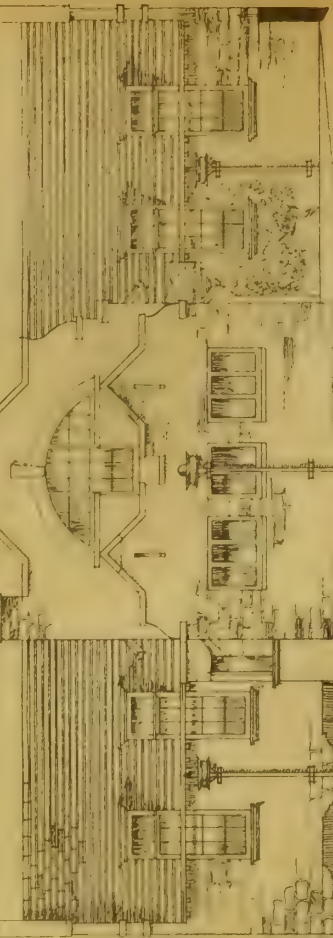
GROUND FLOOR PLAN

ACCOMMODATION PROVIDED FOR 200 MIXED CHILDREN

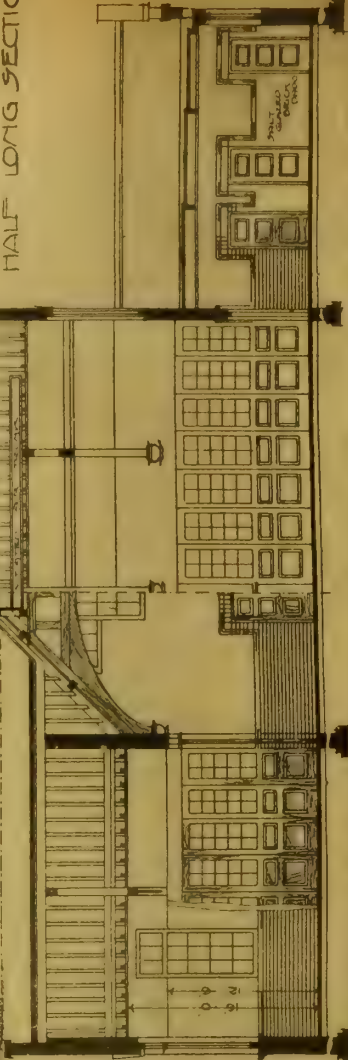
ELEVATION TO MAIN ROAD



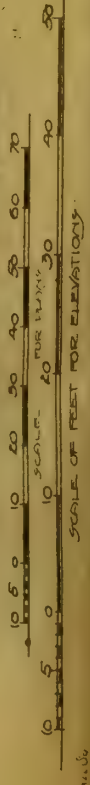
SIDE ELEVATION



HALF CROSS SECTION AND HALF LONG SECTION



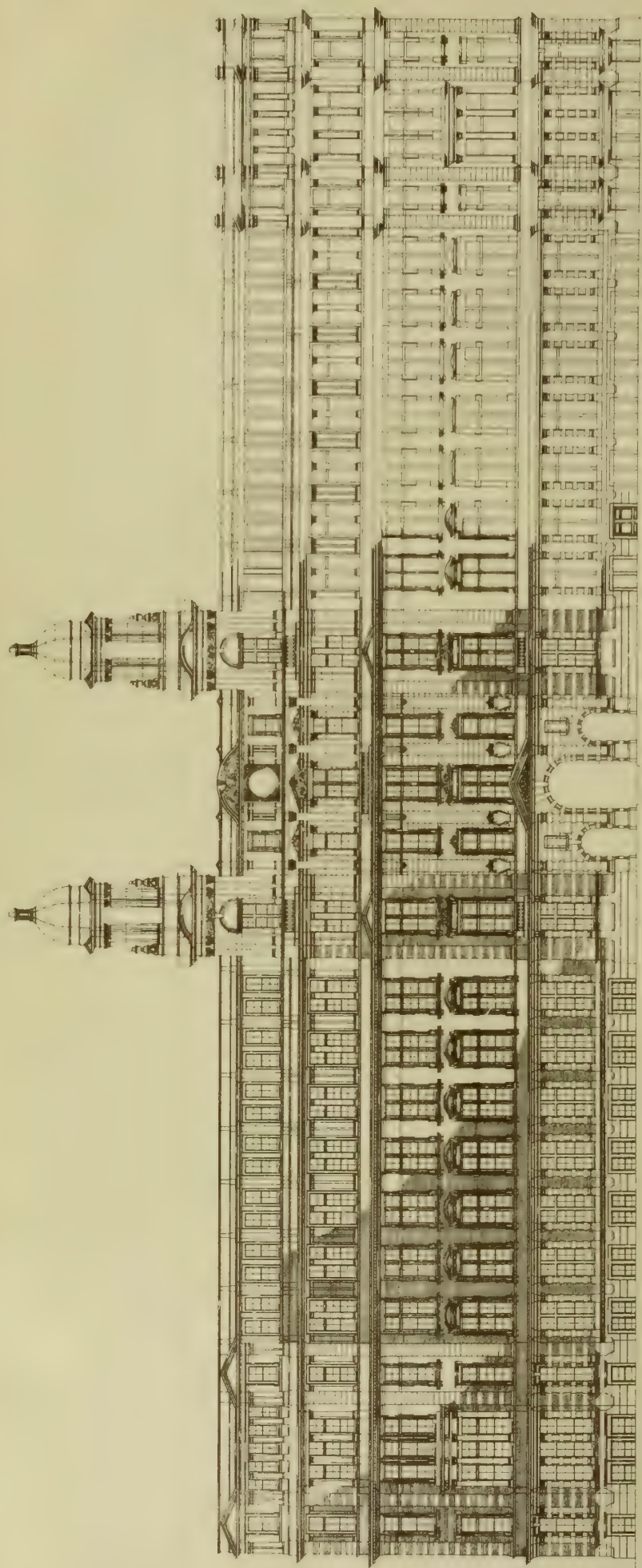
BUILDING NEWS DESIGNING CLUB  
SUBJECT G  
A SMALL PARISH SCHOOL





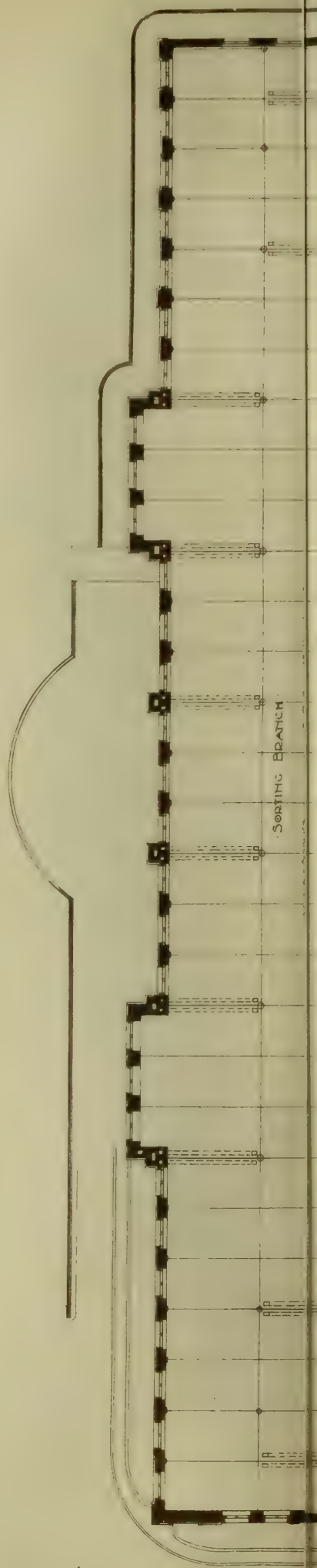




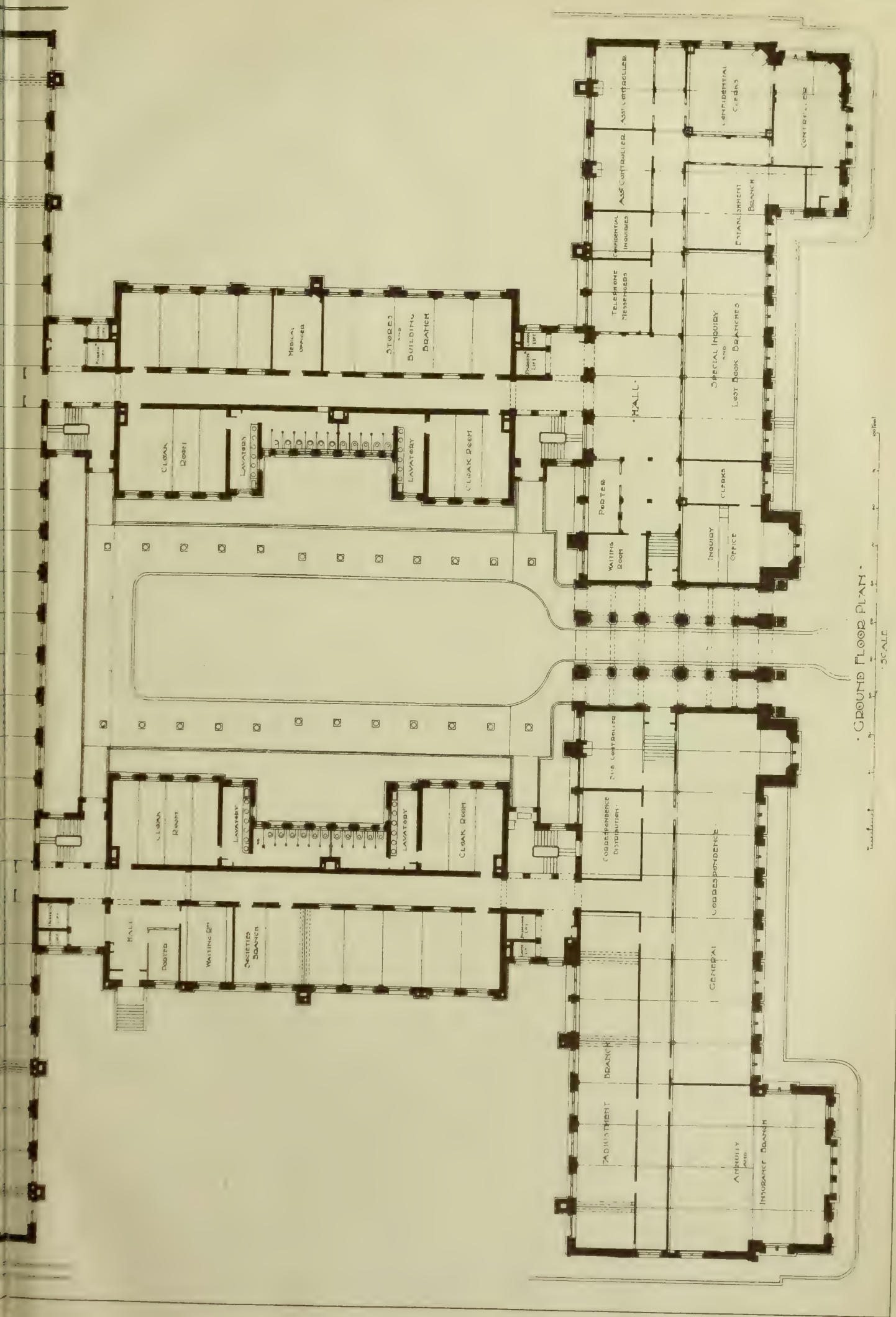


FRONT ELEVATION

Scale 1/4" = 1'-0"

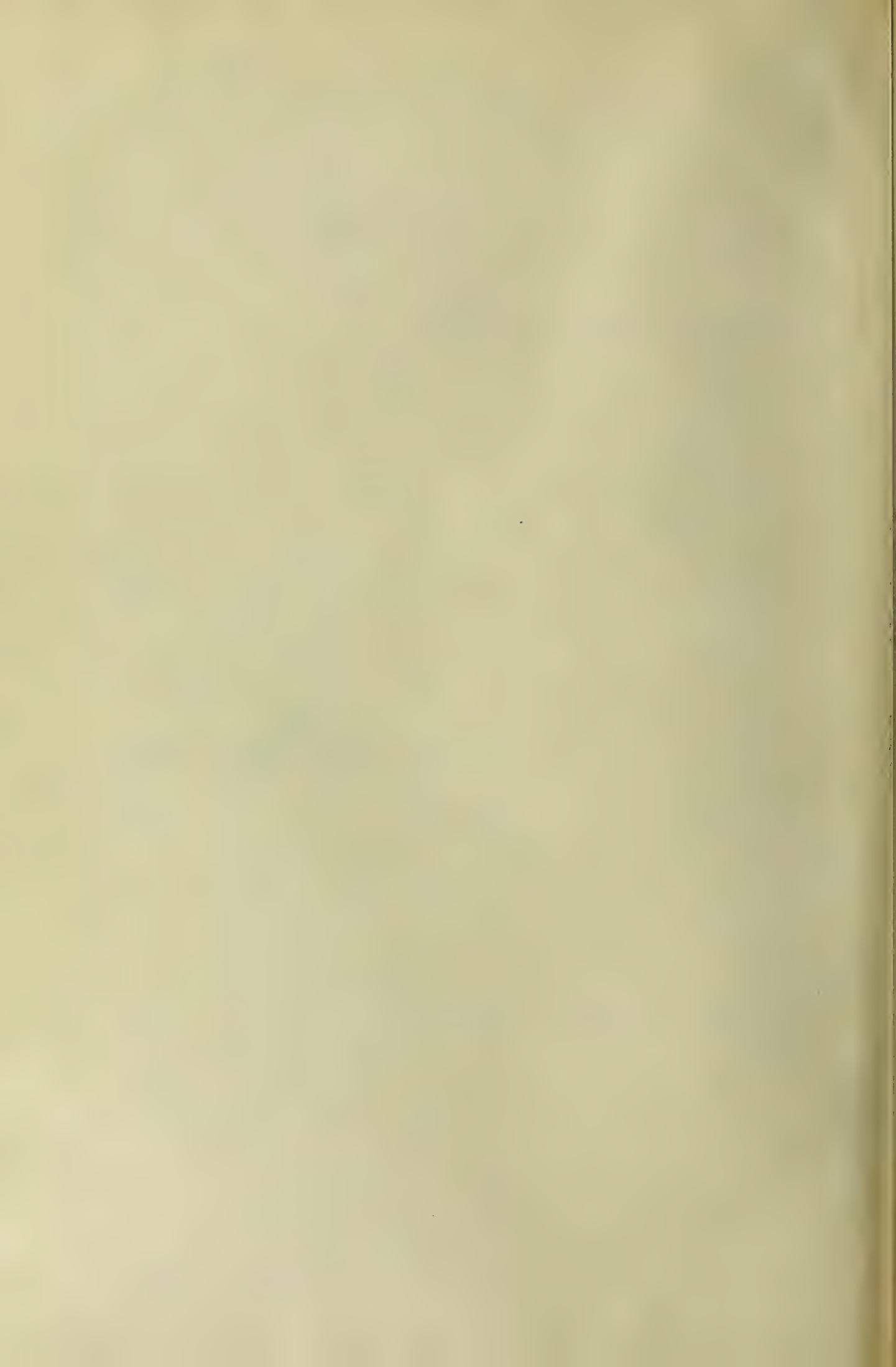






NEW SAVINGS BANK KENSINGTON HENRY TANNER ARCHT.











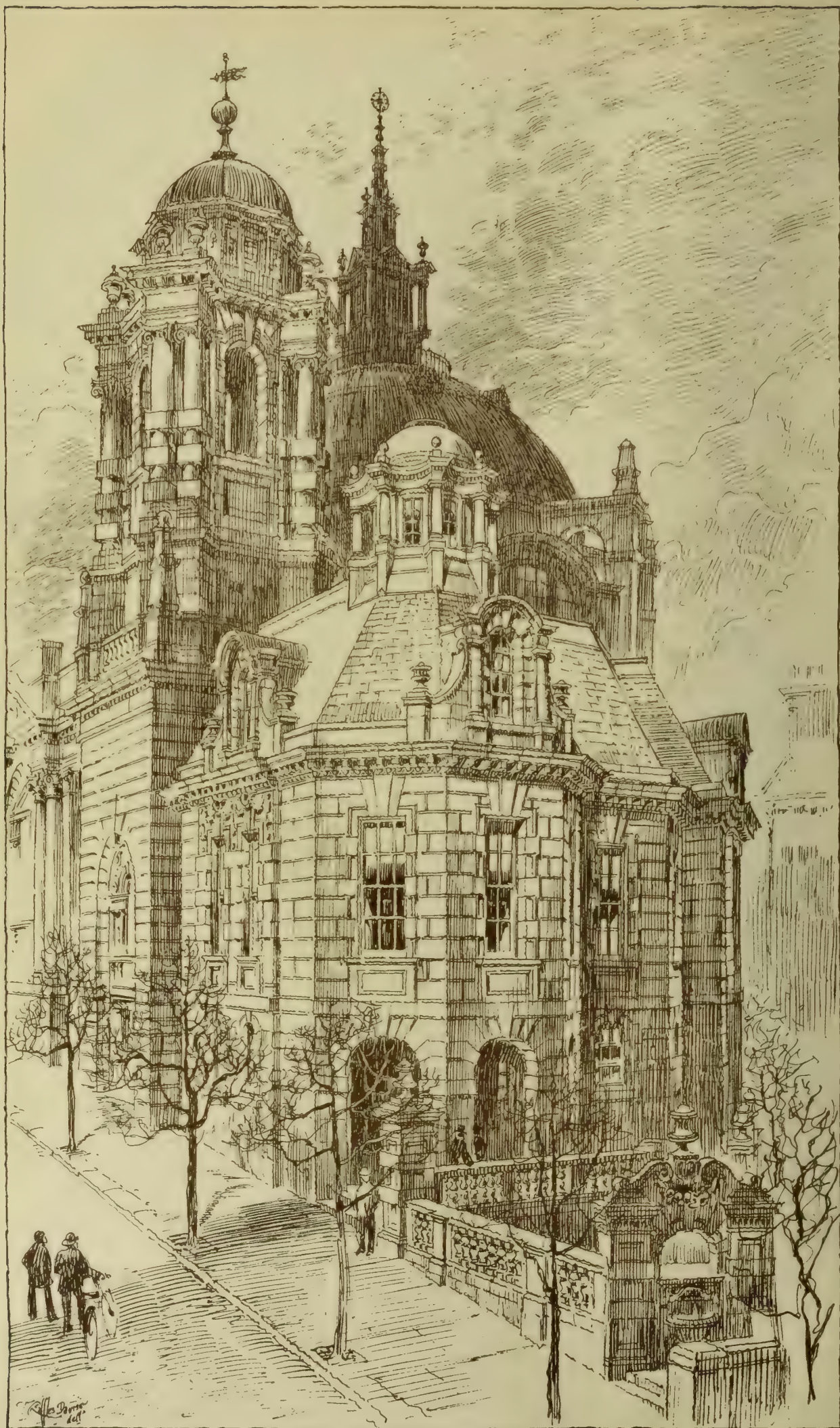


Photo Lithographed & Printed by James Akerman 6, Queen Square W.C.

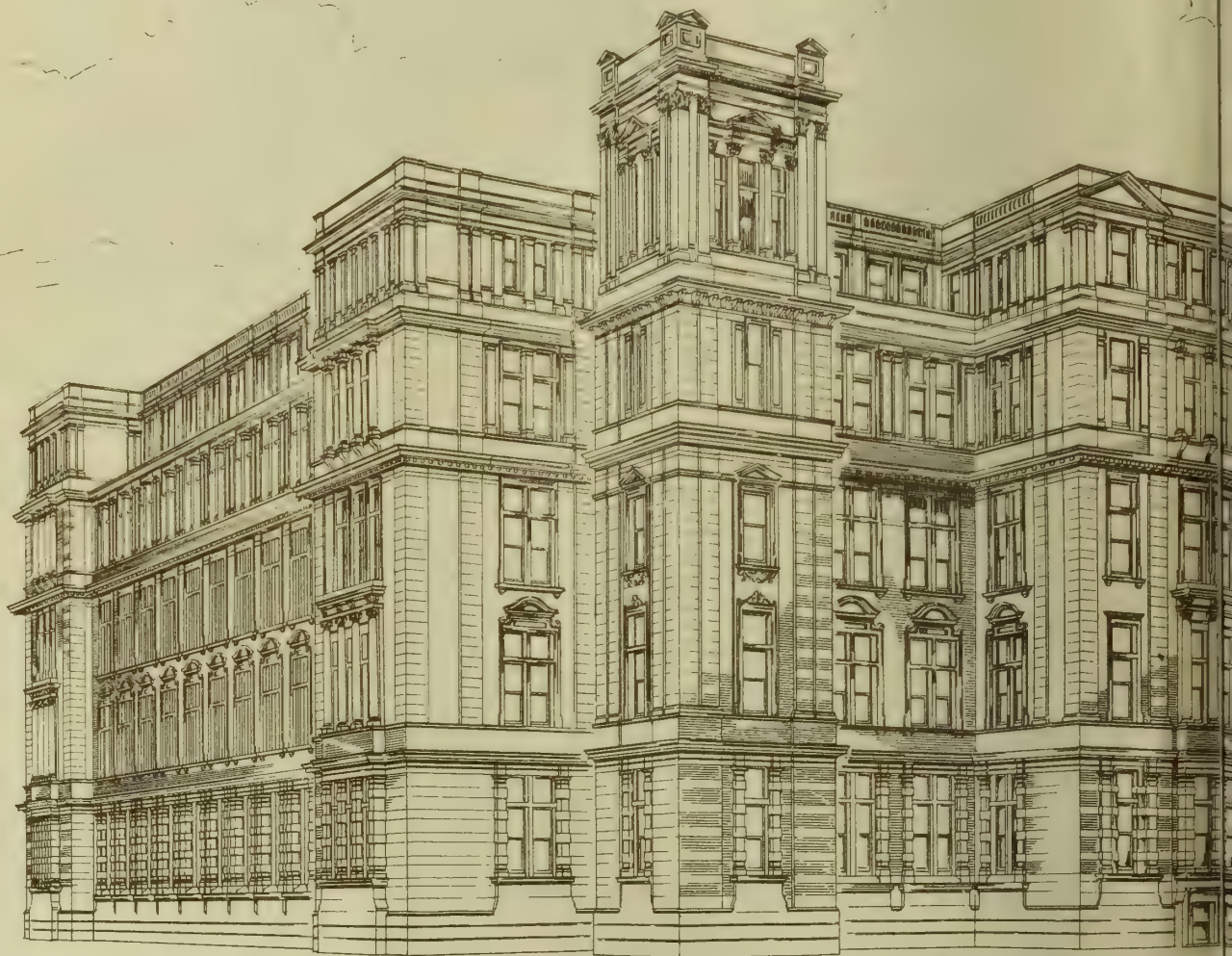
UNION CHURCH, QUEEN SQUARE, BRIGHTON.

JOHN W. SIMPSON, ARCHITECT.









NEW SAVINGS BANK KENSINGTON



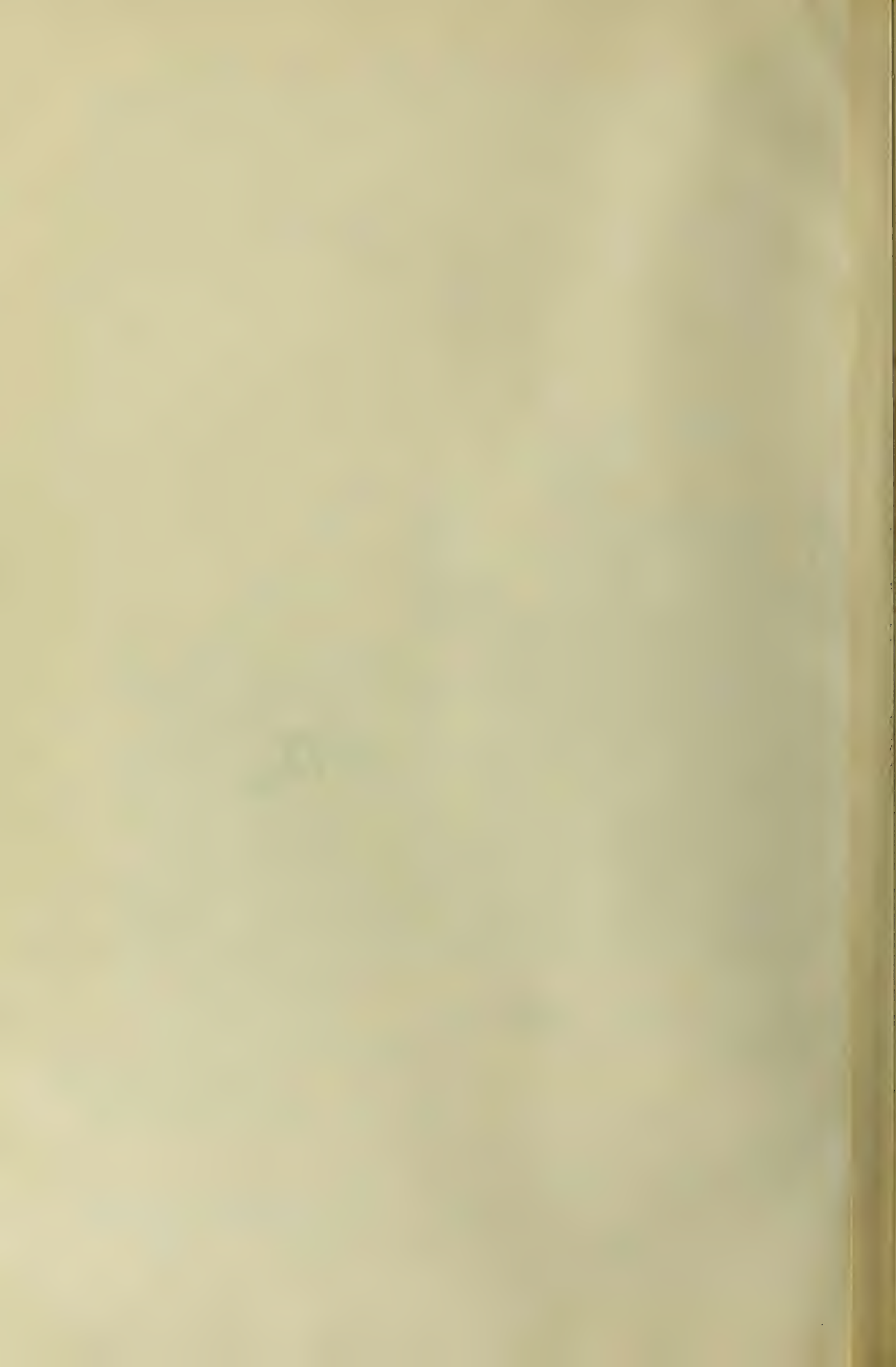
JUNE 23. 1899.



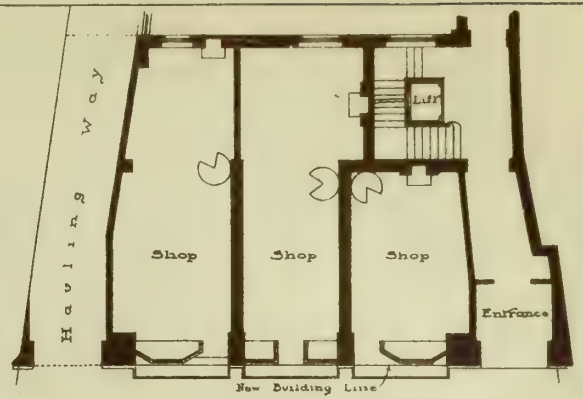
WILTON HENRY TANNER ARCHT

From the original drawing by Henry Tanner, 1899. The drawing is in the collection of the National Archives and Records Administration.









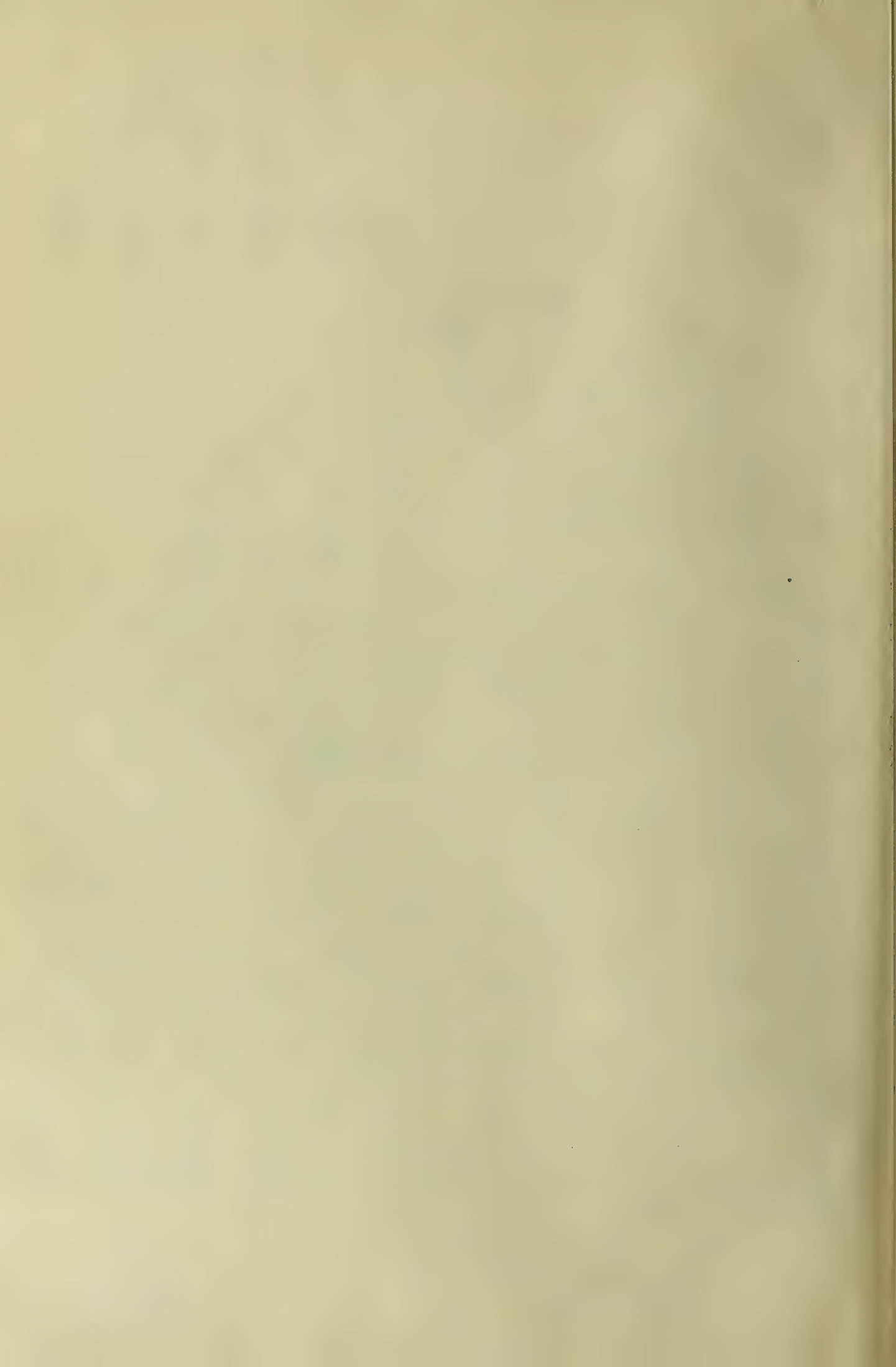
Scale of 1" = 10' Feet



STAR ASSURANCE OFFICES BRISTOL BLOMFIELD JACKSON ARCHT

Photo-Lithographed & Printed by Messrs. A. & C. Jackson, 6, Queen Square, W.

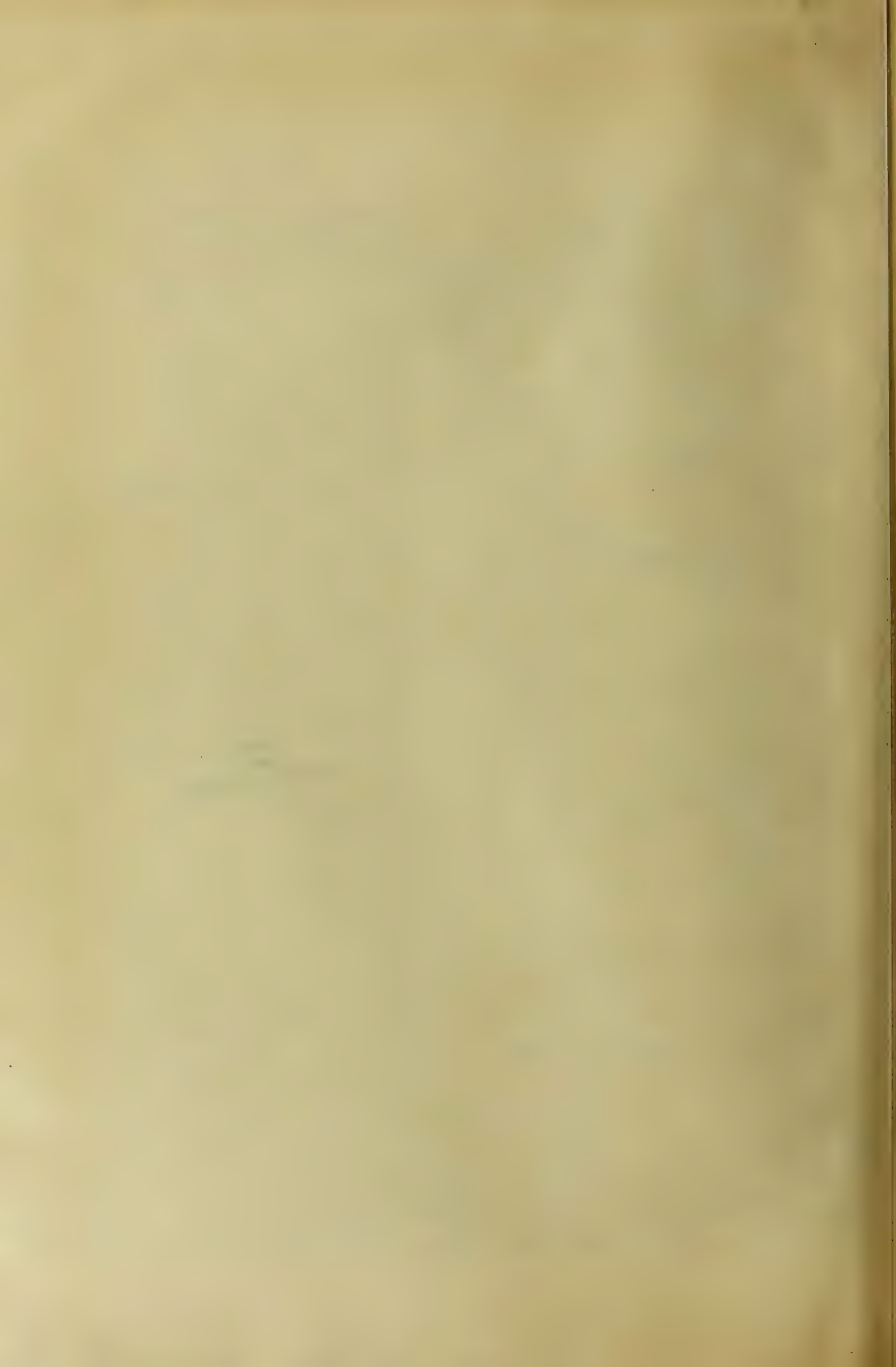








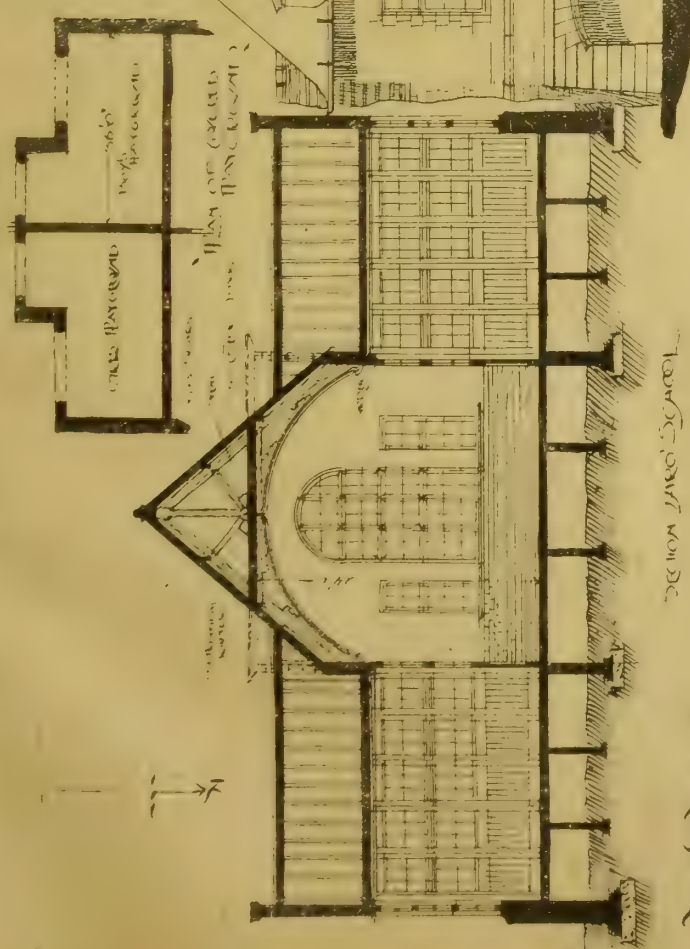






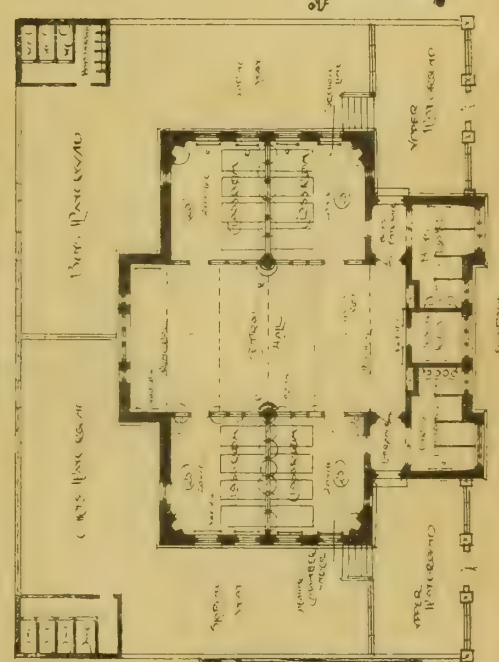
THE BUILDING NEWS'S  
DESIGN  
DESIGN FOR SCHOOL FOR  
CATHOLIC PARISH

PLACED SECOND.

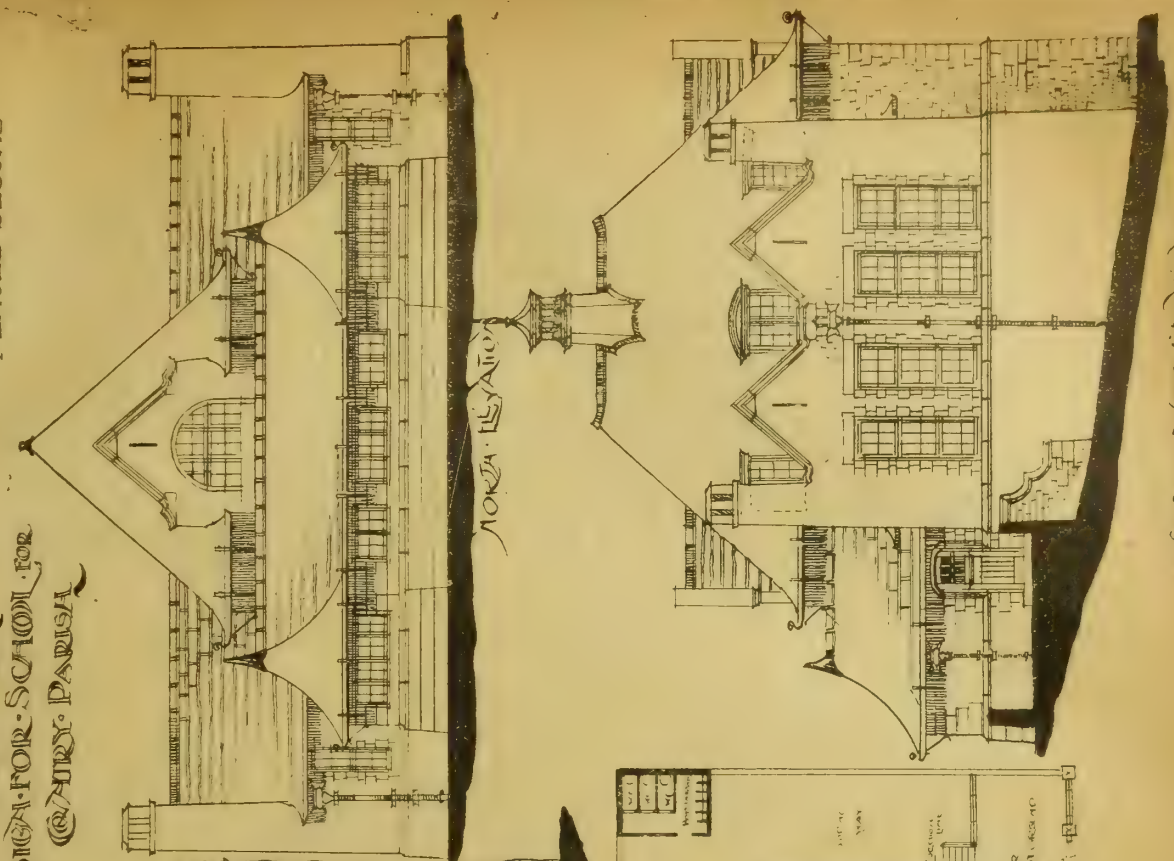


BY 'DAGWOOD'

SECTION FROM SCHOOL



CIRCULAR PLAN



EAST AND WEST ELEVATIONS

SCALE FOR WORK  
SCALE FOR PUBLICATION



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 382, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XLI., XLIV., XLVI., XLIX., LI., LII., LIV., LV., LX., LXI., LXII., LXIII., LXIV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for Canada, Nova Scotia, and the United States, £1 6s. 0d. (or 6dols. 30c. gold). To France or Belgium, £1 6s. 0d. (or 33fr. 30c.). To India, £1 6s. 0d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 0d.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of eight words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation advertisements) is 6d. per line of eight words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

SALOP.—You need hold no license. Anybody can be an architect at present. Why do not you join either the Institute or the Society, and range yourselves with those who are striving to alter this?

RECEIVED.—S. C. A. (Bradford).—M. B. P. Co.—G. L. S. and Son.—W. R. and Co.—F. K. N.—H. M.

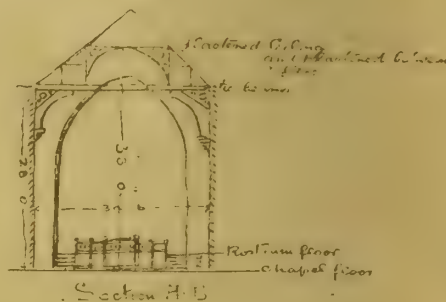
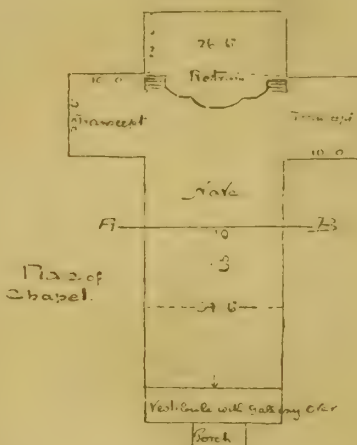
## Correspondence.

## STENCH-PIPES.

To the Editor of the BUILDING NEWS.

SIR,—It is generally supposed that stench-pipes attached to drains should be carried up 6ft. above the top of the highest window of a house; this, however, does not seem to be the practice here. The stench-pipe attached to the houses occupied by myself and neighbours is carried up only about 1ft. above the eaves of the roof, or a total height from the top of the highest window of only 2ft. Moreover, these pipes have a cowl over them. Now, as the pipes are at the back of the houses, and in a kind of bay formed by the kitchen, scullery, and washhouse jutting out from the back of the dwelling-house, the result is that the sewer-gas as it escapes from the pipe is deflected downwards by the cowl placed on top of the pipe, and, consequently, as there is no escape for it out of the bay except up one end, the sewer-gas is blown into the windows of the back bedrooms and lower rooms of the house that face the bay above referred to. The ultimate consequence is that, when the weather is at all windy, the sewer-gas escapes up the pipe, only, however, to be blown down again into the bay, and thence into the windows of the house, with the result that it is utterly impossible to exclude the sewer-gas whether the windows are open or not. In some houses in the district there is no stench-pipe at all, only one pipe being placed to a block of six or more houses. In a talk I had recently with a prominent builder and district councillor,

that gentleman defended this arrangement on the following grounds—viz., he considered that if a pipe were put to every house in a row of half a dozen, then the gas that escaped from the first one would be very little and hardly perceptible at all; from the next pipe the gas would be a little more and a little stronger, and so on until from the sixth pipe the gas would be six times as much, and as strong as from the first pipe, and, therefore, he considered it not needful to put the first five pipes, only the sixth one, as he considered that that one would perfectly carry off all the sewer-gas from the whole of the six houses. According to this gentleman's theory, five houses should have no stench-pipes at all, only the sixth house. I pity the poor inhabitant of that house! Practically, he has to put up with the stench of his own drain and five of his neighbours. Better, I hold, to have the sewer-gas diluted than to allow it to escape in such concentrated form. Now, what I would suggest is that the stench-pipes be carried up sloping on the roof for five or six feet, or nearly to the ridge tiles, and thus the sewer-gas



will be carried right away from any of the windows. Instead of a cowl a wire netting could be placed at the end of the pipe, so as to prevent birds entering the pipe. What, I ask, is the use of these stench-pipes unless they are efficacious in their duty? Better be without them altogether. —I am, &c.,

June 5.

H. C. STANDAGE.

## MANOR ASYLUM, EPSOM.

SIR,—In your issue of June 9 you were good enough to give some particulars of the Manor Asylum, Epsom, which has been built to my plans.

You further added that the works of the Horton Main Asylum were in progress, and credited me with being the architect and engineer of that structure; but as this is not so, I should be glad if you would make the correction.

Mr. G. T. Hine, 35, Parliament-street, Westminster, is the architect of the Horton Asylum, which is being built to his plans and under his supervision. Its estimated cost is £350,000, and it will accommodate 2,000 patients. My connection with the work only extends to the engineering section.—I am, &c.,

WM. CHAS. CLIFFORD SMITH,  
Engineer to the Asylums Committee.  
Asylum Committee Office, 6, Waterloo-  
place, London, S.W., June 20.

[Sorry for the slip, and grateful for the additional particulars.—ED.]

The report of the Thames Conservancy, recently issued, mentions that works between Oxford and Lechlade Bridge have been completed, at a cost of £21,000, which provide a channel along which barges drawing 4ft. of water can pass, and thence through the re-opened Thames and Severn canal, water communication is had with Gloucester and the West of England.

The technical instruction committee of the Manchester Corporation inspected last week the new Technical School which is being built in Sackville and Wentworth-streets at a cost of £130,000. It consists of four stories and a basement, and will be surmounted with an observatory containing a telescope of the value of £1,000, presented by an anonymous donor.

## Intercommunication.

## QUESTIONS.

[12253.]—**Breaking Weight of Joists.**—I wish to know the breaking weight in tons of a 9in. by 3in. joist over various spans. I have consulted two books, and from them obtain the following formulae:—

$$(1) L = \frac{12cbd^2}{S}$$

L = breaking weight in tons, c = coefficient of rupture, b = thickness of beam, d = depth of beam, S = span in inches. My joists are in fir (spruce), and in this case c = .60 in the table appended.

$$(2) L = \frac{2cbd^2}{S}$$

Here c = coefficient was given in hundredweights, and equalled 33. S was the span in feet. In working out for a 10ft. span, I get by (1) 14 tons as the breaking load, and by (2) 8 tons as the breaking load. It is obvious that there is a vast difference in these two formulae. I should be exceedingly obliged if you would inform me which is the proper one to take. The joists are fixed at both ends, and the load is equally distributed.—W. S.

[12254.]—**Echo.**—The minister and others speaking in this chapel complain of the echo, and I should be glad if

some of your readers could give me some particulars to prevent the same. The sketches give the plan and section. The floor is of wood block, walls plastered, and open-timbered roof plastered.—THOS. NUTTALL.

[12255.]—**Open Space under London Building Act.**—Section 41 of the London Building Act provides that an open space may be provided above the level of the ceiling of the ground story when the ground story is not adapted for habitation. According to this clause a ground-floor shop may be carried out to the extreme limit of the land or boundary, and without any open space at the back for light and air except a lantern-light. The section as it stands is ambiguous, and ought to be explained by a diagram or section. Will some expert in the matter say whether it is allowable now to extend the ground story of shop to the extreme end of land, or whether the new Building Act does not require the yard at back to be kept open? The section, I take it, applies to premises already built, and when the open space required can only be obtained in the way mentioned.—NOT CLEAR.

[12256.]—**Tile-Hanging Wall.**—Are there any tiles that can be recommended for covering a wall outside? They are required to render a thin wall dry, and must, therefore, be impervious. I should be glad to know the best way of hanging, if by battens, and other particulars?—COUNTRY BUILDER.

[12257.]—**Colouring Room.**—Will any reader give me any advice as to a suitable scheme of colour for a room with north aspect, cold in winter? The room is about 18ft. by 12ft., and there are two windows on the long side, 11ft. high. Is a frieze necessary?—AMATEUR.

## REPLIES.

[12252.]—**Expanded Metal in Plaster.**—The expanded metal certainly increases the strength, and renders fewer supports necessary. It is stated by the Expanded Metal Co., Ltd., that the increase of strength is from 6 to 11 times for concrete slabs. In this case the metal is placed near the bottom surface, and acts so as to resist the tension, thus increasing greatly the strength. In plaster the strength would, of course, be less. Send for particulars to company.—G. H. G.

In the case of the application for discharge from bankruptcy of John Dixon, of Frodsham, Cheshire, builder, the order has been suspended for five years ending May 18, 1904.

On Tuesday week the new church and Sunday-schools, built by the Congregationalists of Morpeth, were opened. They are situated in Dacre-street, Morpeth, are Early English in design, are built from plans by Mr. J. Walton Taylor, F.R.I.B.A., of Newcastle-on-Tyne, and include a church to seat 350 persons, lecture-hall to accommodate 250, large infants' classroom, fitted up with tea-boiler, &c. The cost of the whole, including land, was about £2,700.



## LEGAL INTELLIGENCE.

**DEFECTIVE WALLS.**—At West London Police-court, last week, William Marchmont, a builder, appeared to answer adjourned summonses, taken out for using mortar in the construction of walls of three houses erected in Playfair-street, Fulham Palace-road, not composed of materials required by the by-laws of the London County Council. Mr. F. W. Hamilton, district surveyor for North Fulham, and other expert witnesses were called, and samples of the brickwork and mortar were produced. In support of the case it was stated that the mortar contained 13 per cent. of earthy matter, and out of seven samples only one was found correct. For the defendant it was stated that the walls were well built for that class of work. Several samples taken on behalf of the defendant were described as very fair mortar, with the exception of two, which did not come up to the requirements of the by-law. Mr. Rose came to the conclusion that it was not a case to order the walls to be taken down. Acting upon the candid opinion of the analyst for the defendant that two of the samples did not come up to the requirements, he imposed a penalty of £5, with ten guineas costs. The magistrate expressed an opinion that the County Council were justified in drawing attention to the mortar used in the construction of buildings.

**IN RE G. FORESTER, OF CHESTER.**—Before Mr. E. S. Giles, registrar, George Forester, builder and contractor, lately carrying on business at Boughton, Chester, under the style or firm of George Forester and Son, builder and contractor, recently appeared at the Chester Bankruptcy Court for his public examination. The statement of affairs showed gross liabilities of £3,747 16s. 2d., and, with other amounts, the gross liabilities were placed at £4,314 5s. 8d. There was a deficiency of £3,047 18s., and the alleged causes of failure by the debtor were stated to be "short capital and pressure by creditors." Examined by the Official Receiver, the debtor stated that he was 29 years of age. His father purchased the business premises about 18 years ago, but when his father died he and his brother continued to carry on the business. He was dissatisfied with the manner in which the business was being carried on after his father's death, and a dissolution took place between himself and his brother, and a meeting of creditors was held. The debtor was questioned at great length respecting certain transactions which were made regarding the property and business premises, and the examination was adjourned until the production of further books.

**VOLUNTEER DRILL HALLS AND DRAINAGE REGULATIONS.**—**ST. MARGARET'S AND ST. JOHN'S VESTRIES v. HOSKINS.**—In the Queen's Bench Division on Tuesday, Mr. Justice Grantham and Mr. Justice Lawrence gave judgment in a special case stated by a Metropolitan stipendiary magistrate upon a summons taken out on behalf of the appellants, the united vestries of the two parishes, alleging that the respondent, F. C. Hoskins, a builder, did on March 1, 1899, at 13, Tufton-street, neglect to comply with the order of the vestry ordering that the lowest floor of the building in course of construction be kept at such a level as would allow it to be drained into the public sewer. Mr. Danckwerts appeared for the appellants, Mr. Avory for the respondent. The summons was taken out under Section 75 of the Metropolitan Management Act, 1855. The premises in question consist of a building, in course of construction, to be used as an armoury, storehouse, and drill-hall of the 2nd Volunteer Battalion of the Royal Fusiliers, and are intended for the use of the corps only. The complaint is that the floor of the basement, which is a long cellar running under the building, is beneath the level of the sewer. The magistrate decided that as the premises were to be used exclusively for military purposes the provisions of the Act did not apply to them, and dismissed the summons. The rest of the premises is sufficiently drained. The basement being lower than the sewer, it could not, of course, be drained into the sewer, but it did not appear to the magistrate that it required draining. Mr. Danckwerts said the question was whether the building ought not to comply with the Acts relating to the proper drainage of the Metropolis. Volunteer buildings did not belong to the Crown. He referred to 18 and 19 Vict. c. 120, section 241, and 25 and 26 Vict. c. 102, section 110, but contended that the exemptions therein mentioned did not apply. Mr. Avory supported the decision of the magistrate. This building was vested in a servant of the Crown and for the purposes of the Crown. If this case was decided in favour of the vestry, they would be able to enter and demolish the building. He cited "Pearson v. Holborn Assessment Committee" (1893). The Crown was never bound by an Act of Parliament unless expressly named. The liability must be expressly laid. These premises were in the same position as ordinary barracks. If the vestry were right in this case, the vestry could dictate to the War Office how barracks should be put up. This building had been constructed recently under approval of the War Office. He also cited "Jay v. Hammond." Since

the decision in Pearson's case the Volunteers were as much servants of the Crown as the Militia were. He referred to subsections 240 and 241 of the Metropolitan Management Act, 1855, and section 116 of 25 and 26 Vict. c. 102, under which he urged that this property was exempt from the regulation as to drainage. Mr. Justice Grantham said he regretted that he could not uphold the contention put forward by Mr. Avory, as one had heard of vestries occasionally interfering with such buildings in an unsatisfactory manner. The contention on the part of the Volunteers was based on the analogy of property belonging to the Militia or the Regular Army as being her Majesty's property in right of the Crown. How could it, however, be said that this building and similar buildings, which in many cases were erected by private subscriptions, could be the property of the Crown. On this narrow ground the matter must go back to the magistrate, though the learned Judge would be very sorry if the magistrate should think it necessary under the circumstances to interfere. Mr. Justice Lawrence said he had considerable doubt as to the case, but he was not prepared to dissent. The case, therefore, must go back to the magistrate.

**A CONDEMNATION OF LEICESTER BRICKS.**—At Greenwich Police-court last week, Edward Taylor, of Littleborough, near Manchester, the contractor for the erection of large warehouses for the Mazawattee Tea Company at Hatcham, was summoned by Mr. Tanner, of the London County Council, for contravention of the London Building Act, the contention being that the bricks which were being used were not of the best quality. It was stated that the value of the contract was about £50,000. A great deal of evidence was given on either side as to the quality of bricks, several brickmakers from Leicestershire being called to defend the bricks which were being used. Mr. Tanner declared that the bricks used were "rubbish," and condemned Leicester bricks generally. After a very long hearing, Mr. Kennedy directed the defendant to comply with the Council's order, and to pay 20 guineas costs. Mr. Moyes, for the defence, said the magistrate's decision would have very far-reaching effects, and intimated that an appeal was probable.

**A LADDER NOT "SCAFFOLDING" UNDER THE WORKMEN'S COMPENSATION ACT.**—Sheriff Spens, in a judgment just given, has dealt with several curious points of law under the Workmen's Compensation Act. James McDonald, house painter, 71, Reid-street, Bridgeton, sued Messrs. Hobbs and Samuel, house painters, 70, Anderston Quay, Glasgow, for compensation for serious personal injuries sustained by him while in the defenders' employment. On November 21 last he was engaged painting iron joists in the Dead Meat Market, Moore-street, and was using a ladder while doing so. While he was so employed the occupier of one of the stands in the market close to the ladder swung round the carcass of a bullock for the purpose of showing it to an intending purchaser, and the carcass coming against the ladder, the pursuer was knocked off and fell to the ground, sustaining a fracture of the skull and other serious injury. His Lordship finds that the dead meat market is a building over 30ft. in height; but that, as a matter of law, the said building was not being "repaired by means of scaffolding," and therefore that the accident was one which did not fall within the provisions of the Act. His Lordship in consequence dismisses the claim, awarding no expenses. In a note he says that a ladder must be found to be "scaffolding" before the claim could be sustained. In his view a scaffold was a staging for the temporary use of workmen, and did not include a ladder, which was of a permanent character per se, and not intended to be demolished when the job for which it was used was finished.

**RAILWAY COAL OFFICES AND THE LONDON BUILDING ACT.**—**ELLIOTT AND CO. v. LONDON COUNTY COUNCIL.**—In the Queen's Bench Division, on June 12, Mr. Justice Day and Mr. Justice Lawrence delivered judgment in this special case, stated by Mr. Curtis Bennett, the Metropolitan police magistrate, before whom the appellants were convicted under the London Building Act, 1894, of unlawfully setting up a wooden structure without the license of the London County Council. It was admitted that the structure was a wooden structure, and the only question was whether it came within section 86 of the Act, which exempts from the provisions as to licenses for wooden structures "structures or erections erected or set up upon the premises of any railway company, and used for the purpose of, or in connection with, the traffic of such railway company." The structure in question was put up by the appellants, who are coal merchants in the habit of having coal consigned to them at their wharf in the Carlisle-street coalyard of the Great Central Railway Company, under permission from the railway company and at their own expense. It is occupied by the appellants as a coal office in connection with their wharf for the purpose of receiving and executing orders for, and distributing to small dealers and to consumers, the coal consigned to the appellants at their wharf. It is used solely by, and for the purposes of, the

appellants, and is not used by, or for the purposes of, the railway company. It is convenient to the appellants and to the railway company, for the proper conduct of the business transacted between them in connection with the appellants' share of the coal traffic of the railway company, that the appellants should have in close proximity to the point where the railway company deliver the coal a structure in the nature of an office where they can dispose of their clerical business. It is more convenient for the conduct of the business that such office should be situated on the premises of the railway company and within their coal-yard than outside it. The learned magistrate found that the structure did not come within the words, and was, in point of fact, not used for the purposes of, or in connection with, the traffic of the railway company, and was, therefore, not exempt from the necessity of a license. He convicted the appellant accordingly, subject to the present appeal. The cases of "Cole v. Lovegrove" (L.R. 1893, 2 Q.B. 44) and "Manchester, Sheffield, and Lincolnshire Railway v. Barnsley Union" (67 L. T. 119) were cited in the course of the argument. The Court allowed the appeal. Mr. Justice Day said he had no doubt that the learned magistrate was wrong. In his opinion the structure was "used for the purpose of, or in connection with, the traffic" of the railway company, and was therefore within the exemption. There was no other reason for its existence. Mr. Justice Lawrence delivered judgment to the same effect.

**DAMAGES SOUGHT FOR BLOCKED STREETS.**—In the Court of Appeal, on Wednesday, before Lords Justices A. L. Smith, Rigby, and Vaughan Williams, an appeal was heard, "Martin v. the London County Council," from a judgment of Mr. Justice Kennedy's. The plaintiff and appellant, a greengrocer in Wellington-street, Deptford, had sued the London County Council for damages for injury to his business, alleged to be due to the negligent obstruction of the street by the defendants in the execution of certain works carried out by them under their statutory powers. The jury, at the trial in July and August last, had been unable to agree, and after legal arguments Mr. Justice Kennedy gave judgment for the defendants, on the ground that the plaintiff had not suffered any direct or substantial damage from the alleged obstruction. The plaintiff appealed, but their lordships now dismissed the appeal, and affirmed the finding of the Court below.

## CHIPS.

Mr. W. Matthews, a working mason, has been elected chairman of the Battersea vestry.

A committee of the Corporation of Yarmouth have under consideration a scheme prepared by the borough surveyor for the construction of a railway under the river Yare, between the Fish Wharf, Yarmouth, and Southtown-road, Gorleston. The estimated cost is £15,000.

At St. Bartholomew's, Hyde, Winchester, a new parochial hall was opened last week. It is built in the garden of an old house which abuts on the street, and has in its walls some of the stones from Hyde Abbey, and in its eastern wall is a carved tablet, which is built on to the house wall. The inscription on the stone runs—"William of Wickham built this stone house, Auo Domyni, 1586." Beneath are Th. Clerk and some disjointed letters. The William Wickham in question was Bishop of Winchester in 1595, but only held the See for six months, and dying, was buried in St. Saviour's Church, Southwark. The hall has been built from plans by Mr. Ralph Neville, F.S.A., of London, the contractors being Messrs. Edwin Carter and Son, of Winchester.

The council of the Leeds and Yorkshire Architectural Society have passed a resolution approving the action of the Leeds Masters' Federation during the present dispute in the building trade, and stating that they will point out to the general body of the members the desirability of recommending their clients not to put pressure on the masters to fulfil their contracts during the continuance of the dispute, or to let further contracts pending a settlement.

The old house, 7, Johnson's-court, Fleet-street, tenanted by Dr. Johnson from 1766 to 1775, with other houses adjoining, is now being demolished. It was from this house he removed to Bolt-court, where he died in 1784. The housebreakers are also levelling Fetter-lane Congregational Chapel to the ground, and soon not a vestige of it will be left. It was erected in 1732 on the site of the earlier and first chapel built in 1660-61.

With reference to an application for payment of an account, we are informed that as a petition has been presented for winding-up the N.A.P. Window Co., Ltd., the company is advised that no accounts may now be properly paid. Arrangements, we are told, are, however, pending, whereby it is hoped to avert the winding-up of the company.



## Our Office Table.

LORD SALISBURY has declined to reform the Royal Academy on the invitation of Lord Stanley of Alderley. That the Royal Academy needs reformation few will deny. The question is, if the Royal Academicians are unable to reform themselves, is the House of Commons capable of showing them how to set about it? The first thing the House would do would be to refer the matter to a Royal Commission, and what that means Lord Salisbury on Monday hinted to the House of Lords with cynical frankness. A Royal Commission sits for months or years, as the case may be, listens to an enormous amount of evidence, prints it all verbatim at the public expense, and finally publishes a report which members of Parliament receive gratis and sell for waste-paper. Royal Academicians, after all, do nothing quite so stupid as this.

"BEAUTY'S AWAKENING," a masque after the fashion of the old Elizabethan entertainments, written, designed, and presented by members of the Art Workers' Guild, will be performed at the City Guildhall on Thursday evening next, the 20th inst., before the Lord Mayor, the Sheriffs, the Aldermen, and Common Council, and is also to be given to the public on the evenings of Tuesday, Wednesday, and Friday in next week. The book, which is in verse, has been written by Messrs. Walter Crane, Harrison Townsend, H. Wilson, Selwyn Image, C. W. Whall, and C. R. Ashbee. It is an allegory showing the awakening of Beauty and her release from the evil spells of Malebodea (typifying Ugliness) by Trueheart the Seeker, who stands for Art. The nine fair cities of the world appear in pageant, as does also London attended by eight demons, including Philistinus, Cupiditas, and Ignoramus, who have enthralled her, but from whom she is eventually released. The stage upon which the performance will be given has been designed, as well as the proscenium, by Mr. H. Wilson, the architect; the costumes have been designed and in many cases fashioned by members of the guild, who are also responsible for the properties and accessories. Tickets are not allowable to be sold at the door, but can be obtained from hon. sec., Mr. H. J. L. J. Massé, at the hall of the Guild, Clifford's Inn, Fleet-street, or at 37, Mount Park-crescent, Ealing. They can also be bought at the Guildhall.

An exhibition of pottery and porcelain, illustrating popular English history, has been lent to the Bethnal Green Museum by Mr. Henry Willett, of Brighton, and will be found to well repay a visit. Over seventeen hundred examples of the ceramic art, chiefly in earthenware, have been brought together, chiefly of the type cherished in rural cottage homes, and although the work is often crude, the collection thus brought together is, from its variety and the subjects illustrated, of great interest. The arrangement and cataloguing is confessedly arbitrary, being based not on the make, date, or original locality of the pottery shown, but solely with regard to the persons or incidents portrayed. Thus a large section is devoted to Royalty, from a candle scone bearing the arms and initials of Queen Elizabeth over a Tudor rose, made at Houndslow and lent from Hampton Court Palace, to a Diamond Jubilee bust of the Queen. Other cases illustrate military and naval heroes, and soldiers and sailors. A small section is devoted to statesmen, and another to clergymen, the vicar, in his character of tithe receiver, not being treated with overmuch respect in the works executed a century ago, while music, the drama, sporting, field sports, and agriculture are each well represented, as are domestic incidents and those classified under conviviality and teetotalism. Taken as a whole, the artistic merits of the collection are not great, but the designs and inscriptions on the mugs and jugs in a way reflect the habits, customs, and tastes of the people.

The new town-hall for Colchester, now in course of erection, is described and illustrated in a paper-covered quarto written by Mr. Wilson Marriage, J.P., chairman of the town-hall committee of that corporation, and Mr. W. Gurney Benham, editor of the *Essex Standard*. Mr. John Belcher's perspective view of the building, now exhibited at the Academy, is reproduced as a frontispiece to the book, which is handsomely got up and printed on good stout paper. The town-hall replaces an utterly unworthy pseudo-Classical

structure built fifty-five years ago at a cost of £6,000, and enlarged in cheap and piecemeal fashion a few years since. Mr. Belcher's plans, selected in competition, are being carried out by Messrs. Kerridge and Shaw, of Cambridge, whose tender was accepted at £33,397. While the structural fabric is being provided at the cost of the ratepayers, the embellishment of the building, including the provision of pictures, statues, and stained-glass, is being left to the munificence of private benefactors, and already some valuable gifts have been promised, the principal one being the tower at the south-east corner of the town-hall, given by Alderman Paxman, ex-mayor, and estimated to cost £2,500.

THE work done by the students of the city of Liverpool School of Architecture and Applied Art during the session of 1898-9 is on exhibition in the Walker Art Gallery during the present week and to-morrow. The Lord Mayor opened the exhibition on Saturday, when a large company was present at the ceremony. From a modest beginning five years ago the school has grown vigorously, under the fostering care of Professor Frederick W. Simpson, its director, and gives promise of taking the foremost position among schools of its kind in the provinces. In 1894-5, the average number of students per term was 50, in 1895-6 it was 135, in 1896-7 it was 149, the following year 158, and for 1898-9 it rose to 175; while the class entries had increased from 70 per term in the first year to 336. The exhibits that have been on view this week in the Art Gallery totalled between 200 and 300, and denoted admirable progress on the part of the students. They embraced designs for architecture, working drawings for furniture, modelling, decorative designs, stained glass, wood-carving, drawing and painting, copper and iron work. A new feature this year in the students' work was the stained glass.

PENICUK HOUSE, Midlothian, was practically destroyed by fire on Friday, involving an irreparable loss to art in the destruction of Runciman's magnificent mural painting on the ceiling of Ossian's Hall. The central portion of the mansion was built in 1761, to the instructions of Sir James Clerk, in the Italian style. The master builder, as an inscription at the archway under the entrance to Ossian's Hall sets forth, was Master John Baxter, sen., while Master James Blaikie was master carpenter. About half a century since wings were added to the central portion to the designs of Mr. David Bryce, with a façade of 180ft. and a depth of 78ft. The mansion thus covered a superficies of 15,000sq.ft., and contained 64 rooms, arranged in three flats. The building was associated with some of the richest memories of Scottish literature, and at one time was stored with historical paintings, rare books, and many exquisite works of art; but within recent years the mansion has been greatly denuded of its art treasures.

THE results of the experiments that are being made with electric traction on the lines of the Metropolitan and District Railway Companies, under the direction of Sir Benjamin Baker and Sir W. H. Preece, are said to be entirely satisfactory; and electric engines are now being made to take the place of the steam locomotives. As a result of adopting electric traction the present mean rate of travelling on the inner circle of 11.2 miles an hour will be increased to 14 miles, so that the time occupied by the journey round will now be 50 minutes instead of 70, while the air in the tunnels will be perceptibly purer, owing to the absence of smoke and steam.

THE question of the provision of houses for the working classes, at rentals not exceeding 6s. per week, has long been engaging the attention of the Devises Town Council, but definite action has now been decided upon, and at a special meeting held on Saturday it was unanimously resolved to adopt the Housing of the Working Classes Act. The corporation has a piece of land adapted to contain ten cottages and to allow each a small garden. They resolved to instruct the borough surveyor to prepare plans for ten cottages, each to contain three bedrooms, two sitting-rooms, and the necessary offices, and to otherwise comply with the requirements of the Local Government Board order of October, 1898. The main difficulty is the cost of erection, as it is stated that no local builders can be obtained to erect the block of cottages for the amount which the council are prepared to give—viz., £1,750. The council cannot go beyond this figure, as the interest and repayment of loans, with the neces-

sary up-keeping, would otherwise entail a loss upon the rates. The council have, however, resolved to keep the offer of £1,750 open.

QUITE recently the Harrogate Town Council purchased the Beckwith Springs, and have conveyed the water to Harrogate, where it is being used at the New Royal Baths, and a further addition has been made to the numerous springs for which Harrogate has become justly popular. At what is known as the Starbeck Baths (just outside the borough boundary) there is a capital supply of sulphur water. Three years ago, the then proprietor offered the estate to the corporation for £15,000. The Harrogate Corporation refused to purchase, and the price gradually dropped to £13,000. During the past few days a member of the Harrogate Corporation entered into negotiations for the purchase of the estate, and got the price fixed at £9,000; and the Town Council, in committee, have unanimously resolved to purchase the estate for that sum. The estate consists of swimming-baths; but, no doubt, the intention of the Town Council will be to transfer some of the water, if not all of it, to the new baths at Harrogate.

MR. RICHARD PELHAM BOLTON has read before the American Society of Mechanical Engineers some suggestive statistics in relation to the cost of high office-buildings and their equipment. Including what the author regards as a moderate amount of exterior ornament, the cost of a building 16 stories high, with steel frame and, of course, fireproof construction throughout, and inclusive of plumbing-appliances, elevators, boiler-plant, pumps, heating apparatus, electric-light wiring for isolated service, with switchboards, engines, and generators is, in New York City, from 36 to 40 cents per cubic foot, measuring to the outside of the walls. Higher buildings cost proportionately more. About one-seventh of the entire expense is in the boilers and engines, heating and lighting apparatus, and plumbing. These must be of the very best type, if the building is to be profitable, for the saving of the repairs required for inferior apparatus, and the economy of fuel which can be secured by using triple-expansion pumps and compound engines represent a large proportion of the balance of income left over after deducting taxes and mortgage interest and necessary expenses.

A NEW coating, which is said to successfully protect posts and other timber surrounded by earth from rotting, is given by a German exchange. Take resin, 50 parts; finely-crushed chalk, 40 parts; fine white sharp sand, 500 parts; linseed-oil, 4 parts; native red cupric oxide, 1 part; and sulphuric acid, 1 part. First heat the resin, the chalk, the sand, and the linseed-oil in an iron kettle, then add the oxide and the sulphuric acid with caution, mix everything carefully, and paint the wood with the hot mass, using a strong brush. If the mixture is not liquid enough, it is diluted with a little linseed-oil. When the coating is dry, it forms an extremely hard varnish, which allows no moisture to enter.

THE council of the Society of Arts have awarded the society's silver medal to the following readers of papers during the session 1898-99:—Professor George Forbes, F.R.S., for his paper on "Long-Distance Transmission of Electric Power"; C. H. Bothamley, F.C.S., "Photographic Developers and Development"; Dixon H. Davies, "The Cost of Municipal Enterprise"; James Swinburne, "Nernst's Electric Lamp"; J. H. Collins, "Cornish Mines and Miners"; Philip Dawson, "Electric Traction"; Walter Hunter, M.Inst.C.E., "London's Water Supply"; Sir William Henry Preece, K.C.B., F.R.S., "Etheric Telegraphy"; Colonel Richard Carnac Temple, C.I.E., "The Penal System at the Andamans"; Sir John Scott, K.C.M.G., D.C.L., "Judicial Reforms in Egypt"; Archibald Little, F.R.G.S., "The Yangtze Basin and the British Sphere"; Stephen Webb, "Intarsia, or Inlaying"; J. Starkie Gardner, F.G.S., "The Revival of Tradesmen's Signs."

As the result of recent excavations among the lava beds of New Mexico, tracks of ditches and reservoirs, forming part of an elaborate irrigation system of very great antiquity, have been found, the work being declared by the superintending engineers to be superior to the most modern of its kind. The ditches, which are lined with cement, follow the basal winding of the mountains round which they pass. They are carried across chasms and depressions by means of viaducts in such a skilful manner, that they must have



drained off from the mountains all the surface-water, which was carried into the basins constructed at intervals, and distributed thence in every direction to arid valleys. Not only are the basins on such a scale as to warrant the belief that they would furnish water throughout the longest period of drought; but they were so constructed as to provide for the collection of silt and its utilisation as a fertiliser.

THE article on "Natural Ventilation," which appeared in our issue of May 26, has been re-printed as a pamphlet, and is being issued by Messrs. Robert Boyle and Son, Ltd., of 64, Holborn Viaduct, E.C. Some very sensible comments by our contemporary, *The Builder*, on the merits and demerits of different systems of ventilation, are appended, and all interested in the subject—and who is not?—will do well to obtain a copy.

#### MEETINGS FOR THE ENSUING WEEK.

**MONDAY.**—Royal Institute of British Architects. Presentation of Royal Gold Medal. 8 p.m.

**TUESDAY.**—Royal Institute of British Architects. Annual Dinner at the Whitehall Rooms, Hotel Metropole.

**FRIDAY.**—Meeting of Architects at the Cutlers' Hall, Sheffield, Walter Emden, J.P., P.S.A., in the chair. Paper on "The Statutory Registration of the Profession," by Ellis Marsland. 6.30 p.m.

**SATURDAY.**—Northern Architectural Association. Annual Excursion to Belsay.

The Architectural Association. Visit to Shooter's Hill House, Pangbourne (Leonard Stokes, Architect), and to a large House in course of erection (J. Belcher, Architect). Paddington, 1.33 train.

#### CHIPS.

A pension for life of £35 per annum has been awarded from the Civil List Fund to the widow of the late Mr. Gleeson White, in consideration of his services in advancing the cause of applied and industrial art.

Charles Bartlett Westcott, described as a builder's foreman, of New Cross, was, at the Southwark Police-court on Saturday, sentenced by Mr. Slade to a month's imprisonment for committing an assault upon Mr. George Crawford, a gentleman of independent means, residing at Old Charlton.

Tenders are being invited for the construction of the Truro and Newquay railway. The portion to be made will be about twelve miles in length, extending from the main line between Chacewater and Scorrer to a junction with the old minerals railway, near Treamble, Newquay.

Mrs. Creighton laid on Friday the corner-stone of the new church of St. Andrew, Bromley, E. The church will provide accommodation for 600 worshippers, and the cost of the building is £8,000.

Mr. George Spalding Fleetwood, A.S.I., of New Court, Carey-street, Lincoln's Inn, W.C., has been appointed surveyor to the corporation of the Orphan Working School, in the place of Mr. George Fleetwood, deceased.

The Queen is to be asked to lay next year the foundation stone of the new infirmary for Newcastle-on-Tyne. The last day for sending in competitive plans is July 26, and the designs are to be exhibited in the city soon after they are received. Owing to the overcrowding of the present institution, the building of the new infirmary will be pushed on as energetically as possible.

On Saturday, Mr. J. J. Cannah, of the firm of Messrs. Cannah and Roberts, sold, at the Blossoms Hotel, Chester, by order of the High Court of Justice, the Afonwen Cement Works, Caerwys, together with yards, clay beds, limestone quarry, marl beds, cottage, and agricultural land, containing in the whole 19a. 3r. 33p., and the vendors' interest in some leasehold land adjoining. The property was acquired by Mr. Capel Cure for £3,000. Messrs. West, King, Adams, and Co., 66, Cannon-street, London, were solicitors for the vendors.

After a prolonged debate, the Brighton Town Council have unanimously adopted a report from the tramways committee recommending the promotion of a Bill in Parliament for laying down electric tramways on the overhead trolley system in various parts of the town.

The rebuilding of the Norfolk and Norwich Library, which was destroyed by fire on the August Bank Holiday last year, will be completed by the anniversary of that date. The contractor is Mr. Yell, of Norwich.

The urban district council of Paignton have under consideration a scheme for providing a supply of water from Buckland Beacon, on Dartmoor, prepared by their late surveyor, Mr. Vanstone. The estimated cost is £40,000.

## Trade News.

### WAGES MOVEMENTS.

**TUNBRIDGE WELLS.**—The labourers have now returned to work, their demand of a rise from 5½d. to 6d. having been conceded by the master builders of the town.

**DUNDEE.**—The master builders decided on Monday to increase the wages of masons' labourers one farthing an hour, making them 5½d. an hour.

**DUMFRIES.**—The masons' strike, which had entered on its fourteenth week, has been settled by an agreement of the masters to give an advance of a halfpenny per hour, instead of the penny demanded. The standard wage will now be 8½d., and employers are to be at liberty to pay a lower rate, not less than 7d., to men who are not fully competent tradesmen.

A Local Government Board inquiry was held on Friday at the Litherland urban district council offices by Colonel C. H. Luard, C.E., into an application for sanction to borrow £2,750 for works of private street improvements.

On Wednesday week a new organ, erected in St. Luke's Church, Maidstone, was dedicated as a memorial. The organ-case is of oak wood. It has in front three projecting semi-circular towers, under the largest and central one of which is a carving of St. Luke's bull, and under the two outer supporting towers are allegorical carved representations of the Tree of Life and the Vine respectively. The carving has been done by Mr. Turner, under the superintendence of the organ builders, Messrs. A. Hunter and Son, London, Mr. W. H. Seth-Smith, F.R.I.B.A., of Lincoln's Inn-fields, having prepared the designs. There are in the instrument's composition about 1,100 pipes, dummies of white spotted metal forming the face. The cost has been £750.

New offices for Messrs. Cory and Sons have just been built at the corner of Mount Stuart-square, Cardiff, at a cost of £6,000. The buildings are Renaissance in style, and cover an area of 70ft. by 40ft., and consist of a basement, ground and second floors, and attics. Messrs. E. Turner and Sons, of Cardiff, are the contractors.

In the Chancery Division, on Friday, before Mr. Justice Stirling, an application was made on behalf of the Plumbers' Company, defendants in an action brought by Sir Philip Magnus for depriving him of his privileges as a member of the company, that the Messrs. Collingridge, proprietors and publishers of the *City Press*, might be committed for contempt of Court for certain comments on the conduct of the Company towards Sir P. Magnus. It was agreed that a correction of the statements complained of should appear in the *City Press*, and on that understanding his Lordship made no order.

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Best Sledshill.....	10 0 0	"	10 10 0
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., £6 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20.	No. 22 to 24.		
6ft. gauge.....	£10 15 0	Per ton.	£11 0 0
Best ditto.....	11 5 0	Per ton.	11 10 0
Cast-Iron Columns.....	£6 10 0	to	£9 0 0
Cast-Iron Stanchions.....	6 10 0	"	9 0 0
Rolled-Iron Fencing Wire.....	8 5 0	"	9 5 0
Rolled-Steel Fencing Wire.....	8 5 0	"	9 5 0
" " Galvanised.....	11 10 0	"	12 10 0
Cast-Iron Sash Weights.....	4 12 6	"	4 15 6
Cut Clasp Nails, 3in. to 6in.....	9 0 0	"	10 0 0
Cut Floor Brads.....	8 15 0	"	9 15 0
Wire Nails (Points de Paris)—			
0 to 7 8 9 10 11 12 13 14 15 16 17 18 19 20			B.W.G.
Cast-Iron Socket Pipes—			
8in. diameter.....	£6 7 6	to	£6 12 6
4in. to 6in.....	6 2 6	"	6 7 6
7in. to 24in. (all sizes).....	5 12 6	"	5 17 6
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Pig Iron—			Per ton.
Cold Blast, Lilleshall.....			105s. to 110s.
Hot Blast, ditto.....			57s. 6d. to 62s. 6d.
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.:			
Gas-Tubes.....			67½ p.c.
Water-Tubes.....			62½
Steam-Tubes.....			55
Galvanised Gas-Tubes.....			52½
Galvanised Water-Tubes.....			47½
Galvanised Steam-Tubes.....			47
10cw. casks. 5cw. casks.			
Zinc, English.....	£30 10 0	to	£31 10 0
Do., Vieille Montagne.....	31 10 0	"	32 15 0
Sheet Lead, 3lb. per sq. ft. super.....	16 2 6	"	17 2 6
Pig Lead, in lwt. pigs.....	15 7 6	"	16 7 6
Lead Shot, in 28lb. bags.....	19 0 0	"	20 0 0
Copper Sheets, sheathing and rods.....	83 0 0	"	84 0 0
Copper, British Cake and Ingot.....	79 10 0	"	80 0 0
Tin, Straits.....	106 0 0	"	107 0 0
Do., English Ingots.....	117 0 0	"	118 0 0
Spelter, Silesian.....	27 10 0	"	28 10 0
TIMBER.			
Teak, Burmah.....per load	£13 5 0	to	£16 5 0
" Bangkok.....	11 5 0	"	15 5 0
Quebec Pine, yellow.....	4 7 6	"	6 10 0
" Oak.....	2 10 0	"	6 5 0
" Birch.....	4 5 0	"	3 0 0
" Elm.....	4 12 6	"	5 15 0
" Ash.....	3 2 6	"	4 7 6
Dantais and Memel Oak.....	3 5 0	"	4 0 0
" Fir.....	1 10 0	"	3 10 0
Wainscot, Riga p. log.....	3 15 0	"	6 5 0
Lath, Dantais, p.f.....	4 10 0	"	5 10 0
St. Petersburg.....	4 0 0	"	6 10 0
Greenheart.....	7 15 0	"	8 0 0
Box.....	4 0 0	"	15 0 0
Sesquia, U.S.A.....per cube foot	0 1 9	"	0 2 0
Mahogany, Cuba, per super foot			
1in. thick.....	0 0 5	"	0 0 7½
" Honduras.....	0 0 4½	"	0 0 6
" Mexican.....	0 0 3½	"	0 0 4
" African.....	0 0 3½	"	0 0 5
Cedar, Cuba.....	0 0 4	"	0 0 4½
" Honduras.....	0 0 3½	"	0 0 4
Satinwood.....	0 0 10	"	0 1 9
Walnut, Italian.....	0 0 8	"	0 0 7½
Deals, per St. Petersburg Standard, 120—12½. by 1½in. by 1½in.:			
Quebec, Pine, 1st.....	£19 0 0	to	£25 10 0
" 2nd.....	14 0 0	"	17 5 0
" 3rd.....	6 15 0	"	10 0 0
Canada Spruce, 1st.....	8 5 0	"	10 5 0
" 2nd and 3rd.....	7 0 0	"	8 5 0
New Brunswick.....	7 0 0	"	7 15 0
Riga.....	8 5 0	"	9 5 0
St. Petersburg.....	10 0 0	"	14 0 0
Swedish.....	10 0 0	"	17 0 0
Finland.....	9 15 0	"	10 5 0
White Sea.....	11 0 0	"	18 5 0
Battens, all sorts.....	5 0 0	"	16 0 0
Flooring Boards, per square of 1in.:			
1st prepared.....	£0 11 6	"	£0 14 9
2nd ditto.....	0 10 0	"	0 10 9
Other qualities.....	0 5 3	"	0 6 6
Staves, per standard M.:			
Quebec pipe.....	£35 0 0	"	£42 10 0
U.S. ditto.....	210 0 0	"	220 0 0
Memel, cr. pipe.....	180 0 0	"	190 0 0
Memel, brack.....			
OILS.			
Linseed.....per ton.	£20 5 0	to	£20 12 6
Rapeseed, English pale.....	23 0 0	"	23 5 0
Do., brown.....	21 15 0	"	21 5 0
Cottonseed, refined.....	16 10 0	"	17 5 0
Olive, Spanish.....	30 0 0	"	32 0 0
Seal, pale.....	18 5 0	"	18 10 0
Cocoanut, Cochin.....	28 15 0	"	29 0 0
Do., Ceylon.....	25 10 0	"	25 15 0
Palm, Lagos.....	24 5 0	"	24 10 0
Oleine.....	18 15 0	"	19 15 0
Lubricating U.S.....per gal.	0 6 8	"	0 7 6
Petroleum, refined.....	0 6 8	"	0 6 6½
Tar, Stockholm.....per barrel	1 0 0	"	1 8 6
Do., Archangel.....	0 18 0	"	1 0 0
Turpentine, American.....per ton	23 15 0	"	29 0 0



## LIST OF COMPETITIONS OPEN.

Wakefield—Central Premises .....	£50, £80, and £20 .....	J. W. Haigh, Sec., Industrial Society, Bank-street, Wakefield .....	June 30
Buckie—Bridge over Buckie Burn (£1,600 limit) .....	25gs. .....	J. L. Naughton, Clerk to Commissioners, Buckie, N.B. ....	" 30
Harrogate—New Kursaal, &c., at Spa Concert Room (limit £20,000; Assessor) .....	£150, £100, £75 .....	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate .....	July 3
Lichfield—Grammar School .....	£20 .....	H. H. Brown, Clerk to Grammar School Governors, Lichfield .....	" 3
Plumstead—Municipal Buildings and Public Library, Glossop-road (cost £40,000; E. W. Mountford, F.R.I.B.A., Assessor) .....	£100, £75, £50 .....	Edward Hughes, Clerk, Vestry Hall, Maxey-road, Plumstead .....	" 27
Halifax—Twelve Shops, Commercial-street .....	£50, £25 .....	Barstow and Midgley, Solicitors, 8, Harrison-road, Halifax .....	Aug. 1
Wetherdale—Isolation Hospital .....	£30 (merged), £15 .....	C. V. Newstead, Clerk, Union Offices, Boroughgate, Oldley .....	Sept. 1
Edinburgh—Midlothian County Buildings, Parliament-square .....	£30 (merged), £10 .....	A. G. G. Asher, W.S., County Clerk, County Rooms, Edinburgh .....	"
Aldershot—Masonic Hall (£2,500 limit) .....		John Youd, Secretary, The Triangle, Aldershot .....	"

## LIST OF TENDERS OPEN.

## BUILDINGS.

Wigmore—Alterations at Police Court .....	Standing Joint Committee .....	A. Dryland, County Surveyor, Shire Hall, Hereford .....	June 24
Bridlington Quay—Hotel, Cafe, &c. ....	Bridlington Coffee House Co. ....	J. Caleb Petch, Architect, Bank Chambers, Scarborough .....	" 24
Middlesbrough—Extension of Premises, Corporation-road .....		A. F. Newsome, M.S.A., Albert-road, Middlesbrough .....	" 24
Macroom—Repairs to Cottages .....	Rural District Council .....	J. T. Murphy, Clerk, Macroom, Ireland .....	" 24
Torrelton—Creamery .....	Co-operative Society, Manchester .....	J. F. Mullen, C.E., 30, South Mall, Cork .....	" 24
Cornwood—Classroom and Cloakrooms .....		William Harvey, Cornwood, Devon .....	" 24
Bodmin—Alterations to Cornwall Constabulary Headquarters .....	Cornwall County Council .....	H. J. Snell, Architect, Plymouth .....	" 24
Middlebrough—Extension of Premises, Linthorpe-road .....	Birks Bros. ....	A. F. Newsome, M.S.A., Albert-road, Middlesbrough .....	" 24
Cardiff—Additions to 156 and 158, Cathays-terrace .....	Workmen's Liberal Club .....	The Secretary, 160, Cathays-terrace, Cardiff .....	" 24
Keighley—Club and Dwelling-Houses at Park Wood Bottom .....		W. H. and A. Sugden, Architects, Keighley .....	" 24
Stamford—Works at Premises near Hudd's Mills .....	Corporation .....	The Borough Surveyor, 15, Barn Hill, Stamford .....	" 24
New Hirst—Business Premises .....	Ashington Co-operative Society .....	John Magin, Secretary, Ashington .....	" 24
Blanchetown—Rebuilding Conservative Club .....		A. C. Evans, Architect, Pontypridd .....	" 24
Manchester—Additions at Monsall Hospital .....	Corporation .....	The City Surveyor, Town Hall, Manchester .....	" 24
Dufftown—Schools .....	Mortlach School Board .....	Sutherland and Jamieson, Architects, Elgin .....	" 24
Selby—Steam Laundry, &c. ....	Selby Steam Laundry Co. ....	G. F. Pennington, Architect, Central Chambers, Castleford .....	" 24
Middlesbrough—Altering Premises, Albert-road .....		A. F. Newsome, M.S.A., Albert-road, Middlesbrough .....	" 24
Blaina—New Schoolroom and Heating Chapel .....	English Cong. Church Trustees .....	W. S. James, Secretary, 77, High-street, Blaina .....	" 24
Zennor—Alterations Wesleyan Chapel .....	E. E. Dennington .....	Henry Madern, 25, Clarence-street, Penzance .....	" 24
Halesworth—Three-story Warehouse, Office and Shop .....	Dundee Town Council .....	Arthur Pella, F.S.I., Architect, Beccles .....	" 24
Dundee—Additions to Public Slaughterhouses, Carolina Port .....		Wm. Mackison, C.E., Borough Engineer, 91, Commercial-st., Dundee .....	" 24
Exeter—Alterations to 101, Fore-street .....	Stratford Co-operative Society .....	Harbottle Reed, Architect, 12, Castle-street Exeter .....	" 24
Little Ilford—Six Houses, Dersingham-avenue .....	Parks, &c., Committee .....	Stratford Co-operative & Indus. Society, 54, Maryland-st., Stratford .....	" 24
Manchester—Foundations for Bandstand at Crumpsall .....	Henry Callander, of Prestonhall .....	The City Surveyor, Town Hall, Manchester .....	" 24
King's Lynn—Warehouses and Factory, High-street .....	Board of Guardians .....	William Jarvis, Architect, Market-square, King's Lynn .....	" 24
Dalkeith—Additions and Alterations to Prestonmains Steading .....		John Stirling, Factor, Prestonhall, Dalkeith, N.B. ....	" 24
Hursley—New Workhouse .....	Aberystwith School Board .....	Chancellor and Hill, Architects, 12, Jewry-street, Manchester .....	" 26
Pontarcraig—Addition to Carmarthenshire Infirmary .....	Governors Gloucester U.E. Schools .....	H. Howell, Secretary, Pontarcraig .....	" 26
Cwm—Classrooms, &c., Cwmydderch Infant School .....	Magistrates and Council .....	R. L. Roberts, Architect, Victoria Chambers, Abercarn .....	" 26
Awre—Two Cottages on Box Farm .....	Walter Wood .....	Thomas Cadle, Surveyor, Lynwood, Denmark-road, Gloucester .....	" 26
Leeds—Sixteen Houses, Bagby Fields .....	Urban District Council .....	James Charles and Sons, Architects, 98, Albion-street, Leeds .....	" 26
Edinburgh—Extension of Boiler House, &c. ....	Guardians .....	The Borough Engineer, 1, Parliament-square, Edinburgh .....	" 26
Carlisle—Seven Houses, Wigton-road .....	Gas Committee .....	James Leslie, Architect, 71, Broad-street, Carlisle .....	" 26
Newcastle-upon-Tyne—Weights & Measures Depart. Buildings .....	P. Mair .....	J. Stockwell, Architect, Pilgrim-street, Newcastle .....	" 26
Wardle—Slatting and Pointing Board Room .....	Managers .....	Samuel Brierley, Surveyor, Board Room, Wardle, Lancs .....	" 26
King's Lynn—Warehouses, &c., High-street .....	Guardians .....	Wm. Jarvis, Architect, King's Lynn .....	" 26
Birkenhead—Alteration of Meat Store of Workhouse .....	Managers .....	John Carter, Clerk, 45, Hamilton-square, Birkenhead .....	" 26
Ilkley—Additions to Burnside Villa .....	Managers .....	Herbert Hodgson, A.R.I.B.A., Old Bank Chambers, Bradford .....	" 26
Leeds—Slatting Roof of Coal Store at New Wortley Gasworks .....	Managers .....	R. H. Townsley, General Manager, Municipal Buildings, Leeds .....	" 26
Accrington—Volunteer Drill Hall .....	Managers .....	Henry Ross, 15, Cannon-street, Accrington .....	" 26
Elgin—Shop and Houses, High-street .....	Managers .....	R. B. Pratt, Architect, Town and County Bank Buildings, Elgin .....	" 26
Thornham—Repairing and Slatting Roof of Church .....	Managers .....	The Vicar, Thornham Church, Norfolk .....	" 26
Carlisle—Alterations to House .....	Managers .....	Geo. Dale Oliver, F.R.I.B.A., Architect, 5, Lowther-street, Carlisle .....	" 26
Tavestock—Offices at Harraoott School .....	Managers .....	G. C. Smyth-Richards, Surveyor, Barns'aple .....	" 26
Llandilo—Wesleyan Church .....	Managers .....	J. W. Jones, F.I.A.S., Architect, Llandilo .....	" 26
Hursley—Workhouse .....	Managers .....	Cancellor and Hill, Architects, 12, Jewry-street, Winchester .....	" 26
Buckpool—House and Shop, Main-street .....	Managers .....	Sutherland and Jamieson, Architects, Elgin .....	" 26
Whitehaven—Additions to 11, Howill-street .....	Managers .....	J. S. Moffat, Architect, Whitehaven .....	" 26
Padiham—Banking Premises, Burnley-road .....	Managers .....	W. Waddington & Son, Architects, Mansfield Chmbrs, Manchester .....	" 26
St. Ives, Hunts—Cells for Female Vagrants .....	Managers .....	Dennis Day, Clerk, Broadway, St. Ives, Hunts .....	" 26
Keighley—Municipal Offices, Bow-street .....	Managers .....	John Haggas and W. and J. B. Bailey, Joint Architects, Keighley .....	" 27
Bundoran and Belleek—Stationmasters' Houses .....	Managers .....	The Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin .....	" 27
Slaithwaite—Twelve Dwelling Houses, Varley-road .....	Managers .....	J. Berry, Architect, 9, Queen-street, Huddersfield .....	" 27
Manchester—Stables at Oldham-road Goods Station .....	Managers .....	The Engineer's Office, Hunt's Bank, Manchester .....	" 27
Woolwich—Lodge, Shelter, and Mortuary, Sun-street .....	Managers .....	Church, Quick, & Whincom, Architects, William-street, Woolwich .....	" 27
Great Horton—Shop and House, High-street .....	Managers .....	J. Spencer, Architect, 344, Great Horton-road, Bradford .....	" 27
Clifton Junction—Raising Platforms, &c. ....	Managers .....	The Engineer's Office, Hunt's Bank, Manchester .....	" 27
Barnsley—Two Houses, Grafton-street .....	Managers .....	Wade and Turner, Architects, 10, Pitt-street, Barnsley .....	" 27
Sedburgh—Extensions to Black Bull Royal Hotel .....	Managers .....	Stephen Shaw, F.R.I.B.A., Architect, Kendal .....	" 27
Knighton—Village Hall .....	Managers .....	George A. Craig, Architect, Market Drayton .....	" 27
York—Enlargement of Office, High Ousegate .....	Managers .....	Gedford and Kilson, Architects, Greek-street Chambers, Leeds .....	" 27
St. Alban's—Isolation Hospital, &c., Hill End .....	Managers .....	G. T. Hine, F.R.I.B.A., Archt., 35, Parliament-st., Westminster .....	" 27
Winney—Blanket Manufactory .....	Managers .....	John Kirk and Sons, Architects, Dewsbury .....	" 28
Barrow-in-Furness—Extensions to Elec. Works, Buccleuch-st. ....	Managers .....	The Borough Engineer, Barrow-in-Furness .....	" 28
West Jesmond—Station Buildings .....	Managers .....	William Bell, Architect, Central Station, Newcastle-on-Tyne .....	" 28
Abergavenny—Extension of Girls' Intermediate School .....	Managers .....	E. A. Johnson, Architect, Abergavenny .....	" 28
Bare, Lancs.—Home of Rest .....	Managers .....	Edward C. H. Maidman, Archt., 13, South Charlotte-st., Edinburgh .....	" 28
St. Thomas, Exeter—Repairing King's Arms Inn .....	Managers .....	Charles Cole, Architect, 50, High-street, Exeter .....	" 28
Halifax—Villa Residence on Greenrood Estate .....	Managers .....	Medley Hall, Architect, 29, Northgate, Halifax .....	" 28
Walton-on-the-Naze—Hall and Buildings in Round Garden .....	Managers .....	Chas. H. M. Milham, Architect, 1, Lincoln's Inn Fields, W.C. ....	" 28
Barrow-in-Furness—Extensions to Sewage Pumping Station .....	Managers .....	The Borough Engineer, Barrow-in-Furness .....	" 28
Wotton-under-Edge—Two Cottages .....	Managers .....	H. Goldingham, Clerk, Wotton-under-Edge .....	" 28
Pillaton—Restoration of Tower of St. Odolph's Church .....	Managers .....	Henry G. Luff, Architect, 64, Chapel-street, Devonport .....	" 28
Cork—Repairing Liberty-street and Carrignavar Dispensaries .....	Managers .....	John Cotter, Clerk, Cork .....	" 29
Wandsworth—Baths, James' yard .....	Managers .....	Spalding and Cross, Architects, 15, Queen-street, Cheapside, E.C. ....	" 29
Burnley—Shelter in Thorner Gardens .....	Managers .....	The Borough Surveyor, Town Hall, Burnley .....	" 29
Stockport—Fire Station, Wellington-road North .....	Managers .....	John Atkinson, A.M.I.C.E., Borough Surveyor, Stockport .....	" 29
Crewe—Chimney Stack, &c., Electricity Works, Eldeston-road .....	Managers .....	Hopkinson and Talbot, 29, Princess-street, Manchester .....	" 29
Wandsworth—Baths in James' yard .....	Managers .....	Spalding and Cross, 15, Queen-street, Cheapside, E.C. ....	" 29
Gurraneboy—Dispensary Residence, near White's Cross .....	Managers .....	D. J. Oakley, Board-room, Workhouse, Cork .....	" 29
London, N.—Works at Highbury Relief Offices, Corsica-street .....	Managers .....	Wm. Smith, Architect, 65, Chancery-lane, W.C. ....	" 29
Buttershaw—Eight Houses .....	Managers .....	Brayshaw and Dixon, Architects, Bowling Old-lane, Bradford .....	" 29
Willenden Green—Three Pairs of Semi-Detached Villas in .....	Managers .....		
Cranhurst—Office .....	Managers .....		
Tendlo—Offices and Battery Sub-Station, Strawberry-road .....	Managers .....	Allen and Hoar, Surveyors, Inglewood House, West Hampstead .....	" 30
Cardiff—Alterations to Stacey-road School .....	Managers .....	John Holt, 6, St. Mary's-gate, Manchester .....	" 30
Swaleale—Alterations to Wesleyan Day School .....	Managers .....	E. Bruton, Architect, 15, Queen-street, Cardiff .....	" 30
Bedford—Converting Vagrant Wards into Receiving Wards, &c. ....	Managers .....	William Pratt, Secretary, Low-row, Beeth .....	" 30
Leixlip—Two Labourers' Cottages .....	Managers .....	Henry Young, Architect, 35, Maitland-street, Bedford .....	" 30
Halifax—Stabling, &c. ....	Managers .....	L. A. McDonnell, 33, Kildare-street, Dublin .....	" 30
Sheffield—School at Morley-street .....	Managers .....	Joseph F. Walsh, Architect, Bank Chambers, Halifax .....	" 30
Cardiff—Bank and Offices, Queen-street .....	Managers .....	Hemson and Paterson, Architects, 13, Norfolk-row, Sheffield .....	" 30
Leeds—Shops and Warehouse, &c., George-street .....	Managers .....	Corbet, James, & Morgan, Joint Archts., Charles-st. Chmbrs, Cardiff .....	" 30
Chatham—Post-Office .....	Managers .....	Percy Robinson, Architect, 72, Albion-street, Leeds .....	" 30
Merebourne—Alterations to House and Shop, Queen-street .....	Managers .....	The Postmaster, Chatham .....	" 30
Poplar, E.—Additions to Town Hall, Newby-place .....	Managers .....	A. Lunellot Lang, Architect, 124, Pedder-street, Morecambe .....	July 1
Marham—New Floor in Board School .....	Managers .....	William Clarkson, Architect, 135, High-street, Poplar .....	" 3
Leeds—Wood-Block Flooring in the Town Hall Basement .....	Managers .....	M. Chubbuck, Clerk, Marham, Yarmouth .....	" 3
Sheffield—Infected Diseases Hospital at Lodge Moor .....	Managers .....	The Town Clerk's Office, Leeds .....	" 3
Rainham, Kent—Engine and Boiler House .....	Managers .....	Flockton, Gibbs, & Flockton, Archts., 15, St. Jam's's-row, Sheffield .....	" 3
Farnborough—Cottage at Sewage Farm .....	Managers .....	W. Leonard Grant, Architect, Sittingbourne .....	" 3
	Managers .....	R. Walter Knapp, Surveyor, Town Hall, Farnborough .....	" 4



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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FRIDAY, JUNE 30, 1899.

### A COMPARISON.

ENGLISH workmanship and art are often challenged. We are constantly being reminded by writers in our own and American papers and reviews that the efficiency of our mechanics and our art-craftsmen is below that of the French, German, and American. The impeachment to a certain extent is true. It cannot be denied that in some European countries the environment of the art-craftsman is more favourable than that in England. A recent writer in the *Engineering Magazine*, in comparing the machine-shop management in Europe and America, declares generally for the greater efficiency of the mechanic in America. Basing his arguments on the effect of environment on the workman—on which few will disagree—he attempts to show that the environment is most favourable in the latter country. He asserts that the youth in the New World have “better opportunities of acquiring a higher education under more favourable conditions than exist in European countries.” This is rather a bold assertion to make, and before accepting it we ought to be informed what are the conditions most favourable to education in a general sense. Have the American craftsmen the same access to works of art that the Frenchman or Englishman has, for instance? The schools of every grade may be free, and the child of the workman can, without a penny of cost, fit himself for college; but we are not aware that these advantages necessarily make him more skilful as a workman. They have given him a better all-round education; but this is often in an inverse ratio to the development of the faculty of invention or manipulative skilfulness. Our appeal is to the guilds of craftsmen which have all over Europe left evidence of their skill in trades. The guilds-man's environment was not much like that in the States. His education was free, but of a very different kind; he was apprenticed to a particular trade, which he learned thoroughly and practically; but his associates were not of every social rank, as in America. Again, a wide range of subjects is not the best for a workman who has to learn a special trade, nor can it be argued that the non-existence of class distinction has much to do with the progress of any art. Again, the same writer observes that the number of skilled workmen with progressive ideas is larger in America than in Europe. It may be so, and this is no doubt largely owing to the free education and the less restricted social intercourse with others of a higher grade; but how this affects the worker's technical skill we fail to see; nor does the writer enlighten us. The European mechanic's position in the workshop, no doubt, “gives him a rank which he is careful to protect, and a recognition which he exacts from all below him,” as he in turn submits to those above. This is quite true, and we do not see how these distinctions can be obliterated in trades like building without injury and overlapping of the trades. What we object to is that the workman should be tied to conventional habits and methods of doing things in his own trade. It is the commercial tyranny that oppresses the English workman which makes him work in a groove, instead of being a free agent capable of doing better work.

The American apprentice has, we are told, “an all-round training, and is allowed to work in every department of the machine shop,” and this training is said to produce

men who can adapt themselves to various classes of work. There is an advantage in a general acquaintance with other trades than the special one the apprentice has to make his own, and it is one of the things that technical education has in view. To the maker of machine-tools it is an advantage to be able to judge of the earlier operations a certain tool has undergone; so the brick-layer must know of the succeeding wants of the carpenter and stonemason to perform his work; and the carpenter or joiner should understand what he has to provide for the slater, the plasterer, or plumber; and so of other trades. In this manner, no doubt, the American workman has the advantage at present. We need not enter into other questions, as to whether it is true that “trade-unionism, as it exists amongst us, is but the concomitant of class distinction.” The German technical system has no doubt tended to make the student more theoretical than practical, and the technically-educated man ignores working details. He can calculate strains and stresses, and make the most minute drawings; but there his work ends. Then there is the question of supervision. That work should be supervised by those who have a knowledge of the end desired is a useful proposition that has not yet been learned. In America “the control and inspection of workmanship by the designer is considered of as much importance as the design.” We are not sure whether this wholesome doctrine is applied to building as well as machine design.

If we look to results, we certainly cannot find all that is affirmed about American work. It is admitted that on this side of the Atlantic machinery is only employed as an aid to production, the skilled hand being relied on to complete; while in America the highest skill is devoted to the production of machinery, not on the article itself. Comparing manufacturing plants and machine-tools, the author of the article we have referred to affirms that the average American manufacturing plant and tools are far in advance of the average European, not only in make, but also as regards design. Cast iron here is not so well moulded, and rarely pickled to remove sand; both it and steel are not so accurately made to size. The European tool is said to “look clumsy and heavy,” the American “light and flimsy”—we certainly think the latter is the case. Such an opinion on machine-tool design need not apply to other fields of design, though we suspect a similar view prevails. Clumsiness and heaviness, waste of material, and want of finish are the faults our Transatlantic cousins attribute to our productions; but is it true the American designer pays more attention to “artistic effect and graceful lines” than the European? Opinions on this question will certainly differ. In objects of utility made in metal and cast-iron work, the American productions may be better finished and more accurate in workmanship, but they are not always conspicuous for elegance or graceful outline. There is an attempt to over-ornament, to over-“bossiness,” if we may use a term that describes much of their castings and woodwork, though these are faults they are happily recovering from. If we are not always so accurate or finished in workmanship, we do not err in that exuberance of detail which is so characteristic of much that is American in design.

### ESTIMATES.—XII.

#### SLATER—CARPENTER.

SLATING is often sub-let, and this is probably the cheaper course. Waste at the rate of 5 per cent. is allowed at the quarry, when the slates are bought by the truck-load, and this allowance covers breaking. In calculating the number of slates to the square, a table should be referred to.

The calculation is necessary to be made in some cases, and the following is a rule that may be followed. Suppose we require the number of Countess slates required to cover a square, allowing a 3in. lap. A Countess slate is 20in. by 10in. The gauge is found by taking half the length of slate = 10in., less half the lap, or  $10 - 1\frac{1}{2}\text{in.} = 8\frac{1}{2}\text{in.}$  Then  $8\frac{1}{2}\text{in. gauge} \times 10\text{in. wide} = 85\text{in. area,}$  and  $100\text{ft.} \times 144\text{in.} \div 85\text{in.} = 170$  nearly to each square. There are two nails to each slate = 340.

To find the number of squares,  $1,200$  (a thousand) of Countess slates will cover:— $1,200 \times 85 \div 14,400\text{in.} = \text{about } 7 \text{ squares.}$  Duchesses 24in. by 12in., 3in. lap, will cover  $10\frac{1}{2}$  squares; ladies 16in. by 8in. and a 3in. lap will cover five squares. Westmoreland slates are sold by the ton, and the sizes vary.

13 squares Port Madoc Countess slating laid to  $2\frac{1}{2}\text{in.}$  lap; two  $1\frac{1}{2}\text{in.}$  copper nails to each slate.

Cost of slates delivered in London at, say, £10 per 1,200. If it takes 165 slates to cover a square, then—

165 slates + 8 = 173, allowing 5 p.c.	£	s.	d.
waste, at £10 per thousand	1	8	4
347 copper nails, 2lb., at 9d.	0	1	7
Slater and laying, say two hours	0	2	0
	1	11	11

A slate merchant will do the same for probably 5s. less per square.

32ft. run. Cutting, &c. to hips and valleys.

At the above price this would be about 4d. per foot run.

45ft. run. Cutting and double course to eaves.

This may be priced at  $3\frac{3}{4}\text{d.}$  per foot run.

To find out exactly, the length of cutting to edge of slate on each lineal foot of raking line should be calculated. Having found this length, multiply it by half width of Countess slate, 5in. The surface cut thus obtained is to be priced at the rate per thousand. It will be found to be about three-quarters of the surface of a slate, say,  $1\frac{1}{4}\text{d.}$ , add to which time of slater, say, 1d.

#### CARPENTER'S WORK.

Next to the measurement and valuation of the Mason's work, that of the Carpenter and Joiner is the most intricate and perplexing, and the young estimator should make himself familiar with the modes of measuring and taking-out quantities by studying such works as Leaning's “Quantity Surveying.” There are generally two modes of measuring carpenter's work “at per square of 100ft. superficial”—a plan generally followed in approximate estimates—and “at per foot cube,” as in the case of wrought timbers or fir framed in floors and roofs. The latter mode, or “cube fir and labour,” is generally followed, and is the more correct way of estimating materials and labour when the scantlings are large.

The items will appear as so many feet cube. “Fir in plates, lintels, &c.,” or as “cube fir in ground-floor joists,” or as “cube fir framed in floors,” “fir framed in girders,” or as “fir framed in roofs or in roof trusses in quarter partitions,” &c., in each case labour and nails being included.

A few useful data are necessary to keep in mind, such as that 50 cubic feet of timber equal one load = 600ft. super, of inch boards, that 120 deals equal “one hundred.” All sizes are generally sold by the Petersburg standard on 120 pieces 12ft. long,  $1\frac{1}{2}\text{in.}$  by 11in., and equals 165ft. cube, or  $3\frac{3}{4}\text{loads.}$  The necessity often arises of making up a standard of a particular scantling; thus, a scantling 12in. by 4in., or one-third of a 12in. by 12in. section, would require  $165 \times 3 = 495\text{ft. run,}$  and a scantling 3in. by 11in. would require 720ft. run, &c. But tables are given which show the number of feet-run of various scantlings required to make a Petersburg standard. An easy rule to find the number of feet-run



required to make a standard is to multiply 1,440ft. (the feet-run of a reduced deal 1½in. by 11in.) by 16·5, and divide product by sectional area of scantling required, and the quotient will give number of feet.

It is necessary to remember planks are 11in. wide, deals 9in., and battens 7in., and the cubical contents in planks, deals, and battens of ordinary thicknesses are useful to bear in mind. Thus:—

A plank 10ft. long	11in. by 2½in.	contains	1ft. 0in. 11pts.
A deal 12ft. "	9in. " 2½in.	"	2ft. 3in. 6pts.
A batten 12ft. "	7in. " 2½in.	"	1ft. 5in. 6pts.
" 12ft. "	7in. " 3in.	"	1ft. 9in.

and so on.

Other facts are usefully remembered, such as that £1 per Petersburg standard is about 1s. per square for 1in., and 1s. per foot cube is £8 5s. per Petersburg standard.

The following item often appears in specifications and bills of quantities:—"The timber to be of the best description from Memel, Riga, or Dantzic, sawn die-square, &c., and sawn into scantlings after the signing of the contract."

The builder or estimator who strictly adheres to the clause is often placed under the disadvantage of having to affix higher prices than other competitors who price for the market scantlings or planks, deals, and battens of often indifferent quality, and of course he saves in sawing, waste, and cartage. As a matter of fact, moreover, log-timber sawn is often inferior, and is less seasoned than scantlings cut from deals. If cut from good deals, they are, as Seddon says, better than those cut from whole timbers; and the export of planks, deals, and battens is generally from the Northern ports, which produce the closest-grained timber.

A great number of small scantlings are now imported, as 3in. by 2in., 2½in., 3½in., 4in., 4½in., 5in., &c.; 2in. by 8in., 9in., 10in., 11in.; 2½in. by 3½in.; 3in. by 9in., 10in., 11in., 12in.; 4in. by 7in., 9in., 10in., 11in., 12in., &c.

At least 30 per cent., according to Laxton, is wasted when fir timber is slabbd all round; and at a prime cost in docks of 75s. per load, and, allowing cartage, sawing, and stacking the net timber cut out cost 2s. 2d. per foot cube. This is an important consideration. It is necessary to find the proportion of sawing required in any given building, and this will vary according to the size and design. The feet of sawing per load of timber has been estimated by Mr. Leaning, from calculation of three ordinary buildings, as about 363ft. superficial per load for timber sawn "die square."

In estimating the cost of any item of a Carpenter's bill, the price per cube foot of timber and deals must be determined as a basis of cost, and the elements required may be put in this form:—

	£	s.	d.
Prime cost of load of fir, say	3	15	0
Cartage to sawmills from docks	0	3	0
25 per cent. waste on slabbing	0	18	9
Sawing into scantlings, say, 363ft., at 4s. per 100ft., say	0	14	0
	50	15	9
Per foot cube, say	0	2	3

The price of fir timber varies considerably, say, from 70s. to 85s. per load at the docks.

Laxton gives a rule to find the value of a foot cube of timber when the prime cost is known, which is to add to the price at the yard £1 per load for sawing and carting, then multiply the number of pounds by 6½d. The product is the price per foot, including 20 per cent. profit and waste. Putting £7 as the prime cost of timber at the yard, the result gives 4s. 4d. per foot cube.

The pricebook gives per cubic foot for fir materials and labour in lintels, &c., 2s. 4d. calculated per Petersburg Standard £11 in the docks, adding £1 2s. 6d. per load for cartage, &c.; if timber is cut from bulk at

£3 15s. per load in docks, an additional 8d. or 3s. Swedish timber in scantlings cut from deals is priced at 2s. 6d.

If we take one third of the whole timber in a building as of sawn timber, the other two-thirds sawn out of deals, &c., or imported, we should get—

One-third of a load at £3 15s. l.	£	s.	d.
Two-thirds of a load at £11 a standard, say	1	5	0
Sawing, say	2	4	0
Cartage, say	0	5	0
5 per cent. waste	0	3	0
	0	8	6

Equal to about 1s. 6d. per foot cube

This proportion would probably be a fair one. Add to this, labour calculated at 75 hours constant, we get 7½d. = 2s. 1½d., or, with profit 2s. 3½d. per foot.

We now take a few of the ordinary items found in bills of quantities. It is necessary to find the prime cost per foot cube of timber and deals as the basis of each item. We may put the best Dantzic per load at from 75s. to 80s., the "best middling" at, say, 70s. to 75s., and this is quite as good as the builder ever gets. For labour the constants should be used. For "fir-framed" in floor 8½d. to 9d. is considered a fair price per foot cube, though often contracts are taken at less than 7d.

132ft. cube. Fir in plates, lintels, wood bricks.

Say the price of a load of good middling Dantzic is 75s.—

	£	s.	d.
1ft. cube of Dantzic is at above	0	1	6
Cartage within four miles, say, at 10s. per load	0	0	3
Sawing to sizes	0	0	3½
Cross-cutting, &c.	0	0	2
Waste, say, 10 per cent.	0	0	2

Per foot cube

Say 2s. 8d., including profits. Laxton prices this at 3s. When cut from deals, this item may be priced at 2s. 3d. per foot.

40ft. cube. Fir in ground joists.

	£	s.	d.
If the joists are cut from deals per St. Petersburg standard in docks at £10, allowing 165ft. cube to the standard	0	1	9
Waste, 5 per cent.	0	0	1
Cartage, as before	0	0	3
Sawing	0	0	2½
Labour, including nailing to plates	0	0	3

0 2 6½

162ft. cube. Fir framed in floors,

These can also be cut from deals or planks, say 2s. 8d. per foot. If the scantling is 9in. by 3in., the price per foot run at £9 per standard in docks, allowing £1 2s. 6d. for cartage, &c., is 2½d. At this scantling, a Petersburg standard contains 74 pieces 12ft. long.

## PORTLAND CEMENT AND ITS MANUFACTURE.\*

PROBABLY few materials have exercised a larger share in the development of building and engineering construction than Portland cement. Its introduction marked an important crisis in our architecture when many buildings of importance, and whole streets, squares, and crescents were faced with it. The manufacture, testing, and use of Portland cement have enlisted the study and experimental researches of some of our greatest engineers and manufacturers. The material was patented by J. Aspdin, a Leeds bricklayer, in 1824. It was employed in the construction of the Thames Tunnel by Sir I. K. Brunel soon afterwards, and the names of Smeaton, Sir C. W. Pasley, the late Mr. John Grant, of the Metropolitan Board of Works, the late Henry Faija, Henry Reid, and others have been associated with its manufacture and testing. Several works of a more or less exhaustive kind, and numerous textbooks and papers read at

\* Portland Cement: its Manufacture, Testing, and Use. By D. B. BUTLER, Assoc. Mem. Inst. C.E., &c. London: E. and F. N. Spon, Limited, 125, Strand.

societies' meetings have appeared on the subject, but some of these are out of date. Mr. D. B. Butler, Assoc. Mem. Inst. C.E., Fellow of the Chemical Society, &c., and successor to the late Henry Faija, M.I.C.E., has brought out a new treatise on the manufacture, testing, and use of Portland cement, which is certainly one of the most complete and practical treatises that have been published. The author's practical experience of the subject, gained from a long acquaintance with the manufacture and testing of Portland cement, enables him to speak authoritatively. Considerable progress has been made in the manufacture of this valuable material; at first confined to England, cement manufacture is now extended to the Continent. Calcination of the raw materials is now carried on to incipient vitrification, which the early experimenter seemed to avoid; the crushing is now done mechanically, and the clinker raised and fed into grinding machinery, instead of being broken by hammer for the millstones; and the "wet process" or "Goreham process" has come into use. In each case there has been considerable saving of labour. Scientific methods of testing and apparatus have entirely superseded the primitive method of joining bricks together and then gripping them by claws with weight attached; more scientific tests being now in use. A good general definition of Portland cement is given by Mr. Butler: "Portland cement may be defined as a compound consisting chiefly of silicates and aluminates of lime, produced by the calcination to incipient vitrification of a mechanical mixture of chalk and clay, or similar materials containing the requisite chemical constituents, the clinker thus produced being subsequently ground to a more or less impalpable powder." Its principal constituents are: lime 60 to 64 per cent., silica 20 to 24 per cent., alumina 6 to 10, iron oxide 3 to 5 per cent. Three distinct operations are necessary to produce good cement. (1) The intimate blending or mixing of the raw materials. (2) The conversion of the mechanically-mixed raw materials into the requisite chemical compounds by calcination. (3) The pulverisation of the calcined product to enable it to combine with the water, and thereby set and harden. These several processes are described by the author in detail. The raw material—the chalk for instance—must be easily reduced and mixed; hard chalk will cost more to reduce and mechanically mix than a soft chalk. Chalks and estuary muds, such as those found in the lower reaches of the Thames and Medway, are the materials chiefly used, and they are easily mixed, the chalk forming about 2 to 1 of the mixture. Several analyses are given of the raw materials used on the Essex shore of the Thames, and of the cement, also samples from the Kent shore. In both cases the cement analyses show about the same percentage of lime (60·90) and silica. Other clays and chalks and resulting cements are analysed, including the stones and shales of Warwickshire, which are less easily reducible, and have to be treated by the "dry" process. This chapter of the book concerns the manufacturer more than is generally supposed, and is worth attentive perusal.

The "wet process" and "semi-wet" process are fully described with the aid of plans and elevations of wash-mills and illustrations of the machinery and pumps. In the wet process, as our readers know, the chalk and clay are mixed in a wash-mill with a large excess of water, the materials being reduced to a fineness sufficient to rise and overflow the outer edge of mill. The thin "slip," as the liquid is called, is then raised by elevators, and is run by gravitation to a series of settling reservoirs 4ft. to 6ft. deep, when the slurry settles, and the supernatant water is drawn off. The solid deposit is conveyed to the drying floors and kilns for



calcination. The details of the wash-mills or annular pit round which a series of harrows or knives suspended by chains from horizontal arms revolve and break up the chalk are shown by plans and sections. The harrows are triangular in plan. In the "dry process" the materials are ground in a dry state between millstones. Many practical hints are given as to the feeding of the raw material, drawing off the supernatant water from the "backs," separation of sand from the "slurry," and its uniform settlement in the backs, &c. In this process the work is done by the wash-mill with the aid of water, and if done properly the material ought to be in a perfect state of amalgamation. In the "semi-dry" process less water is used, and the wash-mill only partially does the work, millstone and other grinding machinery being used. The author prefers the older or "back" system. Full-size photos. are given of samples of "slurry," showing badly-washed and well-washed mixtures. In both processes the materials should be accurately mixed in their right proportions, and the author illustrates the apparatus used for discovering the percentage of carbonate of lime, including Dr. Scheibler's, Dietrich's, and the late Henry Faija's—the latter a very perfect instrument.

The chapter on "Drying-Floors and Kilns" is illustrated by some of the chief types of combined kilns and floors, as that of the patent of I. C. Johnson, of Greenhithe, which utilise the waste heat from the calcination of clinker. The chamber is long and semicircular in section, with a flue and chimney shaft at end, the slurry being dried by the waste heat of the kiln passing over it. The Batchelor patent kiln, with two tiers of drying-floors with flues under the lower floor, the heat drying the slurry both at the top and bottom, and the Hoffmann or ring-kiln are also described. Dry mills and warehouses form another chapter. It is a most important part of the manufacture to reduce the calcined mass to a fine powder, so as to easily combine with water, as the cementitious value of every particle is in direct proportion to the smallness of its diameter. Several edge-runner or roller mills are explained and illustrated. The "dry process" is next described. The testing of Portland forms a most valuable part of Mr. Butler's treatise, into which we cannot fully enter here. Several separate tests are made—viz., 1, for soundness—i.e. freedom from destructive agencies within itself, or "blowing"; 2, fineness of grinding; 3, strength, cohesive and adhesive; 4, setting qualities; 5, weight or specific gravity; 6, chemical composition. The author justly, however, remarks that any one test by itself, such as tensile strength at seven days only, without examining the other qualities of the sample, is fallacious. Specifications often show egregious mistakes on this point. They insist that the sample, when gauged neat, shall develop a certain tensile strain at seven days, and, if it does, there is nothing more to be desired, whereas a sample so selected may show signs of disintegration at the end of a month, and be worthless. On this point the remarks made are very important, and we may in this connection refer to the chapter on "Specifications," in which the author exposes many errors made by writers of specifications who are inclined to appropriate a variety of clauses that are inconsistent with each other. Thus fine grinding and a heavy weight per bushel are demanded in the same specification, the writer being quite oblivious of the fact "that a finely-ground cement is of necessity a light-weighting one, the weight decreasing in direct ratio to the fineness." Again, why should it be required that it shall be pure Portland manufactured on the Thames or Medway? Other parts of England manufacture equally good cement. The author refers to another instance where a specifica-

tion allowed a residue of  $6\frac{1}{2}$  per cent. on a 50 by 50 mesh sieve, but there was to be no residue on a 40 by 40. "The writer did not realise the fact that with a residue of  $6\frac{1}{2}$  per cent. on a 50 sieve the residue on a 40 would certainly be as much as 5 per cent., and therefore, in order to get the sample to pass a 40 sieve, it had to be ground to leave less than 1 per cent. on a 50." In fact, two cements may leave the same residue on a 50 sieve, and yet one only may have the proper proportion of impalpable powder.

A form of specification is given which, it is claimed, is simple, and would insure the delivery of a good sound cement suitable for almost any purpose. The following is the clause relating to fineness of grinding:—

"The whole of the cement shall be pure Portland cement, and shall conform to the following tests:—

"*Fineness of Grinding.*—To be such that when sifted through a standard sieve having 50 holes per lineal inch, there shall not be more than 2 per cent. by weight of residue; when sifted through a sieve having 76 holes per lineal inch, there shall not be more than 7 per cent. of residue; and when sifted through a sieve having 100 holes per inch, there shall not be more than 15 per cent. of residue."

As to Time of Set, it is provided that a pat of neat cement gauged with a minimum of water at 60° F., and placed on a glass slab, shall not commence to set in less than eight minutes, or take longer than five hours to set hard. The initial set of cement is of great value, yet is often not specified. As to soundness or freedom from expansion and contraction, a pat submitted to moist heat and warm water in the Faija apparatus shall show no cracks or signs of expansion after 24 hours; and as to tensile strength, briquettes of neat cement gauged with the minimum of water, and placed in water 24 hours after gauging, shall carry an average tensile strain of not less than 320lb. per square inch after three days, 400lb. after seven days, and 500lb. after 28 days; and briquettes of three parts of standard sand to one of cement, by weight, treated as shown, shall carry an average tensile strain of 120lb. per square inch at seven days, 200lb. at 28 days from time of gauging. The chapters on testing, adulteration, and the use of Portland cement contain much valuable information.

Mr. Butler's treatise is an authority on the subject, and as a practical handbook we cordially recommend it to all manufacturers and the profession generally. The series of photo-micrographs showing the difference between pure and mixed cements is of interest. The appendices contain data on raw materials, the German standard rules, and the French Government specification.

#### THE LATER RENAISSANCE IN ENGLAND.

[WITH ILLUSTRATION.]

THE change in taste (or, rather, shall it be said in fashion?) which now in a way prevails in architectural design, marks the close of the century with a recurrence towards the declining period of the English Renaissance. Messrs. Belcher and Macartney, by their big folio-work at the present time in progress of publication by Mr. B. T. Batsford, to some extent anticipated the movement, while Mr. Belcher has by his own example endeavoured to stimulate the movement. The style, whatever its failings, certainly lends itself naturally more completely to contemporary ideas than any phase of Gothic work possibly could do, and if treated monumentally with ample masonry and good brick, the Later Renaissance in skilful hands may be rendered picturesque enough, and dignified, too, for the matter of that. The spirit of the Gothic revival may, to some extent, impart its freedom of design and honest use of materials even into Georgian types of building. Mere revivals,

however, can only durate as such while some leading spirits starting the movement invest the mode with a successful mannerism of their own, but who, nevertheless, inspired by a restless desire for something different, directly imitators gather round these revivalists in the heyday of their opportunities and success, they hie away after other models, and so inaugurate a further change in the race for popularity. Experience has constituted this a truism, though, in the mean time, it must be admitted that uncommonly good work is done, notwithstanding no brand-new style is evolved and no absolute originality seems possible. Those only, however, who have but a superficial acquaintance with contemporary architectural design will question this, or declare that there is nothing new about modern architecture beyond the materials employed in its construction. Distinguished persons in the profession, it is true—and one Royal Academician in particular, by way of measuring his own immeasurable position—may have presumed upon the credulity of the hearers by exclaiming that there are no architects nowadays. Strange to relate, these same egotists in the profession, almost in the same breath, have been heard to assert with pride that none of their numerous pupils ever really do bad work. Such assurance is curious, of course, and is not coincident with facts. The onslaughts of outside critics, writing in re-echo of this R.A.'s boastful assumption above mentioned, as to there being no architects worthy of election at the Academy, declare that the work now done is but a dismal endeavour to copy examples of defunct architecture.

The question suggested, therefore, by the production of such volumes as those now being issued by Messrs. Belcher and Macartney becomes one of more than casual interest, embodying a doubt, as it does, concerning the real use which will be made of the illustrations thus brought together. Are they to be studied as representing the later developments of a national growth of Renaissance building, or will the photographs be treated as so many specimen sheets, like fashion plates, to crib from? It can scarcely be urged on their behalf that the buildings shown exemplify principles such as the advocates of the Gothic Revival were enabled to show when classifying and analysing Mediæval details and designs. "Design with beauty and build with truth," the well-worn motto of the Architectural Association, hardly accommodates itself to the altered circumstances thus brought about by this more recent change in so-called taste, and in order to cloak the Later Renaissance movement, if it may thus be dignified, much is made of the inadequate character of the dry bones of the Styles, their discrimination and classification. Of course, this is true to some extent, and it is a commonplace that even in a poor style a genius will master sterility and stamp his designs, no matter how meagre the style, with freshness and individuality. Of course he will, and that is where genius always will come in. Some of the examples selected by the collators of the Later Renaissance scarcely, however, accommodate themselves to adaptation, while for exact imitation they probably are not intended. At any rate, the illustrations place on record some of the old plain Classic-like houses of lesser importance which add so much interest and quaintness to the streets and byways of our historic towns, like those given in the present part from Stamford. It must not be supposed that the folio is only occupied with minor examples of the style. Every care appears to have been taken to insure a representative character to their illustrations. Melton Constable, Norfolk, and Belton House, Grantham, The Great House, Barford, and Croxteth Hall, near Liverpool, are among the historic mansions represented, and there are also some excellent details of interior work of the period from Houghton Hall, Norfolk, a very interesting house, Thorpe Hall, near Peterborough, The New River Company's Offices, E.C., and the organ-case from Pembroke College, Cambridge. The Radcliffe Observatory, Oxford, is a strange structure, not so well known as many, and the Orangery at Bowood, Wilts, with the formal gardens in front and the encircling stone-built terraces, makes an attractive picture, though architecturally the composition belongs to the same category as the last-named subject. The Town Hall at Abingdon has never before been better illustrated, and we are glad to possess so capital a view of so clever a building. Somerset House, Kensington Palace



entrance, and Boodle's Club, an ugly and not interesting front, also in St. James'-street, figure well in this part before us, and so does the Banqueting Hall, together with the Alcove in Kensington Gardens. The Moot House, Downton, near Salisbury, with its grey headers enlivening the brickwork, is a four-square, comfortable-looking house, having a central pediment over the porch; and some excellent measured drawings of two other good old houses are furnished from Blandford, in Dorsetshire, delineated by Mr. A. Needham Wilson. The Queen's House, Greenwich, is a more familiar subject; and more so still, of course, is the Horse Guards, Whitehall, one of the most pleasing public buildings in London. No work on the Later Renaissance would be complete without an illustration of Trinity College Library, Cambridge, and we congratulate the authors for including such charming specimens of Old London Doorways as those on Plate X. from Mark-lane and Grosvenor-road. We have chosen the Fountain Court, Hampton Court Palace, for illustration to-day. It is too well known to need any description; but we do not think so capital an illustration of it has been illustrated before. Geometrical drawings have appeared in our pages, but we do not recall a really good detailed view. We give it as a sample of the rest of the illustrations included in the volume under notice. Enough has been said to indicate the able way in which the authors are doing their work, and it is quite clear that no efforts are being spared to render the book a fitting companion to Messrs. Gutch and Talbot Brown's earlier publication. To be able to turn to so representative a series of examples of domestic buildings erected subsequently to the Elizabethan period is certainly a great advantage. We presume that the concluding part will be accompanied by descriptive letterpress, which, if concisely done, will materially add to the permanent value of the publication. What is more important still is the inclusion of plans of the buildings shown. So much necessarily depends upon the plans, and we hope they will be made as complete as possible.

#### THE RENEWAL OF RAILWAY BRIDGES.

IN the year 1885, after an accident that occurred to a bridge in the South of England, constructed with cast-iron girders, which suddenly and unexpectedly failed and allowed an engine to fall through into the road below, the Board of Trade called the attention of the various railway companies in the country to their bridges carrying railway lines, and requested the companies to consider the strength and efficiency of the same under the circumstances of increased weight, speed and number of trains, since many of these bridges were erected, perhaps in the very early days of railway enterprise. During the last few years quiet, but rapid, progress has been made by the companies in the strengthening of their bridges, and in the substitution of wrought iron or steel girders for those of cast iron and of timber. Of course, the traffic department is to the user of the line of more importance than the engineering department, and the renewal or strengthening of nearly all these bridges has been hampered with the condition that the traffic must be not disturbed at all, or to such a small amount (say by special signalling arrangements) that no block to traffic shall take place. It is almost of equal importance that the traffic under the bridge, if the bridge is over an occupation or public road, shall not be disturbed. When it is over a stream or river, it is obvious that nothing can be done more than the driving of a few piles in the river bed, or the erection of trestles. In the case of a canal or navigable river, the railway company is unable to delay the traffic to any serious extent. Thus, when it is decided to strengthen or renew the superstructure of a bridge, the first consideration is how it is to be done with the least disturbance of the use of the bridge.

##### BRANCH LINE: TWO LINES OF RAILS.

Taking the case of a small bridge on one of the branch lines of the railway, with up and down lines of rails, it may be found that the traffic will allow of single-line working, and temporary cross-over roads are put in on each side of the bridge, and with a pilotman, whose duty it is to accompany each engine over the bridge, and special signalling arrangements, the traffic is diverted to one road and one side of the bridge until the other side is renewed and the perma-

nent way replaced. From two to ten days is the greatest time that can be given for each side. The girderwork has to be fitted together and marked for erection in the yard in which it is built; all packings and bolts are put in their place, so that no hitch can take place during the erection on site. In most cases travelling cranes are used for the lifting of the girders on to their beds. These are of from five tons to fifteen tons capacity, and run upon the railway lines, and are moved by ordinary locomotive engines. Some of these travelling cranes are worked by steam, but most of them are the usual "break-down" cranes, worked by hand-power. The girders accompanied by the cranes are carried to the bridge on the line available for working, and as this operation must be done between trains, no time is to be lost. Probably the operation will be deferred to the Sunday, when the traffic is at its minimum amount.

##### MAIN LINES: TWO LINES OF RAILS.

In the case of an ordinary bridge, say, on one of the main lines of the railway, and carrying two lines of rails, up and down, nothing can be done that will disturb the traffic during the week-days. Sunday is the only day available, and then only between the ordinary trains. If each line can be blocked for one Sunday the erection is arranged to be done on one day for each line. Cross-over roads will have been laid down at each side of the bridge, and at midnight on the Saturday are brought into use for twenty-four hours, and the operations are arranged accordingly. A gang of men with Wells's lights at once set to work to remove and stack on the side of the line the rails, chairs, and sleepers; another set will be preparing or bringing to the site the bed-stones, bricks, and mortar necessary for the reception of the girders, whilst another set will be bringing up the girders. In four or five hours—say, at 5 a.m.—the permanent-way and ballast will be removed, and the stripping of the old structure been commenced. Generally there are holding-down bolts or tie-rods between the old girders to be removed whose existence had not before been known. These often occasion a considerable amount of trouble in cutting out. In the meanwhile, and between the trains that are timed to run on the one available line, the cranes will have come up to the bridge and lifted the old girders from the bridge on to empty trucks standing ready on the rails. Once the floor of the bridge is away and any tie-bolts removed, the lifting of the old girders on to the trucks is an operation that will take but a few minutes, and the "engineer's train" at once retires to a siding to clear the line. Two sets of masons and bricklayers now commence to prepare for the new girders, one set on each abutment, and will perform their part of the work in from three to five hours. By this time it is probably noon, and the men rest for meals. The bridge is now ready for the new girders, and the cranes, which in the goods-yard of the nearest station have been shunted to form a train with the new girders, now reappear. The lifting of the girders to their site will probably be done in a couple of hours, the fitting and bolting in two more hours, when the new floor is commenced to be laid. In the case of a timber floor the work is very simple, and consists of simply laying down the timbers; but over a public road or important occupation bridge, a water-tight floor is essential, and this cannot be provided where timber planks alone are used for the floor. If a plate-floor of iron or steel is adopted, the design must be such as will enable any riveting on site to be done well within the time allowed between the actual lifting of the main girders into position and the relaying of the permanent way of the line. Sometimes part of the riveting is left to be done during the week-days, but in this case such rivets must be in a position well clear of the rails, chairs, or sleepers, and the operation of riveting must be carefully watched to prevent accident and possible loss of life when trains pass over the bridge. If concrete is used, say, to provide a surface suitable to drain the water from the centre to each side of the bridge, quick-setting Portland cement is necessary, and once the concrete is fairly set, it must be covered with hot asphalt to provide a waterproof surface. It is doubtful whether it is good work to lay the asphalt so soon after the concrete is laid, and often a week is allowed for it to set before the asphalt is laid; but it is sometimes thought better to lay the asphalt at once and preserve the concrete from weather. Fre-

quently the time available is so short that the asphalt has to be immediately laid when the concrete is sufficiently set, and the ballast and sleepers of the permanent way have to be laid down before the asphalt is thoroughly cool. The best mineral asphalt should always be used, not pitch, and this in two or three layers; between each two layers a thickness of wire lattice or brattice cloth should be laid to provide the necessary tenacity and elasticity. Callender's or other bitumen sheeting is frequently used. The vibration in railway bridges is so great that unless the surface is very well sloped and the asphalt and concrete perfectly made, water will get through, and the state of things as regards drainage practically be worse than if a timber floor were adopted. Ironwork that is not accessible for painting, such as those parts imbedded or covered with concrete, will be accessible to water, and corrosion must inevitably ensue, all the more dangerous as it is hidden from sight. The construction of jack arches between the girders of bridge renewals or main lines of railways is practically out of the question, there not being time sufficient for their construction. Except in the case of short spans, or exceptionally stiff girders, they should never be used for railway underbridges, it being almost an impossibility to make the work watertight when the deflection of the girders is at all considerable. It will be seen how necessary it is to make the portion of the bridge carrying each line of rails independently of other lines, so that each line is on a separate set of girders of its own. This will enable each line of rails to be moved or renewed whilst the other lines are undisturbed. This arrangement will also enable each set of girders to deflect under their own travelling load, and avoid the twisting action found in the ordinary type of railway bridge where two lines of rails are carried by two outside and one inner or centre girder. In some cases an altogether different type of renewal is adopted. The old structure is lifted by hydraulic jacks to the height required, in order that cross girders may be placed underneath the old structure without lessening the headway of the road or canal underneath, even temporarily. These cross-girders are in their turn carried by "main" girders spanning from abutment to abutment and placed outside and independent of the old structure. What occurs is, that practically the new bridge is built outside and underneath, and completed before the old bridge is interfered with. Of course, in the cases of unlimited headway—which are found to be very rare—it is not necessary to lift the old structure before the new cross-girders can be placed in position. The objection to this arrangement is that in a normal case the rails over the bridge will have to be lifted something like 3ft; and as, under the regulations of the railways, the lifting can only be done a few inches at a time, this raising of the rails is by no means a small matter. When the new structure is finished, the old structure is simply lifted off and the rails lowered—again a few inches at a time—upon the new cross-girders, and the work of renewal is complete. By this mode of treatment the traffic and signalling arrangements are very little interfered with, the only serious delay being when the old girders are lifted away, and this need not occupy more than a few hours on some convenient Sunday. Of course, the rails for a considerable distance each side of the bridge are in charge of special gangs of men, who raise or lower the rails with their chairs and sleepers attached to suit the work that is being done upon the bridge, and as the gradients must be fairly easy, the raising and lowering affects several hundreds of feet of length of railway. It is generally found that the abutments are not long enough for the increased width of the bridge when the new outside girders are added, and it is usual for the two outside or "main" girders to be carried on vertical stanchions, one at each end, which may, or may not, be built into the brickwork or stonework.

##### ERECTION ON TRESTLES.

Several of the railway companies have adopted a system of renewal which, from an engineering point of view, is a greater operation than the simple renewal of piece by piece, but from a traffic point of view is perhaps more approved, and that is the removal of the old structure entirely and at once, and the placing in position of the new structure at once in one piece. Long trestles are erected in the same line as the abutments, and extending a sufficient distance on each



side of the bridge. The trestles on the one side of the bridge are built to receive the old structure, when it is rolled off the bridge in one piece, and on the other side of the bridge to receive the new structure, which is built on a platform supported by the trestles, complete, before it is moved. The trestles must be firmly constructed both to safely carry their respective loads, and to withstand the rolling over of the structure. A crane or some arrangements for raising from lorries, &c., the plates, bars, &c., required for building the new structure will have to be provided, and appliances for removing the old girders after the rolling over will be required on the set of trestles on the other side of the bridge. A floor is laid on the trestles for the new bridge, and the girders, after being fitted together in the contractor's yard and marked, are brought in plates and bars, and put together and riveted on the platform on the trestles. As much of the floor of the bridge as possible, including the concrete, asphalt, and ballast, if any, are laid on the new structure, which is then ready for the rolling over. The next operation is to prepare the old bridge for its removal. Sufficient room is left between the top of the trestles and the underside of the girders for a small trolley, which runs on rails spiked to the top member of the trestle. Each end of the main girder is raised a few inches by an hydraulic jack, and when fairly carried on the trolleys and the crabs with tackle for hauling over are arranged, the preparations are complete. The most convenient time is selected, the crabs and moving tackle are tried, and the men are told off to their posts—some to remove the permanent way, some to work the crabs, and others to see that the trolleys and rails are lubricated and the tackle in proper order. Immediately after the passing of the last train the keys are knocked out, the rails are lifted off, and the sleepers with the chairs attached are taken up, and as much of the ballast as necessary is removed. Two "crabs," each manned with four or six men, now commence to roll off the old bridge. Each trolley and bearing of the girders are carefully and specially watched, and unless there is some hitch the operation is performed in from ten to sixty minutes. Without any loss of time, the "crabs" that are to move the new bridge are manned, and the work of pulling on the new bridge is commenced. Greater care has to be taken now that the operation shall not injure the riveting or attachments, and probably the trolleys will not be used, small iron rollers on plates being found to be better. The operation of pulling the new bridge on will occupy more time than the preceding one of pulling off, perhaps one hour to three hours being thus taken. When in the correct position the ends of the girders are taken by hydraulic jacks, raised from the rollers and lowered on to their bearings, and the renewal is complete. The ends of the bridge over the abutments are now made good, say with brickwork, concrete, and asphalt, and the permanent way relaid. The old bridge, together with the trestles, can be taken to pieces and removed piecemeal during week-days.

#### STRENGTHENING EXISTING GIRDERS.

Existing girders may be strengthened by various means. In some cases cast-iron girders are strengthened by being cut. This is the case when a long cast-iron girder rests on a central pier or prop, and is, therefore, a continuous girder. Under certain conditions of loading, and especially if the top flange is small compared with the bottom flange, a tensional stress will occur in the top flange over the point of central support, and this may be the weakest part of the structure. In this case the girder is cut by means of holes drilled closely together through the girder over the point of support. In other cases girders are propped by columns, either in the centre of the span or, if the bridge be a large one with roadway and footpaths each side, perhaps two columns, one on the edge of each footpath, may be adopted. A row of piles driven in the bed of the stream may be used in river bridges, or a framing on screw piles may be used. Cylinders filled with brickwork or concrete may be sunk in long river spans, and a girder is put across between or upon the cylinders. Upon this the old girders are made to rest, and are wedged up to an extent to be very carefully calculated by the engineer of the railway. In some cases, where it is not expedient to insert piles, columns, cylinders, or piers in the centre of the span or opening, light wrought-iron or steel arch ribs may be thrown across between the

existing abutments, and the old girders wedged up from them. In some cases old girders, whether cast or wrought iron, are strengthened by having new girders placed underneath transversely to the old girders, carried by additional main girders placed outside the old structure parallel to the old girders, and resting on the old abutments. In some cases it is necessary to adopt stanchions or columns to carry the new girders, if the old abutment is not of sufficient length to receive them. In all these cases it is very necessary to insure that the strengthening is of advantage, that deflections before and after strengthening be carefully ascertained, and the old girders wedged up to the extent necessary to reduce the original deflection to an amount which is the result of a careful calculation. In some cases wrought-iron girders are strengthened by removing them from the bridge, which is supported in the mean time by temporary girders or trestles, and strengthening the wrought-iron girders by additional plates or bars. If the girders are too large to be thus moved from their place, they can have the additional plates or bars riveted to them whilst in position; but it must not be forgotten that if this is done whilst traffic is running over the bridge the additional plates will merely become extra dead load, unless trestles be placed under the girders to carry the moving load whilst the new portions are being riveted on. In this case, however, if the trestle is only placed under the girder to carry the moving load, the stress already produced by the dead load remains constant, and the new plates will take the moving load, along with the old plates, but no portion of the dead load. It is preferable, therefore, to remove the dead load or weight of the bridge itself as well as the load of the traffic, and to do this the girder must be wedged up from the top of the trestle, and a certain amount of the deflection from the dead load removed. To ascertain this is a simple proportion sum, based upon the deflection caused by the passing of known travelling loads, the deflection from dead load being calculated therefrom. If this is carefully done, the new plates that are added will carry their proper portion of the total load that comes upon the girder.

#### MATERIALS THAT ARE USED.

It may be taken for granted that the old form of cast-iron girder is doomed to extinction for bridges that carry railways. True, the Board of Trade do not object to the use of cast iron in the form of arched ribs, in which the whole of the metal is in compression; but as these are very unwieldy to handle, and not always reliable in casting, it is very unlikely that they will be much used in the future. Steel is now so very cheaply made and improved in strength and tenacity, and is distinctly the metal for bridge girders of the immediate future. It was used in the Forth Bridge and the large bridges of the Manchester Ship Canal works. Some metal that will not so readily oxidise is still awaiting discovery, or if it can be more cheaply obtained, perhaps nothing could be better than aluminium.

#### "BEAUTY'S AWAKENING."

THE masque presented by the members of the Art Workers' Guild at the Guildhall during the past week has certainly completely realised its authors' aim of "something good" in form and colour and fancy. The "plot"—if we may use the word, remembering, as the authors explain, that a masque is not a play—is a very simple one. The life of modern cities is satirised, and the means of regenerating it indicated by a significant adaptation of the old legend of the Sleeping Beauty. Beauty sleeps, under the spell of the witch Malebodea, with her train of Demons; round Beauty sleep the Seven Lamps of whom Ruskin wrote. At last, at the destined moment, and after dances of the Forest Leaves and a march past the famous cities of the world, Truehearte the destined knight approaches, and Beauty wakes. She wakes just in time to save London from the persecutions of the eight Demons, and the redeemed and regenerated Queen of cities takes her proper place in the procession round the hall, which closes the masque.

Those who saw the masque on Tuesday were disappointed by the omission of some of the most vigorous lines in the book, in which the Demons are denounced with an unctious which possibly it was thought would be thrown away on the people

of the City. The procession of famous cities is the great feature of the spectacle. Thebes, Athens, Rome, Byzantium, Florence, Venice, Nuremberg, Paris, and Oxford are each represented by a lady, supported by appropriate attendants; Athens by Pheidias, Paris by St. Louis, and Oxford by King Alfred and William of Wykeham, with suites of youths and maidens, soldiers and students. The successive scenes were introduced by a prolocutor (Mr. Selwyn Image), in the traditional garb of the poet, with a golden wreath. The literary authors of the different parts of the masque are Messrs. C. R. Ashbee, Walter Crane, Selwyn Image, C. Harrison Townsend, C. Whall, and H. Wilson; in the artistic designs most of these have taken a part, and they have been assisted by other well-known artists, such as Mr. Henry Holiday, Mr. W. R. Lethaby, Mr. Alexander Fisher, and Mr. Hope-Pinker.

The book of the play, which is a very beautiful one, is produced by Mr. Ashbee, and admirably illustrated by Mr. Wigram, who contributes an excellent drawing of Mr. Walter Crane as Albert Dürer, Mr. Joseph Pennell, Mr. Beresford Pite, Mr. H. Wilson, H. Stannus, Henry Holiday, and others. An *édition de luxe* is in preparation, limited to 250 copies at £3 3s., and 25 "special" copies at £5 5s., and which may be subscribed for by application to Mr. Masse, the secretary of the Art Workers' Guild, 37, Mount Park-crescent, Ealing.

#### NOTES FROM EDINBURGH.

THE state of business in the building trades for the past half-year shows undiminished volume and unintermitted progress, save in so far as the existence of a protracted joiners' and short plumbers' strike have interfered with it. The latter has been settled in favour of the workmen, who have thus obtained a halfpenny more per hour. The settlement of the other appears to be a very much more difficult matter to decide; the demand for an extra halfpenny per hour being considered, on both sides, of minor importance compared with coming to an agreement as to the conditions under which the work must be carried on. This strike has lasted three months, and doubtless occasioned much inconvenience to parties who had expected to have tenements finished for occupation at the term, as well as others. Still, the progress made with the larger undertakings appears to have been continuous and unaffected by the joiners' holiday. The southern portion of the Waverley Railway Station Hotel has now two floors completed above ground level, and the excavations or foundation work of the northern or Princes street portion has made good progress. The large block of buildings forming the ticket, refreshment rooms, and offices is all but completed in the mason-work—the glass of the roof over the platform is completed on the east side, and only a small portion of that of the west side remains to be done. The footway bridge on the east side is completed, all but the connections at either extremity; and the confusion of constant alterations in the platforms, &c., of former years has well nigh disappeared.

The reconstruction work of North Bridge-street has made great advances. On the west side especially, where the work of excavation was not so great, the tenement at corner of the High-street has both elevations all but completed, and as a sample of the whole gives promise of a stately and picturesque addition to the street architecture, not unpleasantly in contrast with old Scotch building of the High-street, and without tiresome repetition of common and outworn Classical details. The style is Renaissance, without florid decorative detail. The most characteristic feature appears to be a recess, carried through two floors on each side of a central projection. These recesses have deep splayed sides, with moulded arches, on moulded impost, and in these an oriel window for the lower floor has been erected with good proportions, and which does not, as many of these do, give an impression of an unnecessary feature crushed into a too narrow space. Another characteristic is the projection of the attic, or fourth floor, on a series of deep, many-castelled corbels. The whole is carried out in a cream-coloured fine freestone. The work of reconstruction on the Market-street frontage is built up to the first floor. On the west side there has been little done but excavation and making the concrete foundations of party-walls. Preparation is made, however, for demolishing the south part of the old street. This work has been delayed by



the Bank of Scotland contesting the right to close up public access to the space which for two hundred years has been known as Milnes-court, and which, under the reconstruction, is greatly reduced.

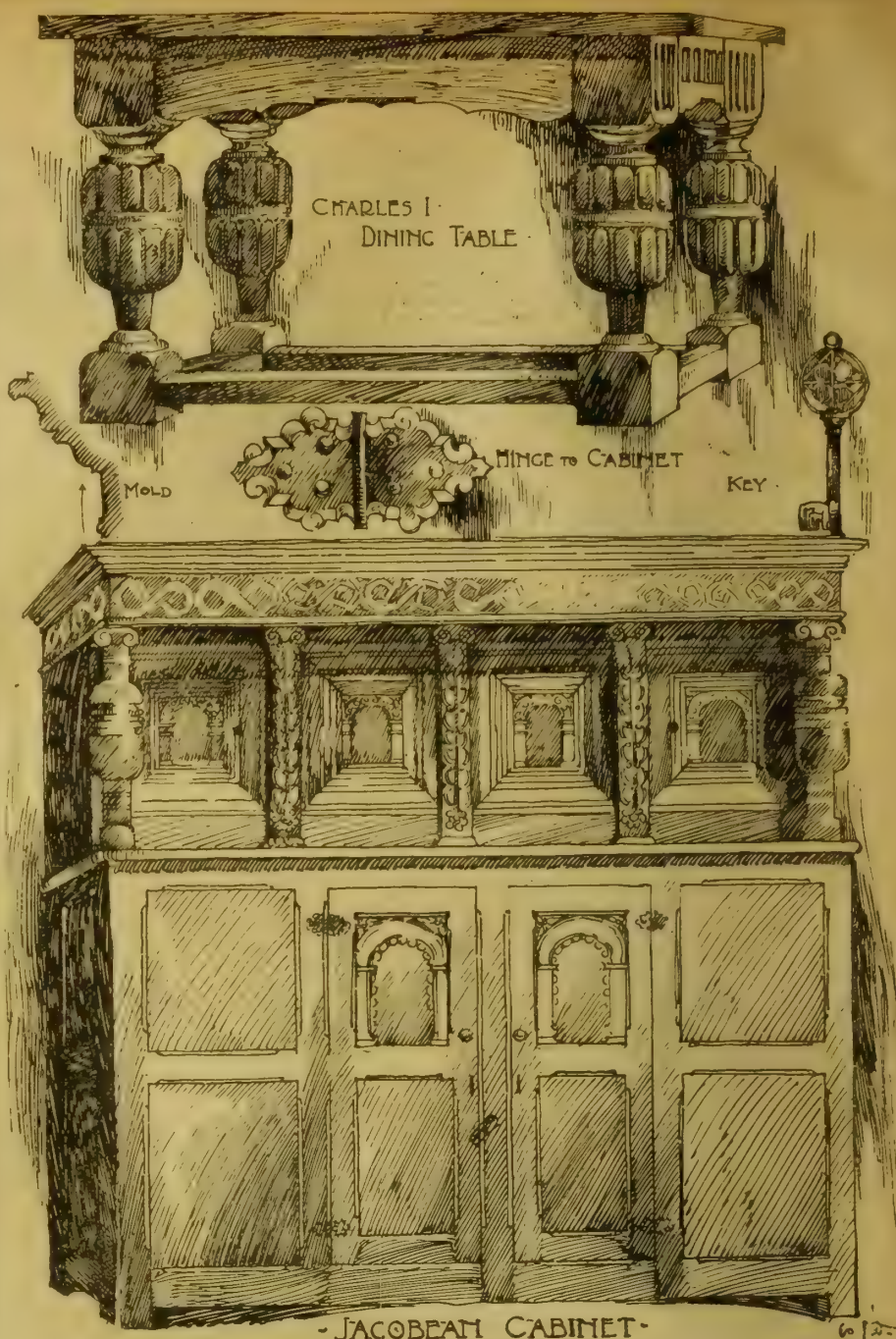
Another large addition to the public edifices which mark the course of reconstruction in a better style, is the block of building erecting at the corners of Hill-street. South Bridge-street, though fairly wide, is very commonplace in its style, and is indebted entirely to the reconstruction of its shops for ornamental details. It terminates well with Chambers-street and the University with its dome. The Royal College of Surgeons, with its pure Classic style front, is the only building of any interest in the thoroughfare continued south, as Nicolson-street. But this great artery of traffic southwards, which has always been the principal access to the city from the south, and which is built mostly with substantial, but far from ornamental, rubble-work, is not likely to remain so. The building now completed in elevation at Hill-street is in five floors, with wide-arched windows on the ground floor, and nicely-moulded lintelled windows on the two above; whilst the fourth has massive columnar decorative arcading, and a massive cornice with attic dormers to the roof. The corner is treated as an octagon, with entrance-door to the back, with pediment on richly-carved trusses.

Another large addition completed in its masonry is the new wing of the Royal Infirmary. Neither in its style, which is Non-descript Classic and Elizabethan, nor its material, which is red freestone, is it in harmony with the old work in Scotch Baronial.

The important alterations making in St. Andrew-square and the north-east portion of George-street, adjoining the square, are completed in their masonry, and the sculptors are busy with the elaborate frieze which decorates the Standard Insurance Co.'s portion. This comprises the well-known Classical garland of fruit and flowers, upheld by groups of youthful figures. The pediment over the central projecting part of the design is rather steep and heavy-looking, and has nothing to relieve the great expanse of ashlar surface. The old office had a good design representing the parable of the Ten Virgins. The Royal Insurance Building, which forms the western end of this ornamental part of George-street, has a very extensive frontage to St. Andrew's Church. In the grouping and variety of its windows, in all the moulded stringcourses and cornice, and especially in the elegant design, which has provided for the inevitable chimney flues of the gable, this façade will take its place as one of the most ornamental in the city. The front, which, unfortunately, is very narrow, appears, on a general view, as a very suitable termination to the buildings which adjoin it, and in this view it is all that could be desired, with a lofty gable, with graceful figure of one or other of the cardinal virtues as a finial, and two supporters of proportionable size at the foot. An oriel of slight projection is provided on the upper floors, and the ground floor elevation is decorated with monolithic pillar and pilasters of dark grey granites. In all their buildings the floors are fire-proof, constructed with concrete and hollow fire-clay tubes.

The Nelson Branch Free Library in Hamilton-place, near Stockbridge, is also nearly completed in the mason-work. It occupies a sharp angular site, terminating at the angle with what will be an octagonal tenement. It is in one story, with two gables to the street, connected with a parapet which is carried round. The gables have markedly emphasised corbel step skewes, and the windows, which are lofty and mullioned, are very nicely moulded. The building forms an elegant companion to the fine Gothic edifice of the district board school, one of the early examples built after the passing of the Education Acts, from designs by Dr. Anderson.

Two interesting buildings, being villas built at the west end of Brentfield Links many years ago, with pronounced Gothic detail, to show what could be done in that style in the way of Domestic Architecture, are to make way for a lofty tenement, continuing the south side of the street, which has taken the place of the Viewforth suburban villas of early date. Access to the suburbs is now so easy that first-class houses, in the form of detached villas, are in demand, and apparently more so than those constructed in the style of streets. No additions, at least, are being made where sites for such buildings are to be had, as along the Queensferry-road, which is within easy walking distance of the city proper.



The House of Lords has now given its *quietus* to the controversy concerning the site of the Usher Hall, so that, if it is ever built, it may be in the centre of Athol-crescent. The selection of this site has been made in defiance of the principle laid down at first by the council, and in virtue of which the Castle-terrace site was abandoned, though every way better and more central. It was manifest, however, that no site that could be selected would be unobjectionable, on the ground of destroying valuable property, except that suggested and approved by Mr. Waterhouse—the west corner of the Meadows. As it is, with the heavy burden of expense to be met in purchase of valuable property, Mr. Usher's gift is rather more of a white elephant than could be wished, if a hall merely for musical encouragement and entertainment and occasional larger meetings of a public character is to cost £100,000, and its site another £60,000. Most people think that such a hall, site and all, should not cost the city more than £100,000, which is more than enough to spend on a building of that description. School and city rates, even under members pledged to economy, have been rising by large instalments.

A permanent chancel is about to be added to the new church at Shaldon, South Devon, from plans by Mr. E. Sedding, of Plymouth.

#### FURNITURE FROM THE DUDLEY HARDY SALE.

THE pieces of furniture given this week come from the much-talked-of collection of that well-known poster-artist and connoisseur, Mr. Dudley Hardy, and were recently disposed of by Messrs. E. Newton and Co., of Chancery-lane. The Table depicted is of massive dark oak and of Charles I. period. It has heavily carved legs, with square blocks as bases, firmly held by stretchers. The 6ft. Jacobean Cabinet is also of oak. The upper portion sets back and contains two cupboards, the doors of which are heavily moulded, the inner panel having small pilasters with circular heads. The bottom portion also has two large cupboards, the upper panels having similar pilasters with carved spandrels. The key and hinge are quaint; both the Table and Cabinet are typical specimens of Old English furniture. They were sold for £11 and £32 respectively.

On Saturday Colonel W. R. Slacke, R.E., held an inquiry at Bangor, touching an application made by the town council to the Local Government Board for power to borrow £4,500 for the erection of a refuse destructor in connection with the electric light station, from plans by Mr. F. H. Medhurst, B.Sc., and £143 for providing additional public baths at Siliwen. There was no opposition to either proposal.



## PRESENTATION OF THE ROYAL GOLD MEDAL TO MR. BODLEY.

THERE was a large attendance of members and visitors, including many ladies, at the closing meeting for the present session of the Royal Institute of British Architects, held on Monday evening at 9, Conduit-street, W., to witness the presentation of the Royal Gold Medal for 1899 to Mr. George Frederick Bodley, A.R.A., the latest accession to the rank of Fellow in the Institute. On a screen were displayed a series of about a score large-scale photographs of the principal works executed by Mr. Bodley, independently of Mr. Thomas Garner. These included Queens' College Chapel, and additions to King's College, Cambridge; the churches of St. Saviour, Cardiff; St. Mary, Clumber; Hickleton; St. John the Divine, Kennington; St. Matthew, Westminster; St. Paul, Knightsbridge; Holy Innocents, South Norwood; St. Mary, Primrose-hill; St. Barnabas, Pimlico; Cowley (Mission); and the Eton Mission Hall, Hackney Wick. Four past Royal Gold Medallists were among those present, Sir Arthur W. Blomfield, A.R.A. (1891), Messrs. James Brooks (1895), Ernest George (1896), and Alfred Waterhouse, R.A. (1878). Unfortunately, the occasion was deprived of much of its usual interest by the absence of the President, Mr. George Aitchison, R.A., who was suffering from an attack of gout. In his stead, Mr. W. MILNER FAWCETT, M.A., F.S.A., of Cambridge, took the chair, and in making

## THE PRESENTATION.

expressed regret at the cause which had led to the pleasant duty being intrusted at short notice to a country cousin, adding: There is one reason beyond that of being your senior vice-president which makes me not entirely out of place. I have known Mr. Bodley far longer than I have known anyone in this room. It was, I think, in 1852, when I was little more than a boy, that he came to Leeds to help a friend of his long since passed away. I well remember how he graphically described the delivering up of the drawings in some verses, which I fear are now absolutely lost to posterity. If long acquaintance, and I hope I may say friendship, is any title to the honour I feel in presenting this medal, I think I have perhaps shown that I possess it. I have also the further title in that I have always been a great admirer of his work, feeling that he is indeed a true artist whose designs and conceptions will receive the approval and admiration of generations yet to come. We have the further pleasure of welcoming Mr. Bodley among us as a Fellow. We all know the broad view taken by this Institute with regard to the profession—that there has never been any wish to coerce architects to join us, although we believe that the action of the Institute has been of great value not only to the architectural profession, but to architecture as an art. Feeling this, we cannot but rejoice in numbering Mr. Bodley in our ranks. Mr. Bodley's work is so well known to you all that it hardly needs comment from me. Soon after leaving Sir Gilbert Scott's office he commenced practice on his own account, and St. Michael's Church, Brighton, was one of his early works. At this time he was feeling the monotony of the work done—he must have felt it as what I have heard described as Gothic “revived but not revived”—and, after some travel abroad, he evidently felt relief in the change to French work, and hoped to get *life* by working freely with it. This phase did not last long. He soon felt that mere variety was not life. He was a young man striving for the light, but he was also a strong man, and, like a great ship which requires the buffeting of a voyage to let it settle down in its true lines, it was necessary for him to pass through a struggle of this kind before he could grasp his work and give life to our own English Gothic. How far he is personally sensible of this I can hardly say; I am speaking as to how it appears to a brother architect. St. Martin's, Scarborough, was another of his early works where the French idea is less pronounced, and where we can feel the influence of the Priory of Kirkham not far off. All Saints Church, Cambridge, which was built in the early sixties, has no trace of this French fever, which by this time has passed quite away. It is impossible here to enumerate and describe all the buildings he has carried out, but I may mention the church at Clumber for the Duke of Newcastle as a particularly fine work.

The church at Eccleston for the Duke of Westminster is, if possible, more successful. It is hardly finished, as the screens and reredos are not yet fixed; but it has been an opportunity for carrying out a complete work with all its accessories, and the unstinted and munificent wealth of the donor has probably not made the successful result less difficult. In quite a different style is the church for the Cowley Fathers at Oxford. There the work is remarkable for its quietness and simplicity; but what a grand simplicity it is! It is not in church work alone that Mr. Bodley has won his laurels. The Eton Mission Hall at Hackney Wick, the addition to King's College, Cambridge, and the restoration of the library at Christ's College, and many other buildings, show the same delicate care, the same longing for simplicity, truth, and repose. The Deans and Chapters of York and Peterborough may be congratulated on having called in Mr. Bodley to take charge of the repairs in their cathedrals—repairs under which such delicate questions arise between the antiquary, the pure artist, and the practical architect. Mr. Bodley has also shown great power in carrying out decorative work, both in colour and in that of a monumental kind. Of the latter I need only mention the tomb of Archbishop Thomson at York, showing great power of design and wonderful care, even to the most minute detail. He has shown also in colour the intense knowledge he has of its value when properly applied, and he has also shown how to handle it. I should be inclined to place this knowledge and management of colour as perhaps the highest of his artistic faculties. It is, therefore, with feelings of great pleasure that I have the honour of presenting the Royal Gold Medal to Mr. Bodley, and I am sure that all our members feel also the honour of having such a distinguished artist among us. The Chairman then, amid hearty and prolonged cheering, invested Mr. Bodley with the blue ribbon and medal.

Mr. BODLEY, who was most cordially received, observed that, for more reasons than one, he felt utterly unprepared to express his thanks that night. Not being familiar with their routine, he had been labouring under the mistake that he was to attend an annual club dinner that night, and that he should there derive inspiration to acknowledge the presentation, which would, he thought, take place the following evening. The honour they had just conferred on him was absolutely unexpected. He was afraid he had not in the past been quite respectful towards the Institute, for it was not many years ago since he took part with his friend Mr. Thomas Jackson and others in writing papers in which they argued against examinations being regarded as a test for forming architects. He still felt that the examination principle had one failing, and that was that it was only too likely to make an architect less of an artist, and to make his work less of an art and rather too much of a profession. He supposed he owed the honour just conferred upon him perhaps more especially to his love for what he held to be the most beautiful of all styles—English Gothic (Applause), and he did not think that the great value of the simplicity and refinement characteristic of our English Gothic architecture was fully realised. He for one believed that even in these days the more they were able to hark back to one style the better it would be for our national art. Style in architecture was, after all, only the language in which they strove to express to the world their ideas. Of late years our buildings had grown higher and higher, but had they grown correspondingly in refinement and nicety?—for these were the qualities that constituted art. He could only say he was very much obliged to the Council of the Institute for their award, and would thank the members for their hearty reception that evening. (Loud cheers.)

## THE KING IS DEAD: LONG LIVE THE KING!

Mr. ASTON WEBB, A.R.A., proposed a cordial vote of thanks to Professor Aitchison for his conduct in the chair during the past three years, referring, in well-chosen terms, to the good temper and good nature with which he had presided over the meetings, and said that his presidential addresses and those to the students showed much thought, great research, and wide archaeological learning, and withal a readiness to welcome the newest building materials and methods. The past three years of the Institute had been none the worse for being uneventful, for they did not always want to be reformed. The Institute had

been consulted by the Government as to their new offices, and during the President's term a new schedule of charges had been promulgated, but with, alas! no increase in the scale of charges.

Mr. H. H. STATHAM, in seconding the motion, referred to the addresses given to the Academy students by Professor Aitchison, and expressed a wish that they might be published in a separate volume.

The vote of thanks was passed by acclamation, and the chairman then introduced to the meeting the President-elect, Mr. William Emerson, who was received with cheers.

Mr. EMERSON said he was glad to find that he had filled the post of honorary secretary for a good many years, evidently to the satisfaction of members, otherwise they would not have elected him to the chair. When he thought of all the eminent and scholarly men who had occupied the post he was invited to hold, he was impressed with the difficulty of keeping up the standard; but he trusted with their kind consideration of all his actions to be able to discharge his duties honourably.

## THE INSTITUTE DINNER.

THE annual dinner of the Royal Institute of British Architects was held on Tuesday night at the Hôtel Métropole. Mr. W. EMERSON, the newly-elected President, occupied the chair, and among those present were the Bishop of Ely, Sir R. Temple, Sir W. B. Richmond, R.A., Mr. F. C. Penrose, Mr. C. Barry, Dr. Church (President of the Royal College of Physicians), the Dean of St. Paul's, Sir John Taylor, Mr. E. A. Waterlow, A.R.A., Mr. B. Margetts, Mr. Alderman Hind (Master of the Plumbers' Company), Mr. T. M. Rickman (President of the Surveyors' Institution), Mr. T. W. Russell, M.P., Mr. R. Strong (Vice-Chairman of the London County Council), Sir A. R. Binnie, Mr. W. M. Fawcett, the Dean of Westminster, Mr. G. F. Bodley, A.R.A., Sir H. Truman Wood, Archdeacon Sinclair, Mr. T. Drew (President of the Royal Institute of Architects of Ireland), Mr. Ernest George, Mr. J. M. Brydon (Vice-President), and Mr. A. Graham (honorary secretary). Mr. ASTON WEBB, A.R.A., proposed “The Houses of Parliament,” and acknowledged the courtesy of the Government in consulting the Institute in respect to the new Government buildings at Westminster. The BISHOP OF ELY acknowledged the toast on behalf of the House of Lords. Mr. T. W. RUSSELL, responding for the House of Commons, said there were two questions—and neither of them Party questions—in which that Institute was interested, and which he hoped would be settled before this Parliament came to an end. The first was that of the housing of the working classes. No patriotic man could look with complacency upon things as they were at present, when masses of people in many places were living in a way that no gentleman would like his horses or his dogs to live. It was the duty of Parliament to face an issue like this, and face it promptly. The next question was equally a non-Party question; he referred to the amendment of the Public Health Acts. Much was being done under the Acts as they stood now; but as the years had gone by the defects in these Acts had been proved, and it was high time Parliament again faced the question of public health, and placed facilities in the hands of public bodies in this country for doing all they could to insure the health of the people. “Art and Science,” submitted by Mr. W. M. FAWCETT, was replied to by Mr. E. A. WATERLOW (President of the Royal Society of Painters in Water-Colours) and Sir A. R. BINNIE. Sir RICHARD TEMPLE proposed “The Royal Institute of British Architects and the Allied Societies.” The PRESIDENT, in replying, said they now had a compulsory examination for Associates of their Institute, and very severe tests were imposed upon young men before they could be elected to that position. With regard to the growing influences of their Institute, the Government had during late years consulted them on a number of important points, and the objects of the founders were gradually being carried out. When the Institute was founded there were 170 to 180 architects in London. At the present moment there were over 1,400. There were in the year the Charter was granted to the Institute 81 Fellows in the Institute and 20 honorary members; there were now 1,616 members and 125 honorary members. Mr. T. DREW also responded. Mr.



J. MACVICAR ANDERSON, past president, gave "The Guests," and the DEAN OF ST. PAUL'S replied.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

AT a general meeting on Tuesday last, an election of a pensioner took place, the president, Mr. Alfred F. Randall, in the chair. The candidates were Mrs. Amy Hankins and Mrs. Fanny Hicks. After the close of the pole, the chairman declared Mrs. Hankins elected by a majority of 252 votes.

#### BOOKS RECEIVED.

*Inwood's Tables of Interest for the Purchasing of Estates, &c.*, by WILLIAM SCHOOLING, F.R.A.S. (London: Crosby, Lockwood, and Son).—This well-known and authoritative work by Inwood has been remodelled and extended by Mr. William Schooling, and to it are added logarithms of natural numbers and various tables. These tables are collected and arranged in logical order, and so placed that they can be seen at one opening. Six other rates have been added to the rates of interest previously given. To all architects, surveyors, and valuers of property, and to many others, the work will be found of great value, and Mr. Schooling's revisions and additions to the work make it as perfect as a work of this character can possibly be. There is an admirable and clearly printed table of contents, and the introduction on the use of decimals, interest tables, present value of a perpetuity, renewal of leases, value of annuities, &c., is concise and useful. The tables are very clear, and are good, excellent specimens of typography.—*Greenwood's Timber and Stone Calculator* (Manchester: Baxendale and Co.) is invaluable to all architects, surveyors, valuers, contractors, timber and stone merchants, and will save many a long, tedious calculation. For building estimators and quantity surveyors the "Calculator" will be a priceless boon. The author shows, amongst other things, how to check a timber merchant's invoice. The "inch by inch" method of measuring timber is useful. These rules are illustrated by examples. For determining the price of small-size timber, Mr. Greenwood's "Calculator" is of much value. The price of the book is only 1s. 6d., post free, and it is well worth its weight in gold.—*Haddon Hall* (Bakewell: C. C. Wardley).—Mr. F. H. CHEETHAM has published in a shilling handbook some notes on the architecture and history of the historic home of the Peverels, Avenals, Vernons, and Mannors, in which he endeavours to render intelligent to the ordinary tourist the significance of the mansion as an architectural work. He admits that it is not possible to speak with any certainty about Haddon Hall much before the 16th century, and, of course, declines to accept the story of the romantic wooing and flight of Dorothy Vernon. He quotes from Morrison Marnock's article on the woodwork of the hall, published in the *Building News* in 1875. The book is illustrated by a block and detailed plan, both by the writer, and also by many sketches, some by Mr. Cheetham and others by Miss Josephine Harris.—*Modern Drainage Inspection*, by GERARD J. G. JENSEN, C.E. (London: Sanitary Publishing Co., 5, Fetter-lane), is a report of a series of articles from the *Sanitary Record*, revised and rewritten, intended for the use of sanitary inspectors and householders. Over a hundred woodcuts are given as illustration of various points.—*The Essex Review* (Chelmsford: E. Durrant and Co.).—The new quarterly part of this excellently written and readable county magazine contains a full-page view and wood-blocks and description of Blackmore Church, by Fred Chancellor, J.P., F.R.I.B.A.; "The River Roding: its Glory and its Abasement," by W. W. Glenn, J.P., illustrated by numerous reproductions of photographs; and an account of "The Furley Family," by Dr. Gibbins.—*Meisterwerke der Baukunst und des Kunstgewerbes*, by HUBERT GÖLEY (Leipzig), Part I., deals with Italian buildings and sculpture.—*Applied Geology*, by J. V. ELSDEN, B.Sc., Lond., F.G.S. Part II., with illustrations. (London: "The Quarry" Publishing Co., Ltd., Arundel-street, W.C.) This little book is written for both geologists and practical men. Mr. Elsdon endeavours to point out the connection between geological theory and its application to industrial

pursuits or economic geology. A general glance through the chapters of this book shows that the author has been successful in combining the two aspects. The previous volume we noticed. This one commences with Chapter VI., on Unstratified Ore Deposits, and gives sections to show mineral veins in these deposits, fissures, lodes, the varying widths of a lode traversing beds of unequal hardness. The illustrative sections are well drawn, and explain every variety of veins. Non-metalliferous minerals are next described. The most interesting chapters are those on "Building and Ornamental Stones." The author describes the principles of rock weathering, the agencies of weather and frost. The conditions which affect durability are next treated; and the chapters dealing with granites, porphyries, syenites, those of sedimentary origin like sandstones, calcareous stones like limestones and marbles, are of much value to the architectural student. The remarks on bedding and dressing stones, tests, &c., are worth reading. The series of sections of rocks, and of each stone, are very complete.—*The Cathedral Church of Durham*, by J. E. BYGATE, A.R.C.A. (London: George Bell and Sons), is another little handbook of Bell's Cathedral Series, which we have noticed from time to time. The objects of the editors of the series have been kept in view in this volume on Durham. The writer has a personal knowledge of the edifice, and he has consulted Canon W. Greenwell's work. The author has also made drawings and measurements and given some careful sketches, while the photographic reproductions are, as usual, by the Photochrom Co., Ltd., and Messrs. S. B. Bolas. The chapters treat on the building of the church, and the description of the various features of exterior and interior. The position of Durham Cathedral is unique, built as it is on the summit of a wooded hill which rises from the River Wear. Excellent views are given of the exterior; one bay of nave measured and drawn by the author showing two Norman arches and triforia, &c., embraced under one exeatite bay of vaulting; also views of the choir, transepts, triforium of nave and choir, the famous chapel of the Nine Altars, with St. Cuthbert's tomb, and the Galilee or Lady-chapel. There are also numerous sketches of details by the author, and a reproduction of an oil-painting by him, showing a general view of cathedral over the tiled roofs of the city from the north, as seen through a veil of smoke and mist. A good plan is appended, which adds much to the value of the handbook as a guide to visitors.—*Spon's Architects' and Builders' Price Book*, by W. YOUNG, architect, twenty-sixth edition (London: E. and F. N. Spon, Strand).—This is a revised and enlarged edition of a well-known price-book. The matter arranged alphabetically gives this handbook of prices and memoranda an advantage over other books. The book is really half a textbook, comprising data and formula, and half a price-book. This edition includes a chapter on electricity, with specification and estimates for electric-light installations, also information on lightning conductors, electric bells, concrete, fireproof floors, &c. The Workmen's Compensation Act, 1897, is a useful addition. We can recommend the work to all architects and builders who require memoranda and prices combined.—*Conflagrations During the Last Ten Years* (London: 1, Waterloo-place, Pall Mall).—Under the auspices of the British Fire Prevention Committee, Mr. CHARLES E. GOAD, Man.Soc.C.E., has republished in book form a paper recently read before the Insurance Institute of Manchester. The subject is elucidated by twenty-three coloured maps showing the scene and extent of the large outbursts of fire, and by several block illustrations. The book is edited, and contains a preface written by Mr. Edwin O. Sachs, chairman of Executive of the Council.—*Sanitary Engineering of Buildings*, by WM. PAUL GERHARD, C.E., Consulting Engineer, &c., Vol. I., with illustrations and plates (New York: William T. Comstock).—This well-bound volume is an expansion of numerous separate articles, &c., contributed by the author to technical journals. The "Hints on Drainage and Sewerage" by the author have been re-written and brought up to date, and the volume is full of new illustrations. This volume treats of defective plumbing, traps and systems of trapping, drainage of buildings, fixtures, sewage removal, the principles of scientific house drainage and plumbing, improved methods, and consists chiefly of separate essays on these subjects. Many useful remarks and suggestions are given, and we should say Mr.

Gerhard's useful work will be found of service, not only in his own country, but also on this side of the Atlantic. The second volume is intended to deal with special applications—domestic appliances, water-supply, suburban and country-house sanitation, plumbing of hospital buildings, theatre and school sanitation, kitchen and laundry arrangements, baths, &c. The volume is well printed and illustrated.—*Water-Supply and Sewage Disposal in Rural Districts and Plumbers' Work*, reprinted from the *Lancet* (London: offices of the *Lancet*) contains a reprint of the report of the *Lancet's* Special Commission on the relative cost and efficiency of plumbers' work. This work will be found to be a useful compendium of the faults to be found in plumbing-work. The three typical examples given in the report of houses that require remodelling are useful, especially the estimates of costs appended. The terrace houses illustrated are of the kind to be found in our London West-end squares; plans are given, and the relative cost of defective arrangements and sanitary arrangements are shown. The results of the inquiry undertaken by the *Lancet's* Commission point to various evils, such as the system of contracting, which makes the interests of the architect and builder different or opposed; scamped work is the result. The wants of a standard of prices based on sound work for arbitration purposes, the excessive charges made by plumbers, and, in support of the latter contention, the report observes: "The work of renewal, especially in the larger houses situated in a terrace, entails a vast amount of labour, not only in the actual plumbing and drainwork, but in alteration and reconstruction, if the work is to be carried out in accordance with the conditions of modern sanitary knowledge. It is also noticed that the fittings and materials throughout are costly, and the plumber receives 1d. per hour more than other mechanics in the building trades—viz., 10½d. per hour." Unprincipled plumbers take advantage of these facts, and make exorbitant charges. The suggestions given under each of the examples, with recommendations as to details, illustrated by sketches and diagrams of fixtures, will furnish a guide to those who have sanitary work to be done. The plans and reports are more practical than many treatises, and offer a summary of the system approved by the highest authorities. The detailed estimates and recommendations, which latter form a specification for each of the uses illustrated, will be found of value to the architect and builder.—*Selected Examples of Decorative Art from South Kensington Museum*, edited by F. E. WITTHAMES, Part 5 (Longmans, Green, and Co.).—This part comprises a dozen plates of subjects of considerable value and interest to architects and decorative designers. A very fine example of a carved walnut panel, Spanish 16th-century, in the South Kensington Museum is given, simple and quiet in treatment and in bold relief. A carved oak coffer or font, French of the same period, shows a flat geometrical design in the panel. Gesso-work is represented by a circular wooden frame, relieved by gilded gesso relief of Italian 15th-century design. A lavabo of Istrian stone, Italian, is interesting as a design of refined character. Next we have an example in cut leather of a "chair back," Portuguese in design, latter part of 17th century, a very beautiful specimen of flat foliage in leather. In bronze work a few choice examples are given, cast bronze escutcheon of door handle, German 12th century, a ewer of gilded and silver bronze, a bronze aqua-manile, also German; fine bronze knockers, Italian figure subjects. Glass is represented in some unique Venetian wine-glasses of peculiar design in the stems. A fine chrisamatory of silver-gilt, German 15th century, and a cruet of the same material and style, and a silk tunic of embroidered silks, and silver-gilt threads and spangles, English, latter part of 16th century, are also illustrated in this valuable series of decorative art examples.—*Handbook of Saw Mill and Wood-Convert Machinery*, by M. POWIS BALE, M.I.M.E., &c. (London: William Rider and Son, Limited).—This is a volume in "Rider's Technical Series," and, from the author's known experience and skill in this class of machinery, is a book that can be safely recommended to all engaged in wood-working machinery, or who are about to select machines. The chapters deal on the arrangement of mills, machine foundations, and will therefore be of value to architects and others engaged in mill-building. The advice



given on modes of construction, speeds, and other points of wood-working machinery will find Mr. Bale's book invaluable. Every class of machine is described, and their main points dealt with.

### CHIPS.

On Saturday the new section on the Royal route from Blairgowrie to Braemar at Strone of Cally, about six miles north of Blairgowrie, was opened to traffic.

In the Chancery Division on Tuesday, Mr. Justice Cozens-Hardy made a compulsory winding-up order in the case of the N.A.P. Window Company (Limited).

The new church in St. Philip's district of the West Bromwich Christ Church parish was opened on Sunday. It is situated on the Beeches, and capable of accommodating 750 persons. The estimated cost was £6,000, but owing to the lack of funds the major portion only has been erected, at an estimated outlay of £4,000. The work has been executed by Mr. John Dallow, the architects being Messrs. Wood and Kendrick.

The total of last week's sales at Tokenhouse-yard, amounting to £225,302, was fairly satisfactory, though this was some £2,000 below the corresponding week of last year, a deficit due to the short supply of property. Reliable investments well maintained their value, and residential properties met with a certain amount of success.

The harbour board of Dundee, who last year raised the salary of their engineer, Mr. G. C. Buchanan, from £400 to £450 a year, decided on Monday, after a long discussion, to further increase it to £600 per annum.

The Catholic Apostolic Church, Cromer-road, Leeds, has been decorated throughout under the direction of Mr. Jas. W. James by Mr. Herbert C. Oakley, of Leeds. New brass fittings for the choir have been executed by Messrs. Jones and Willis. The general work of painting and decorating has been carried out by Messrs. W. Walsh and Sons, Wade-lane.

On Saturday the memorial-stone was laid of a new Free Church being erected in Grace Drive, Linthouse, Govan. The church, seated for a congregation of over 1,000, will be fully equipped with halls, session-house, &c., and the total estimated outlay, including site, is £7,800. The chief contract, that for masonry, has been taken by Mr. Michael Alexander.

At Gorton, near Manchester, on Saturday, memorial-stones were laid of new schools in connection with Brookfield Unitarian Church. Messrs. T. Worthington and Son, of Manchester, were the architects, and Mr. Robert Carlyle, jun., is the contractor. The buildings, which cost £7,300, harmonise with the adjoining chapel, and will be constructed of parpoint stone, with ashlar dressings.

The London County Council considered, on Tuesday, a report of the improvements committee recommending the carrying out of an improvement in Westminster, which included the extension of the Thames Embankment from the Victoria Tower Garden to Lambeth Bridge, the widening of Millbank-street, and the laying-out as a public garden of the land between the river and Millbank-street. Several amendments, designed to shelve the question, were rejected; but on one being submitted making the carrying out of the project subject to a substantial contribution being made by the Government, the debate was adjourned.

Sir Courtenay Boyle heard, on Tuesday, the objection of the Leigh Urban District Council to the confirmation of the order for the making of about six miles of light railway in Southend and the Leigh urban district. The corporation of Southend were the promoters, and the urban district council wanted the Board of Trade to insert a clause binding the promoters to widen a road to a minimum of 23ft., and to complete the whole of the light railway within three years. The corporation objected to widening the road for the benefit of the urban council. Sir C. Boyle adjourned the inquiry for the parties to come to some agreement.

On Sunday there was dedicated the new stained-glass window placed in the east end of the chancel of Cannock Parish Church as a memorial to the late Mr. Samuel Loxton. The window consists of three lights, surmounted by two quatrefoils, and in the apex a trefoil. The central figure is that of our Lord, clad in the red robe and the white robe. Beneath His feet is the rainbow spanning the empty cross, beside which are kneeling two cherubim. Over His head are cherubim, bearing a celestial crown. In the light to the spectator's left are the figures of Moses and David, and on the right St. Luke and St. John. Under these side figures are representations of the Ark of the Covenant, the scroll of the Psalter, the Ox, and the Eagle. The artist is Mr. Samuel Evans, Smethwick and Liverpool.

## Building Intelligence.

**BETHNAL GREEN.**—A new workhouse infirmary is about to be built on the site of Palestine-place and grounds from plans prepared by Messrs. Giles, Gough, and Trollope, of Craven-street, Strand, at a cost of over £198,307 (inclusive of £35,500, the cost of site). The infirmary will eventually provide accommodation for 750 beds. The work is being carried out in sections. Running the length of the site is a main corridor 760ft. in length, and a deviation is made to allow of its passage through the administrative block, which occupies the central position. Provision has been made here for the matron, medical officers, and staff, and there are also the kitchen, scullery, laundry, mortuary, and stores. The building work of the first section has been entrusted to Messrs. Rowbottom, of Birmingham.

**BRISTOL.**—The new isolation hospital at Ham Green is to be opened for the reception of patients on the 17th July. About twenty acres of the Ham Green estate are appropriated to hospital purposes, providing ward pavilions for 185 patients. The buildings at present erected consist of four pavilions and an isolation ward, providing accommodation for 76 patients. Each of the ward pavilions contain two large wards 48ft. by 26ft., and 14ft. in height, one single-bed ward, nurses' room, bathroom, and offices. In front of each ward is a verandah 18ft. wide, and running the entire length. The walls of the building are of brick, the floors are laid with pitch pine blocks, and the wards are plastered with cement and painted. The plans were prepared by the city engineer, and the cost has been from £28,000 to £30,000.

**CHALFONT ST. PETER'S.**—The Duke and Duchess of York visited Chalfont, Bucks, on Friday, to open four of the new homes built there for the use of epileptics. The Duke spoke highly of the work of the Society for the Employment of Epileptics, by whom the homes were founded. He referred to the distressing nature of the malady from which the patients suffered, and expressed a hope that the result of the Society's efforts would be an amelioration of the condition of these unfortunate people. The Milton and The Pearman Homes for 48 children were erected by Mr. J. Passmore Edwards; the plans and perspectives appeared in the BUILDING NEWS for June 25, 1897. The Greene Home for 24 men (illustrated in our issue of July 29, 1898) has been built by Mr. Richard Greene, and the Isolation Home (shown in our pages by a photo-lithographic plate on Feb. 25, 1898) has been erected at the cost of Mrs. Dearmer. Mr. Maurice B. Adams, F.R.I.B.A., is the architect of all these buildings. Mr. Passmore Edwards has promised an administrative central building, and a convalescent home is about to be erected.

**CHESTER.**—The foundation-stone of the new stands which the Chester Race Committee are erecting were laid by the Duke of Westminster on Saturday. The county club stand will occupy the site of the old stand, and extend over a portion of the previous Tattersall's ring. It will be in the half-timbered style, in keeping with the Chester buildings, and will contain a saloon about 80ft. in length. In front will be a covered promenade, which will be reached from the course by a broad flight of steps. Below the saloon will be dining-rooms, kitchen, telegraph office, stewards' private rooms, and offices for the secretary, clerks, directors, &c., and behind it will be the ladies' retiring rooms, refreshment-bar, &c. The main entrance will be on the ground level at the end of the old carriage drive. The stand will cover an area of 140ft. by 60ft. The walls will be built of Ruabon bricks, and the roofs covered with red Ruabon tiles. Over the covered promenade, which will be 100ft. long, will be an open balustrade. The fittings will be of pitch-pine, with tiled corridors. Immediately adjoining the County Club stand will be Tattersall's stand, which will be 92ft. in length and about 35ft. in breadth. It will be supported on iron columns and roofed with red-tiles, and the front will, like the County stand, be in the half-timbered style. In front of the stand, and running its whole length, will be a flight of stone steps with a tiled roof for protection from the rain. In this stand also there will be a dining-room and refreshment-bar on the level. Separated from Tattersall's stand by an exit passage, and brought a little forward so as to follow the line of the course, is the grand stand, which is 80ft. long by 35ft. wide. The new stands will provide about three

times the accommodation that the old stands did. The architects are Messrs. Mangnall and Littlewood, of Spring Gardens, Manchester, who designed the stands at Haydock, Hooton, and other racecourses. The contractors are Messrs. Parker Bros., of Chester; and Mr. Joseph Davison, of Manchester, is the clerk of works.

**JEWIN-CRESCENT, E.C.**—Nos. 19, 20, and 23, Jewin-crescent are in course of construction by Messrs. J. Simpson and Son, of Paddington-street, Marylebone, in accordance with the designs of Mr. Benjamin Tabberer, F.R.I.B.A. All the floors and roofs are constructed of iron and concrete; the iron girders and columns are protected by asbestos and other fireproof plaster, and all the stairs are built of artificial stone, which has been proved to possess fire-resisting power superior to natural stone. The staircases are inclosed by 9in. partitions of white glazed bricks. Skylights in the roofs and areas have been abolished (these having furnished ready means of fire extension), and the old "back-yard" has been reinstated. The walls behind the back areas are hung with white enamel tiles. Where wood is indispensable, as for doors, shop-fronts, and window-frames, teak has been used. Partitions inclosing the lavatories on half-landings are constructed of Bruckner's fireproof plate-wall patent. Electric mains will be provided to all the landings. The principal piers on ground and first floor are faced with Farnley glazed bricks, the lower portion being brown, and the upper a blue-grey. The remainder of the front is constructed of Imperial stone and red Fletton bricks.

**LIVERPOOL.**—The restoration of the St. George's Hall pediment is now completed, and in the course of a week or two the scaffolding will be removed. In the mean time some renovation is necessary to the cornice surmounting the group. When this has been accomplished, the sculptures will once more be unveiled to public view. An instance of the thoroughness with which all the sculptured decorations on St. George's Hall were originally carried out is afforded, says the *Liverpool Mercury*, by the carved details on the mouldings and on the soffit of the pediment cornice. Almost completely hidden by shadow, and quite impossible to be clearly seen from the street, is an extraordinary amount of carefully-cut ornament—so carefully done, in fact, as to be worthy a place on parts of the building more available to the eye. Why such evidently costly but comparatively ineffectual adornments were introduced is difficult to imagine, unless it was due to the designer's respect for purity of style in reproducing Classic forms.—The Unitarian Chapel in Ullet-row, Sefton Park, was opened last week. It will accommodate 440 worshippers, and has been built externally of Runcorn stone and Ruabon brick. Internally it is completely lined with Runcorn stone. The church consists of a wide nave, which contains the whole of the seating accommodation, and a chancel with semi-octagonal termination and organ-chamber. A projection on the north side forms the organ-chamber, and some low buildings on the south side contain vestries and a congregational hall, with accommodation for Sunday-schools, and filling three sides of a quadrangle. Messrs. Eart and Hobbs, of London and Manchester, have executed the carving work in stone and a portion of the woodwork. The architects are Messrs. Thomas Worthington and Son, Manchester; the contractors Messrs. W. Tomkinson and Sons, Liverpool; and Mr. J. Clydesdale has acted as clerk of works.—The open-air baths for boys in Mansfield-street, off St. Anne-street, were formally opened by the Lord Mayor last week. The establishment covers an area of 1,875sq. yd. The gardens have an area of 825sq. yd., and are laid out with walks and grass. The bath and gymnasium cover an area of 1,050sq. yd. The swimming-bath is 75ft. by 30ft., 3½ft. deep at one end and 2½ft. deep at the other; it contains 42,200 gallons of water. It is supplied with fresh water from the corporation mains, heated by means of a circulating heating system, and can be maintained at a temperature of 75° to 80° Fahr. at an exceedingly small cost. The establishment was designed by the bath's engineer, Mr. W. R. Court. The contractors for the work were Messrs. L. Marr and Sons, Liverpool, and the cost £3,000.

**LYNTON, NORTH DEVON.**—Through the generosity of Sir George Newnes, a town-hall and reading-room are being built in this watering-place. The architects are Messrs. Read and



Macdonald, of Bond-street, London, and Jones Brothers, of Lynton, are the contractors; Mr. Bob Jones, who takes the superintendence, was joint engineer with Mr. Frank Chanter of the Lynton and Barnstaple Railway. Local stone is being used for the building of the town-hall, with Bath-stone dressings, the woodwork being almost wholly of oak. The style is Elizabethan, a feature of the exterior being the half-timber work on the upper part of the balcony level. The vestibule in the front centre of the building is approached by a few broad steps. This leads into the entrance-hall, from which an oak staircase of two flights leads into the town-hall, running the whole length of the building. It will accommodate over 500 persons, having a platform at one end and a retiring-room off the platform. The roof is a carved, open one, with cornices and wainscot panelling in oak. There are four dormer windows, leaded lights distinguishing the whole of the building. An ante-room leads off the town-hall, with emergency steps in front leading down to the eastern end. In the centre of the front of the building is a gallery. The council chamber, for the meetings of the urban district council, is on the left, on the ground floor, together with cloak-rooms and the offices for the clerk and the surveyor. On the right are the caretaker's room, and also the recreation-room, which will be occupied by the institute and the reading-room. The walls inside are lined with panelled oak; the floors are fireproof. The building will be completed in May of next year.

**NEWCASTLE-ON-TYNE.**—A branch bank in Elswick-road has just been opened for business. The building comprises bank, manager's room, strong rooms, and a manager's house of 10 rooms. The bank and manager's room are fitted up in oak, and the walls finished in Albino cement. The general contractors were Messrs. I. and W. Lowry, of Newcastle. The fireproof and wood block floors are by Messrs. Mark Fawcett and Co., of Westminster. Another branch at the Cattle Market has been rebuilt and recently opened for business. It comprises bank, manager's room, strong rooms, and six rooms for offices. The buildings were erected by Mr. W. C. Tyrie, contractor, of Gateshead. The tender of Mr. C. Groves, of Chester-le-street, has just been accepted for the erection of a branch bank and other buildings at Consett, Co. Durham. The whole have been designed by Mr. John W. Dyson, M.S.A., of Newcastle-on-Tyne, architect for Messrs. Lambton and Co., bankers.

**PENLEY, SALOP.**—The pulling down of the old church preparatory to the building of the new one has been begun this week. The present church, built in 1794, still contains the old-fashioned high-backed pews facing different ways, a large gallery, and a three-decker pulpit. The new church, which will be built on a site at the back of the present one, is to be of stone, and capable of seating about 150 people. The architect is Mr. C. Hodgson Fowler, of Durham, and the work is being carried out by the Gredington Estate workmen, under the supervision of Mr. T. G. Boscawen, Lord Kenyon's agent. While the church is being rebuilt the old hall is also to be restored. Penley Hall, the seat of the ancient Dymock family, has been untenanted for many years. With Mr. Robert Middleton Dymock, of Ellesmere, who died recently, the name of Dymock has died out, and the ownership of the estate has passed into the hands of his nephew, Colonel Vaughan, of Bath. Colonel Vaughan intends rebuilding the old hall, and restoring it to its former dignity. With this view, Mr. T. G. Boscawen, the agent for the estate, has placed the first portion of the contract in the hands of Messrs. Davies Bros., of Wrexham.

**PLAISTOW.**—New public baths are being built by the West Ham Corporation in Balaam-street, Barking-road, Plaistow. The buildings are being erected at a contract price of £22,308 by Messrs. Spencer, Santo, and Co., of Westminster, from plans prepared by Mr. A. Saxon Snell, F.R.I.B.A. They will have a frontage of 126ft. to the road, and will provide first-class men's swimming bath, with water area of 100ft. by 37ft., and from 6ft. 6in. to 3ft. 6in. in depth; second-class men's swimming-bath, with water area of 60ft. by 20ft., and from 6ft. to 3ft. in depth; a clubroom to each bath; five first-class men's warm baths, twelve second-class ditto, five first-class women's warm baths, five second-class ditto, committee-room, ticket office, superintendents' office, superintendents' apartments, with two sitting and three

bedrooms, and a kitchen and bathroom, &c., towel laundry and towel store, boiler-house, engine-room, coal stores, waiting-room to each department, and entrance-hall. The first-class swimming-bath is to be fitted with sixty-two separate dressing-boxes.

**ROYAL LONDON OPHTHALMIC HOSPITAL.**—The new buildings of this hospital, opened on Tuesday by the Duke and Duchess of York, have been erected on an irregular-shaped piece of land some 35,000ft. in area, have frontages to City-road, Cayton-street, and Peerless-street, from the designs of Messrs. Keith D. Young and Henry Hall, and have cost £80,000, provided by the sum received for the site of the old building in Broad-street and public subscriptions. The hospital contains 140 beds and 105 rooms, excluding the basement, and special arrangements have been made for accommodating an increased number of out-patients. The building has been designed in a somewhat French type of Renaissance, and is faced with Portland stone, with a handsome porch occupying the centre of the front. The construction of the building throughout is fireproof, the floors being formed of iron girders protected by terracotta tubes (Fawcett's patent system), and covered with coke breeze concrete, and all the partition walls are either of brick or hollow terracotta tiles filled with concrete. The corridor floors are finished either with terrazzo or with artificial stone, and the staircases are made of cast concrete with iron joists imbedded therein, while the ward floors are laid with teak boards side nailed direct to the concrete. The fireplaces throughout are provided with grates of the Teale pattern. The whole of the engineering work in connection with the warming and ventilating has been carried out by Messrs. Ashwell and Nesbitt, of Great James-street, Bedford-row, W.C., whose Leicester Plenum system has been adopted.

**ST. PAUL'S CATHEDRAL.**—Two massive candelabra will shortly be placed in position at the entrance to the nave of St. Paul's Cathedral. One of the bronze pieces is the gift of Mr. Douglas Murray, in memory of his father, a Prebendary of the Cathedral; and the other has been presented by the members of the decoration committee. The subject matter has been taken from the first chapters of Genesis, the underlying motive being *Benedicite, omnia opera*. At the angles of the base the white, yellow, and black races of mankind are represented by three figures. On the sides of the base, in low relief, are represented "Sin"—Eve eating the forbidden fruit; "The Punishment"—Adam's mortality implied by his labour; and "The Atonement"—Christ's crucifixion. Beasts and birds occupy positions beneath the earth, which is covered with flowers and girdled by the sea. The firmament is represented by a fiery column, around which angels are moving. Above are archangels, who support the rose, from which springs the cross, surrounded by stems for the lamps. The candelabra are mounted on massive slabs of Irish fossil. The candelabra were designed by Mr. Henry Pegram, of Norfolk-road, St. John's Wood, and were cast by Messrs. Hollinshead and Burton, of Thames Ditton.

Three memorial windows have been fitted up behind the pulpit of Inverbrothock Free Church, Arbroath. The subjects are "The Nativity," "The Ascension," and "The Crucifixion." The windows were supplied by William Pearce, Ltd., Birmingham.

The iron girder bridge which for the past 42 years has carried the double line of the East Suffolk Railway over the Norwich-road, Ipswich, has just been replaced by a new structure. The contractors were Messrs. Butler and Co., of Stanningley Iron-works, Leeds, represented on the site by Mr. Thomas Patchett. The new bridge, which weighs 47 tons, was built alongside the old one on the west or Whitten side, and was moved into position on Sunday, in the presence of Mr. H. Jones, district engineer to the Great Eastern Railway.

**King Arthur's Castle Hotel, at Tintagel, North Cornwall,** was opened on Friday. It is situated on a hill, above the village and facing the sea, the view from the front taking in the ruins of King Arthur's Castle, which lie to the left. The structure is a substantial one, built in castellated form to harmonise with the traditions of the surroundings. The furnishing has been done by Messrs. Waring and Co., of London, and the hotel is electrically lighted, and supplied with good water. Mr. S. Trevail, of Truro, is the architect, and the building contract has been carried out by Mr. Carkeek, of Redruth.

## PROFESSIONAL AND TRADE SOCIETIES.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—The council of this society have already arranged the programme for the coming session, 1899-1900, as follows:—Oct. 10, annual dinner; Nov. 14, lecture, "Some Old Derbyshire Houses," by J. R. Wigfull, A.R.I.B.A.; Dec. 12, lecture, "Oriental and Indian Architecture," by Professor T. Roger Smith, F.R.I.B.A., of London; Jan. 9, 1900, lecture, "Suggestions for dealing with the Law as to Light and Air in Building Cases," by T. Walter Emden, J.P., P.S.A., of London; Feb. 13, lecture, "A Parish Church," by C. Hodgson Fowler, F.S.A., of Durham; March 13, lecture, "The Architecture of the 15th Century and Early Tudor Period," by C. M. Hadfield, A.R.I.B.A., of Sheffield; April 10, annual meeting, election of officers, &c. It is also hoped to arrange during the present summer excursions to Derwent and Langeath.

## CHIPS.

M. Guillaume, the director of the French School of Art in Rome, is about to retire. The well-known painter, M. Bonnat, professor and master of the schools at the Beaux-Arts, will probably be his successor at the Villa Médicis.

The death occurred on Friday of Mr. James Duckett, of Woodleigh, Burnley, brick and tile manufacturer. Mr. Duckett, who was 73 years of age, was for several years a member of the town council, and was made a magistrate in 1884.

An interesting archaeological discovery was made on Wednesday week in the Forum on the site of the basilica Emilia, now being excavated by the Italian Government, under the direction of Signor Giacomo Boni, in consequence of the munificent gift of £2,400 recently made by Mr. Lionel Phillips, through the instrumentality of Mr. St. Clair Baddeley. The excavators have discovered the top of a magnificent column of Phrygian marble, 4ft. thick, standing apparently *in situ*. The column is believed to form part of the original structure of the basilica.

Messrs. Briggs and Wolstenholme, architects, Liverpool and Blackburn, are acting jointly with Mr. Thomas E. Murray, architect, in the carrying out of the new school board offices for the Tottenham School Board, referred to in our last week's issue.

The West Bridgford Urban District Council having applied to the Local Government Board for sanction to borrow £4,455 for purposes of sewage disposal, Colonel J. T. Marsh, R.E., one of the Board's inspectors, held an inquiry into the application last week. Mr. A. J. Martin, engineer, and Mr. W. Fare, surveyor, explained the plans.

The Board of Trade have confirmed an order authorising the construction of a light railway between Axminster, in the county of Devon, and Lyme Regis, in the county of Dorset.

The Victoria Tower, built on Castle Hill, Huddersfield, to commemorate the Diamond Jubilee, was opened on Saturday afternoon by the Lord Lieutenant of the West Riding, the Earl of Scarborough. The tower has cost over £3,000. It is built of Crossland Hill stone, is 20ft. square and 100ft. in height, and was illustrated in the BUILDING NEWS for July 1, 1898. Mr. Isaac Jones, of Deerbrook-road, Herne Hill, S.E., whose design was selected in competition, is the architect, and Messrs. Ben Graham and Sons, Huddersfield, were the builders.

On Monday week the foundation-stone of a new day-school in connection with St. Peter's Roman Catholic Church, Bloxwich, was laid. The new building is to accommodate 300 scholars, and is being built by Mr. Wootton, of Bloxwich, from the designs of Canon Scoles, of Yeovil. The total cost will be about £2,350, including the site.

Aspinall's Enamel, Limited, are rebuilding their extensive premises at New Cross, which were recently destroyed by fire, and hope to complete them by the end of November. The architect is Mr. Max Clarke, of Queen-square, W.C., and the contractors are Messrs. Whitehead and Co., Ltd., Portland Works, Clapham-road, S.W.

Mr. John Piggott, chairman of the South Eastern District Parks Committee of the London County Council, opened on Saturday a new gymnasium for girls at Southwark Park, and dedicated the carriage road across the park for night traffic. The two improvements have been executed under the direction of Lieut.-Col. Sexby.

The Stock Exchange at the corner of Dale-street and Exchange-street East, Liverpool, which has been enlarged from plans by Messrs. Grayson and Ould, of that city, was reopened on Saturday. The street façades, which are new, are Elizabethan in style, and are executed in red sandstone and Portland stone.



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DUDLEY HARDY SALE.

PUBLIC LIBRARY AND TECHNICAL SCHOOLS,  
GLOUCESTER.

MESSRS. WALLER AND SON are the architects of this building, but no further particulars have reached us.

## NEW POST OFFICE SAVINGS BANK, KENSINGTON.

In our last issue we illustrated this important building, the foundation-stone of which was laid by the Prince of Wales on Saturday. It is to take the place of the existing savings bank in Queen Victoria-street, E.C. Owing to the enormous growth of the business, the present building, which has been enlarged twice during the last ten years, is much too small, and cannot be further enlarged except at very great expense. The plans and elevation published in our last number show the portion to be erected at once, which will accommodate upwards of 4,000 clerks. The perspective shows the completed building, which will provide accommodation for about 7,000 clerks. The general arrangement will be seen from the plan. Many of the rooms are very large, about 320ft. by 47ft. in some cases, and occupy the whole length of the building. The basement will be occupied principally by stores and the printing shops; the ground, first, second, and third floors by offices, and the fourth floor by the dining-rooms and kitchens, which are very extensive. The front portion of the building will be occupied by the male staff and the rear by the female staff. The engine and boiler-rooms, with the electric light and power and plant, will be in a separate building at the back, and the exhaust steam will be utilised for heating purposes. The construction throughout will be fireproof, the floors being of rolled steel joists imbedded in concrete and finished with wood blocks. The roof will be similar in construction and asphalted. Most of the interior will be lined with glazed bricks of varied tints. Electric passenger and goods lifts will be provided in connection with each staircase. The architect is Mr. Henry Tanner, F.R.I.B.A., and the contractors for the foundations are Messrs. Foster and Dicksee, of Rugby. The contract for the superstructure is not yet let.

The Local Government Board have sanctioned the borrowing by the urban district council of Exmouth of £34,000 for works of sewerage, and directing the retention of a portion of the town's yard as the site of the pumping station.

The school board for St. Mary Extra, Southampton, have adopted plans by Messrs. Mitchell, Son, and Gutteridge, of the latter town, for additions to Pear-street school and Wolston boys' school, at an estimated cost of £1,500.

The Ipswich Corporation have decided to increase the salary of their borough surveyor, Mr. E. Buckham, who has been 28 years in their employ, and has carried out during recent years several important sewerage schemes for various districts, from £500 to £550.

The members of the Birmingham Architectural Association visited on Friday the new Higher Grade Schools at Aston, now in course of erection, from the plans of Messrs. Crouch and Butler. The elevations are Free Renaissance in style, and are treated in Leicester sand bricks and Doulton's terracotta. The builders are Messrs. Bowen and Sons, of Birmingham.

## COMPETITIONS.

EDINBURGH.—Tuesday was the last day for the lodging of designs for the reconstruction of the Mid-Lothian County buildings, and it has transpired that fifteen architects have handed in their plans to Mr. A. G. Asher, the county clerk. The appointment of an architectural assessor to decide which of the competitors shall receive the premiums which the Council offer for the best designs will at once be made.

GLASGOW GLADSTONE STATUE.—The statue committee of the Glasgow Gladstone Memorial Fund have agreed to invite Messrs. Thorneycroft, Onslow Ford, Gilbert, and Frampton to send in models for the statue of the late Prime Minister, to be erected in George-square. A small premium is offered. The fund now amounts to about £3,900.

## CHIPS.

The work of re-erecting the south-west gable of the west front of Peterborough Cathedral has now progressed so far as the middle half of the wheel window. The demolition of the unsafe spire of the south flanking tower, which had a considerable portion removed in the memorable gale of March, 1895, is approaching completion.

The Government, through the Department of Woods and Forests, is in negotiation with the Duke of Beaufort for the purchase of Tintern Abbey and the ruins of Raglan Castle, with four thousand acres of land and the manorial rights.

The new county hospital of Bedford was opened on Wednesday week by the Duke of Bedford. The new buildings stand in the grounds adjoining the old infirmary, which is to be pulled down, and the site covers ten acres. The three wards for men, women, and children are built on the pavilion system, being over 100ft. apart. The administrative block, the operating block, and out-patients' departments are all separate. A chapel is also provided, and also a nurses' home. The cost of the whole hospital has been £33,000. The architect was Mr. H. Percy Adams, of London, and the contractors Messrs. Kerridge and Shaw, of Cambridge. The hospital has been illustrated in the BUILDING NEWS for Aug. 23 and Dec. 30, 1897, and Feb. 3 of the present year.

The Endowed Schools, Watford, are being warmed and ventilated by means of Shorland's patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

On Monday, July 3, the Great Northern Railway Co. will open their new and commodious goods station at South Accommodation Bridge, Hunslet. This station is conveniently situated for dealing with goods, grain, mineral, and live-stock traffic for Hunslet and that portion of Leeds east of Call-lane, Vicar-lane, and North-street. Ample facilities will be given for the prompt unloading of market produce under cover. The stations and sidings cover an extensive area, and are fitted with all modern appliances for expeditiously dealing with all descriptions of goods, mineral, and live-stock traffic. Ample warehouse accommodation is also provided. All information as to rates, &c., may be obtained from the Company's agent, Mr. H. G. Robinson, Hunslet Station; also from Mr. J. W. Morton, district goods manager, Leeds; and Mr. R. H. Twelvetees, chief goods manager, King's Cross Station, London.

The large clock in the central tower of the Hotel Great Central, Marylebone-road, has four illuminated dials, each 8ft. 6in. across, and has been made and erected by Messrs. John Smith and Sons, Midland Clock Works, Derby.

New board schools are being erected at Hemsworth, Yorks, from the designs of Mr. W. E. Richardson, architect, of Rothwell, near Leeds, and special consideration has been given to the ventilation, which will be carried out on the Boyle system.

A brass memorial plate has been fixed in the rear of the pulpit in the parish church of Horsham, in memory of the late rector, the Rev. John Barrett-Lennard. The inscription states that: "Through his energy this ancient church was restored, enlarged, and beautified, the carved wood in the chancel was almost entirely the work of his own hands, a peal of 8 bells was placed in the tower, a fine organ replaced a harmonium, and a view of the church was opened out by a new approach from the high road." The work was executed by Mr. A. H. Pennells, of Horsham.

Mrs. Greville H. Palmer, the wife of the Master of the Mercers' Company, will unveil, on Monday next, Mr. Ernest Croft's picture of Queen Elizabeth opening the first Royal Exchange. The work is the gift of the Mercers' Company, and is presented in accordance with the scheme of mural decoration of the Royal Exchange.

## Our Illustrations.

## "THE FOUR WINDS": A SUNDIAL.

The sundial which I have sent to the Academy is intended for erection in a garden; its height is about 12ft., and the figures are about three-quarter life. These represent the North, West, South, and East Winds, and present the characteristics of each. It is my intention to execute it in a form of pottery which I am at present working upon. If I am able to get this done in time, I will exhibit it at the Arts and Crafts Exhibition this autumn. The actual dial is placed on the roof of the structure.

CONRAD DRESSLER.

## NATIONAL SILVER MEDAL DESIGNS FOR DECORATIONS OF RAILWAY CARRIAGES.

This scheme for the decoration of railway carriages, by Miss Isabel McBean, is intended to modernise the inside of the carriages, and to make travelling more interesting and comfortable for the traveller. The carriages are not altered in structure, but each class is decorated, utilising the spaces with suitable designs. The third class is decorated with stencilled panels. The ornamentation for the top of the second-class carriage is in modelled Lincrusta, coloured, and the rack of pierced copper. The first-class rack is of stamped leather with gold background, the same material being used for the panels overhead, with reading-lamps at each corner. Electric light is used throughout, and each class has an entirely different set of designs for door-plates, lights, brackets (which are of gunmetal), tapestry, &c., and the whole scheme takes into consideration strict economy of material and expense.

## THE LATER RENAISSANCE IN ENGLAND.

(See article on page 867.)

## NEW B. R. AND C. I. RAILWAY ADMINISTRATIVE OFFICES, BOMBAY.

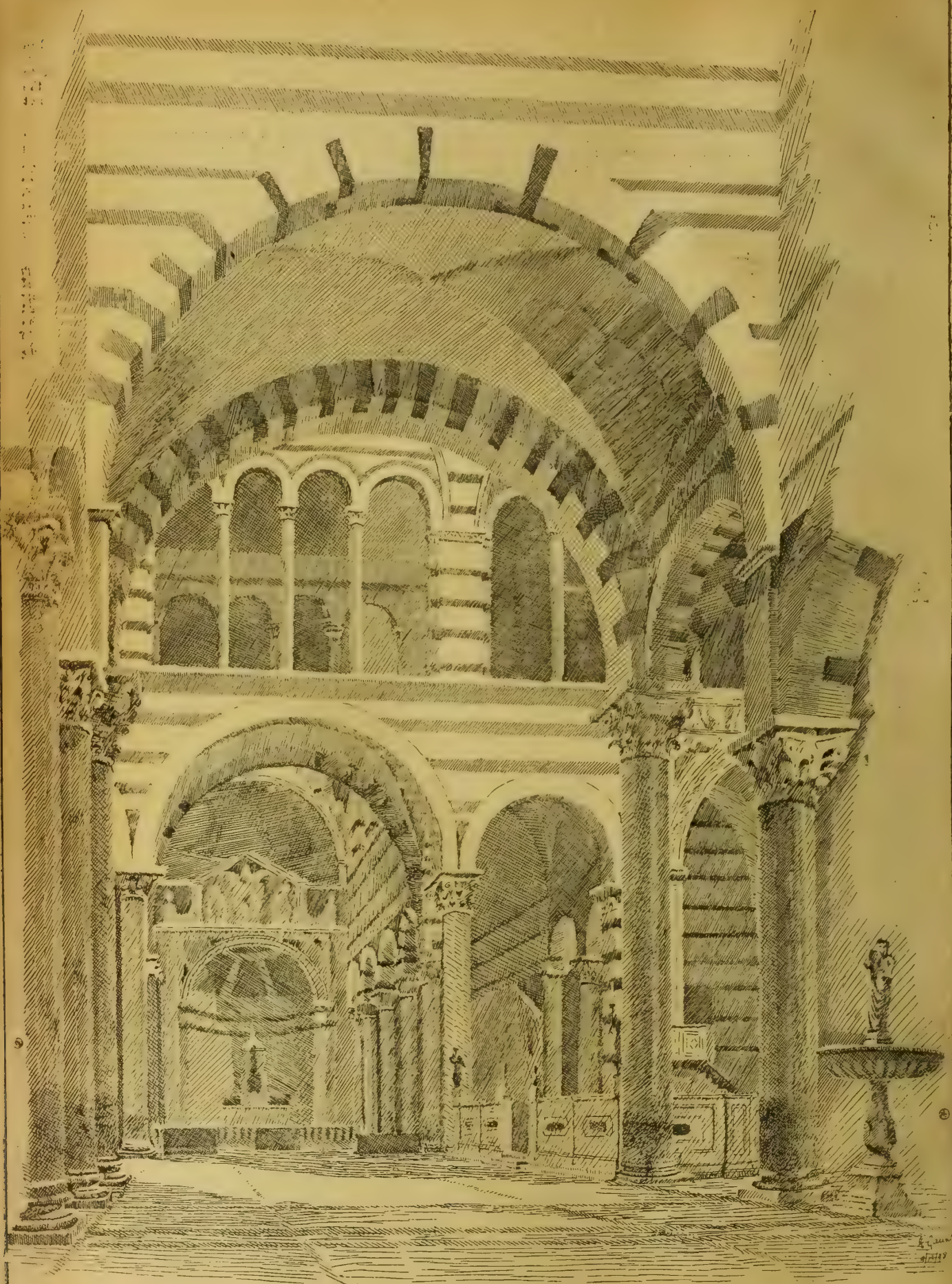
This building was completed in January last. The architect is Mr. F. W. Stevens, C.I.E., F.R.I.B.A., &c., who was assisted by his son, Mr. C. F. Stevens, M.S.A. It is erected on a prominent site at the apex of the Marine lines and Queen's-road, and is a fine monument of British enterprise in India. Mr. Roscoe Mullins, of London, was the sculptor for the group of figures on the central gable, and the heads of Colonels French and Kennedy in the circular panels of carriage porch. A full description of the building was given in our issue of Feb. 24, 1899. The cost of the building was six and a half lacs of rupees.

## PISA CATHEDRAL.

This drawing of the interior of Pisa Cathedral was made by Mr. E. Gaunt, who sends us the following description:—The cathedral was

begun about the year 1067 in commemoration of a great naval victory of the Pisans, and was consecrated in the year 1118. The style is Pisan Gothic, the west front especially being very fine with its rows of shafted arcades, superimposed one above the other, and gradually diminishing in length towards the top of the building. The interior was thoroughly modernised in the 17th century, with the exception of the choir; the old columns being used again, and the capitals covered with stucco ornament. The cathedral consists of a nave with four aisles and transepts with apsidal terminations; the choir also terminates in an apse rather larger than those to the transepts. An elliptical dome surmounts the crossing of nave and transepts. The building measures 104 yards long and 35½ yards wide in interior. The perspective effects are remarkably fine in the interior, owing to the numerous ranges of columns. The whole is built in black and white marble (imitated in many places in stucco), adorned with mosaics by Cimabue and other masters, and is, all things considered, perhaps the finest example of Pisan Gothic in Italy.





Pisa Cathedral.









NEW BOMBAY BARODA AND CENTRAL INDIA RAILWAY ADMINISTRATIVE OFFICES, BOMBAY.

F. W. STEVENS, C.I.E., ARCHITECT.

PHOTO PROCESS BLOCK BY J. A. MARSHALL & CO. S. DENHAM







# DECORATIONS FOR RAILWAY CARRIAGES

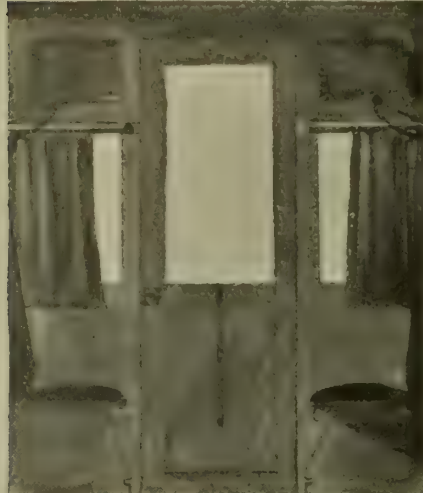
SKETCHES SHOWING COMPLETE  
ARRANGEMENT. SCALE 7/15/1

THIRD-CLASS



FULL-SIZE-DETAILS-ACCOMPANYING

SECOND-CLASS



FIRST-CLASS



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NATIONAL SILVER MEDAL DESIGNS FOR

BY IS.









THE FOUR W  
BY CONRAD DR





DS: A SUNDIAL.  
ER, SCULPTOR.

PHOTO PRINTED BY A. MARSHALL & CO. STDENHAM.













THE FOUNTAIN COURT,  
(From "The Later Renaissance." BY MEX.)





AMPTON COURT.

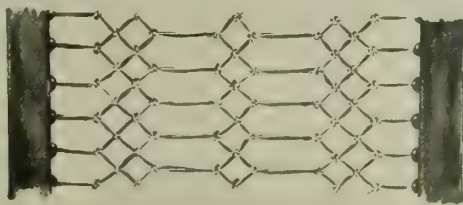








DECORATION FOR THIRD CLASS RAILWAY CARRIAGES

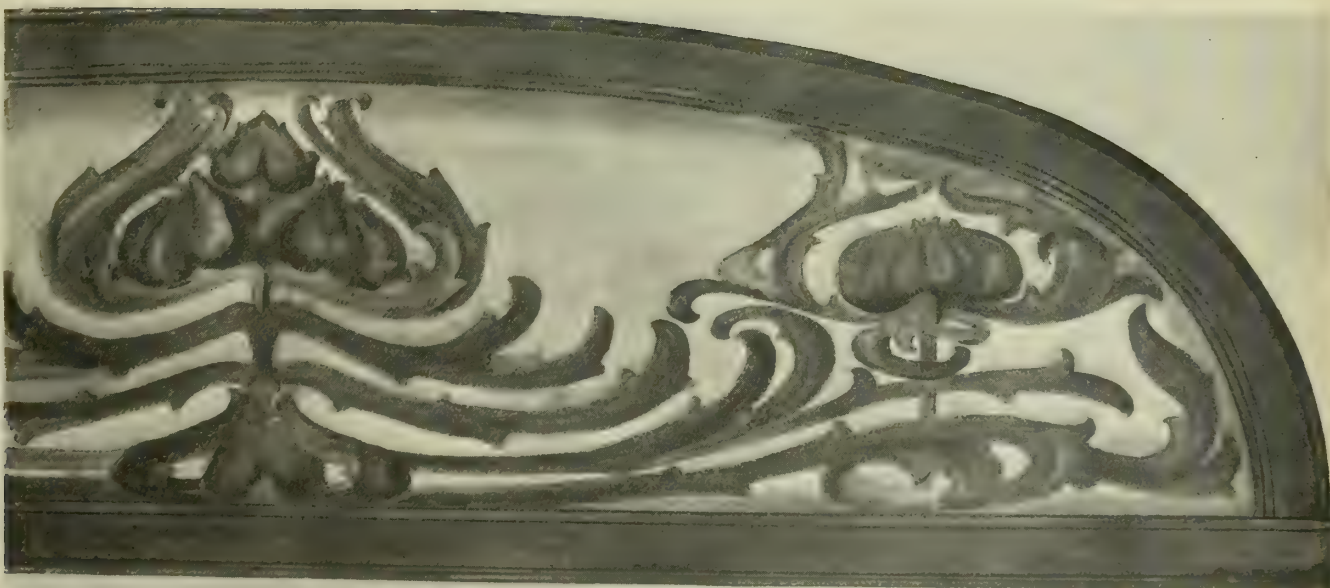


DETAIL OF  
LATTICE

STENCILED PANEL  
FOR TOP OF  
CARRIAGE DRAWN  
HALF-PALE SIZE  
SHOWING HALF



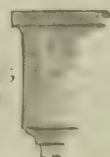
DETAIL OF  
SHOWING  
DRAWN FULL  
SIZE



DECORATION FOR SECOND CLASS RAILWAY  
CARRIAGES

MODELLED ORNAMENT FOR TOP OF  
CARRIAGE TO BE COLOURED  
SHOWING HALF BROWN HALF  
FULL SIZE  
TO BE EXTENDED IN LARGEST

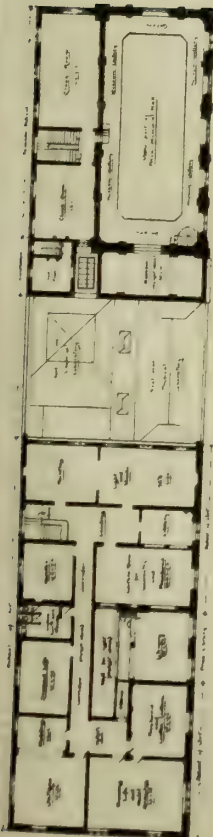
DETAIL OF  
SHOWING  
DRAWN FULL  
SIZE



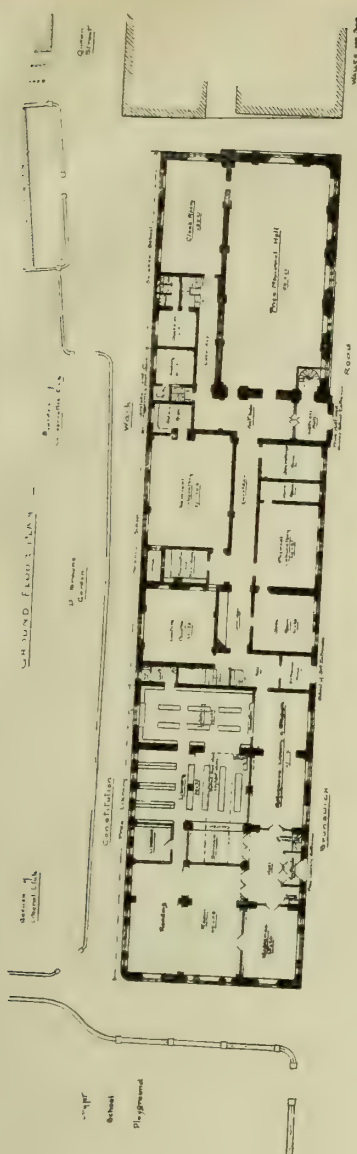








FIRST FLOOR PLAN



GROUND FLOOR PLAN



PUBLIC LIBRARY AND TECHNICAL SCHOOLS, GLOUCESTER.  
WALLER AND SON, ARCHITECTS.

PHOTO PROCESS BLOCK BY J. A. MARSHALL & CO., STRECHAM







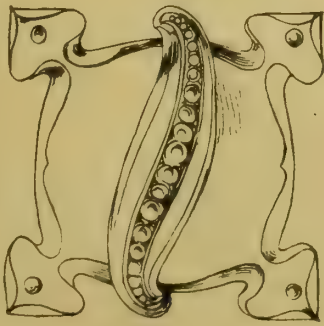
NATIONAL SILVER MEDAL DESIGNS  
FOR  
RAILWAY CARRIAGE DECORATIONS

BY ISABEL M'BEAN.

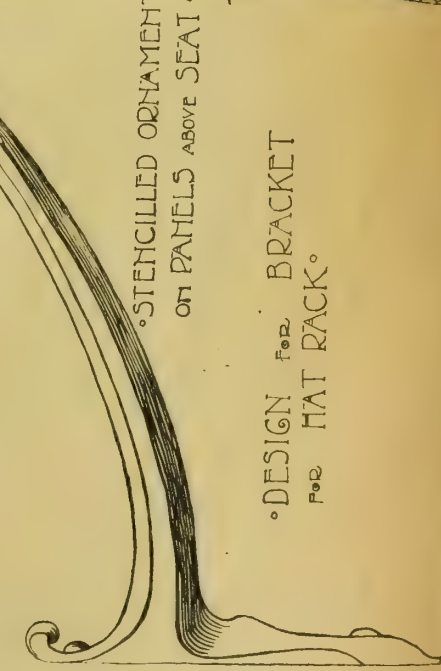
DESIGN FOR ELECTRIC  
LIGHT AT TOP OF  
CARRIAGE



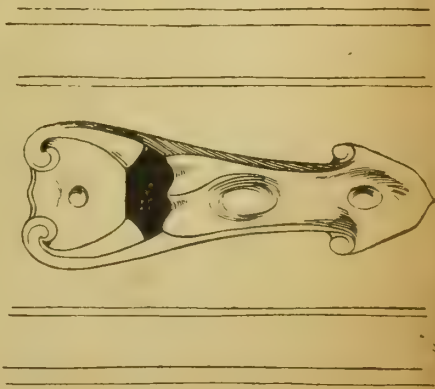
DESIGNS FOR  
DOOR PLATE  
& HANDLE.



STENCILLED ORNAMENT  
ON PANELS ABOVE SEAT.



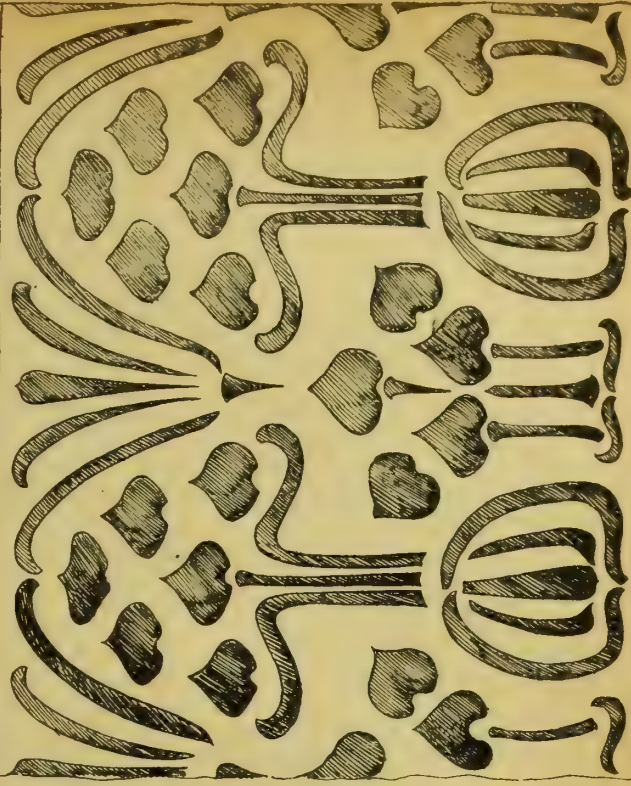
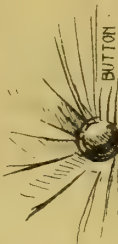
DESIGN FOR BRACKET  
FOR HAT RACK.



DESIGN FOR TAPESTRY TO SEATS.



BUTTON



DESIGN FOR PIERCED COPPER HAT RACK.



## TO CORRESPONDENTS.

[We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.]

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be addressed to the EDITOR of the BUILDING NEWS, 332, Strand, W.C., and not to members of the staff by name. Delay is not unfrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED.

## NOTICE.

Bound copies of Vol. LXXV. are now ready, and should be ordered early (price Twelve Shillings each), as only a limited number are done up. A few bound volumes of Vols. XXXI., XXXII., XXXIII., XXXIV., XXXIX., XL., XLIV., XLVI., XLIX., LI., LIII., LIV., LV., LX., LXI., LXII., LXIV., LXV., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXIV., and LXXV., may still be had, price Twelve Shillings; all the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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Front-page Advertisements 2s. per line, and Paragraph Advertisements 1s. per line. No Front-page or Paragraph Advertisement inserted for less than 5s.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday morning to secure insertion.

## SITUATIONS.

The charge for advertisements for "Situations Vacant" or "Situations Wanted" is ONE SHILLING FOR TWENTY-FOUR WORDS, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

F. DERRETT. (Sanitary inspectors, unfortunately, are not always chosen for their fitness. Men who have friends on vestries and local councils seem to find that pay better than knowledge.)

RECEIVED.—H. T. B.—C. L. W. (Bristol).—F. S. Co.—M. K. M. and Co.—E. G. (Liverpool).

## "BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Dachs," "Ajax," "Astragal," "Tip," "Clegornie," "Cantab," "Speys," "Levenach," "La Foupée."

NOTE.—We are unable to return several contributions, the contributors having omitted to put name and address on back, in accordance with rules.

## Correspondence.

JAMESON V. SIMON.

To the Editor of the BUILDING NEWS.

SIR,—I have read with satisfaction your leader in this week's issue on the above case, which, I believe, will be endorsed by every architect. The case is still *sub judice*, as I have appealed it to the Second Division of the Court of Session, who, I trust, will reverse the decision of the Lord Ordinary.

Should the decision be upheld and become law, my feeling is—and I believe it to be generally shared by my fellow architects—that the case is of such importance that the profession should take the matter up with a view to an appeal to the House of Lords, so that we may know once and for all if, in addition to our already onerous duties, the law holds us to be (and it practically amounts to this) guarantors to our clients of the materials, the workmanship, and the good faith of the contractors employed by them.

I await the result of the appeal, but I would point out that in this case the contracts with the tradesmen contained the clause that "they shall uphold their work for two years after it is taken off their hands." The defect showed itself within twelve months. Comment seems almost superfluous.—I am, &c., FRANK W. SIMON.

16, Rutland-square, Edinburgh, June 23.

## Intercommunication.

## QUESTIONS.

[12254].—**Architect's Liability.**—Is there any liability resting upon an architect after he has granted a certificate and the builder has not received payment on same from the owner? Has the builder any further claim upon the architect in the matter as being a third person acting between the two parties?—PRACTITIONER.

## REPLIES.

[12251].—**Quantities for Moulded Cornice.**—Take the cubic stone which will contain the worked angle, next the plain faces and sunk joints of front, back, and end, the sunk work, and then the moulded work—the latter is girt by the length of moulding. I know of no treatise that will assist "Student" in showing how the quantities are taken and put down for an angle of cornice. It is just one of those items that authors pass over.—G.

[12252].—**Expanded Metal in Plaster.**—With reference to the above, if you kindly refer your correspondent to us, we shall be pleased to furnish him with all particulars.—THE EXPANDED METAL CO., LTD., 39, Upper Thames-street, London, E.C.

[12256].—**Tile-Hanging Wall.**—Write for particulars of Hall's "New Improved Patent Hanging Tiles," to Joseph Cliff and Sons, Baltic Wharf. These tiles are fixed without nails. They are impervious. Ordinary tiles are fixed to battens nailed to gauge on wall, and look well. If of good quality, they are a great protection to the wall, and would keep the wall dry.—G. H. G.

[12257].—**Colouring Room.**—I should advise "Amateur" to select a wall-paper of warm colour, such as a shade of terracotta or salmon tint. The colour should be tolerably bright, and as there is little sun in such a room, a dark shade should be avoided. A light ground should predominate. A frieze may be added; if it is, it should be bright and of a cheerful pattern, of a lighter shade of colour. Get a few patterns of good paper and try the effect first.—AN ARCHITECT.

## Our Office Table.

THE Council of the Society of Architects being desirous of obtaining the views of provincial architects upon the question of Registration, have arranged to hold a series of meetings in the provinces, to which the best-known architects who reside within a reasonable distance of the localities chosen will be invited. The first of these meetings will take place at the board-room of the Cutlers' Hall, Sheffield, to-day (Friday), at 6.30 o'clock p.m., the President, Mr. Walter L. Emden, J.P., L.C.C., in the chair, when a paper on "The Statutory Registration of the Profession" will be read by Mr. Ellis Marsland, hon. secretary. The author will sketch the progress made by the Registration movement during the past thirteen years, and will explain the Registration Bill, its objects, and the qualifications proposed. A resolution approving of the measure will be proposed by Mr. R. Frank Vallance, F.R.I.B.A., of Mansfield, to be followed by a general discussion of the subject. An address will afterwards be given by the President on "Rights of Light and Air," to be also followed by a discussion on the desirability or otherwise of submitting all such questions to a technical tribunal in connection with the local municipal authority.

MR. LONG received at the Board of Agriculture on Friday a deputation introduced by Sir Barrington Simeon, M.P., on the subject of a claim made by a large body of assistants in the Ordnance Survey Department to be placed in the position of Civil servants. Sir Francis Evans, M.P., explained that the whole class of public servants on whose behalf they appeared, although they were described as "temporary assistants," were not so as a matter of fact, but suffered disabilities on account of being so described. Their work was permanent, and they had to submit to all the usual restrictions of Civil servants, but without the pension of Civil servants, and they asked that in this respect their grievances should be met. Mr. Long gave a somewhat encouraging reply, and promised to communicate with the Treasury on the subject.

SIR THOMAS GIBSON-CARMICHAEL has presented the Museum of Science and Art at Edinburgh a censer of 14th-century Italian work, bought at the sale in London of the Bardini collection in the beginning of this month. The censer is of champlevé enamel on copper, and has been gilt. Unfortunately, under the wear and tear of five or six centuries, much of the enamelling and gilding has disappeared, but sufficient remains to show the treatment clearly enough, and the general form of the censer, as well as the details

of the ornament, are still perfect. The censer forms an interesting companion to a navette placed beside it in the case of ecclesiastical plate on the first gallery of the great hall in the Museum. The similarity in the ornamentation of the censer and navette shows that they must have been intended to accompany each other. The Edinburgh Museum acquired the navette by purchase at the Bardini sale, but the price, £115, at which the censer was sold considerably exceeded the limit allowed to the agent who represented the Museum, and the thing became the property of a private collector. When Sir Thomas Gibson-Carmichael heard of its loss he communicated with the purchaser, who in his turn was anxious to buy the navette, induced him to sell the censer, and, having obtained it, has now presented it to the Museum. The bringing together of the two objects adds considerably to their value as museum specimens.

THE redwood forests of the Pacific Coast are described by Mr. Henry Gannett in the U.S. *National Geographic Magazine* as occupying a narrow strip hugging the coast from the southern boundary of Oregon, through Northern California, with an area of 2,000 square miles, in which the standing timber is estimated at 75,000,000,000ft. As measured by the amount of merchantable timber per acre, this is probably the densest forest on earth. In the Southern States and in Minnesota, tracts containing from 5,000 to 10,000ft. per acre are regarded as heavily forested; but around Eureka, Cal., the lumber companies have realised "an average of between 75,000 and 100,000ft. per acre." It is said that "there is on record a single acre, near Garberville, which yielded in the mill 1,431,350ft. in lumber. There was sufficient lumber on this acre to have covered it with a solid block of frame dwellings ten stories high." On the other hand, there is, unfortunately, no young growth nor sign of reproduction from seed. This indicates that, with the clearing away of the present forests, though the supply at the present rate of cutting will last 300 years, the redwood "as a source of lumber" will cease to exist. The progressive drying of the climate is suggested as the cause of the failure of the reproductive power.

THE United States Consul-General at Montreal, in a recent report on the forests of Canada, estimates the area under timber in the Dominion at 1½ million square miles, or over 37 per cent. of the total area. The proportion varies from nearly 75 per cent. in British Columbia to 40 per cent. in Manitoba and 30 per cent. in the North-West Territories. The quantity of pine cut annually is said to be a thousand million board feet, and the supply at this rate will last 40 years. The growth of new wood, in spite of the regulations, is not equal to the amount cut. In Ontario the important tree is the white or Weymouth pine, but there are also the red pine, spruce, hemlock, and others. The valuable black walnut, tulip, plane, and coffee trees are almost extinct. Quebec, with its newly-added territory, is now an even larger province than Ontario. The white pine is the most important tree, as in Ontario; but it is rapidly disappearing. Rich spruce is found in many districts; there is a great waste of hemlock on account of the bark. Some of the best cedar areas in the Dominion are on the north shore of New Brunswick. An unsurveyed area of about two millions of acres on the Upper Restigouche is reported to be full of good spruce and cedar. The once rich pine forests have been greatly impoverished. The same is true of Nova Scotia; a quantity of good spruce is left here, but is also being wasted. British Columbia possesses the largest compact timber resources in the world. The fringe only has been cut. The Douglass pine, cedar, spruce, Alaska pine, and other timber standing in the railway belt is estimated to amount to 25,000 million board feet. The coast also is heavily wooded as far north as Alaska; there is no white pine, but spruce attains perfection here. The total exports of wood and its manufactures from the Dominion amount to over seven millions sterling per annum, Quebec and Ontario sending nearly two-thirds of this amount, while almost the whole goes to the United States and to Great Britain in nearly equal quantities.

The University authorities of Oxford have sanctioned the plans of a pathological block in connection with the University Museum. The total cost is estimated at £10,000. The architect is Mr. J. Augustus Souttar, 61, Gracechurch-street, E.C.



## LEGAL INTELLIGENCE.

**WORKMEN'S COMPENSATION ACT AND DEFECTIVE LADDERS.**—*SKEGGS v. KEEN.*—In the Court of Appeal last week before Lord Justice A. L. Smith, Lord Justice Rigby, and Lord Justice Vaughan Williams, this appeal from an award of Judge Addison, Q.C., sitting at the Southwark County-court, under the Workmen's Compensation Act, 1897, was heard. The appellant, Alfred Skeggs, was in the employment of the respondents, A. and P. Keen, and was injured by falling off a ladder while in the course of his employment. The appellant brought an action against the respondents under the Employers' Liability Act, 1880, in the Southwark County-court, alleging that the ladder was defective. The action was tried on December 13, 1898, and the jury found that the ladder was not defective, and returned a verdict for the respondents, and the action was dismissed with costs. At the request of the appellant the Judge thereupon proceeded to assess compensation under section 1, subsection 4, of the Workmen's Compensation Act, 1897. The Judge assessed the compensation, at the request of both parties, at a lump sum instead of a weekly payment, and he awarded the appellant £23 4s. No application was then made by the appellant for costs, but the appellant's solicitor carried in a bill of costs. There were applications made in respect both of this bill of costs and of the respondents' bill of costs in the action, and on April 10, 1899, the Judge, after stating that the respondents were willing to, and did, admit their liability under the Workmen's Compensation Act, 1897, but refused to make an offer under the Employers' Liability Act, 1880, as they considered that the appellant had no case under that Act, but the action was brought instead, said that he found as a fact that all the costs (with one immaterial exception) which the respondents had incurred had been occasioned by the appellant bringing the action under the Act of 1880. He also decided that there was no jurisdiction to give the appellant any costs. Mr. Cyril Dodd, Q.C., and Mr. Moyes, for the appellant, contended (*inter alia*) that when the Judge proceeded to assess compensation under section 1, subsection 4, of the Workmen's Compensation Act, 1897, after the action was dismissed, he had jurisdiction to allow the workman the costs in respect of the assessment of the compensation. Counsel for the respondent were not called upon. The Court dismissed the appeal. Lord Justice A. L. Smith said that, according to the finding of the County-court Judge, the employers were willing to compensate the workman under the Act of 1897, but the workman persisted in going on under the Employers' Liability Act, 1880. He was defeated. He then asked the Judge to assess compensation under the Act of 1897, and the Judge did so. The appellant said that he was entitled to his costs of assessing compensation under the Act of 1897. It was unnecessary to decide the point of law raised, because it was clear that, considering how the appellant persisted in going on with his claim under the Act of 1880, the learned Judge made a perfectly right order. Lord Justice Rigby and Lord Justice Vaughan Williams agreed.

**UNSANCTIONED NEW STREETS.**—At North London Police-court, on the 26th inst., Mr. Henry Cresswell Foakes, of Camden-road, was summoned before Mr. Bros for the continuing offence of commencing the formation of a new street without the consent of the London County Council. Mr. Thomas Chilvers appeared for the Council, and Mr. Duckworth, barrister, was for the defendant. Mr. Chilvers said that the *locus in quo* was Carysfort-road, Clissold Park, in which district the defendant was freeholder of a considerable property. In February, 1897, he was summoned for laying out land as a street without the consent of the Council as required by section 7 of the London Building Act of 1894. The summons was heard by Mr. d'Eyncourt and dismissed with £12 12s. costs against the Council. The Council appealed to the Divisional Court, which in 1897 reversed the decision. The matter came back to this court, and then Mr. d'Eyncourt imposed a penalty of £3, with two guineas costs. As the defendant did nothing towards removing the hoardings or abandoning his intention of laying out the street, the defendant was again summoned in April, 1898, for continuing penalties, the Act providing for penalties of ten guineas a day in case of non-compliance with the magistrate's order. Mr. Bros, who then heard the case, held that an offence had been committed, but on the defendant consenting to give the Council formal notice that he had abandoned the street and remove certain hoardings from their then position to a level with the forecourts of other houses the summons was withdrawn *sine die*. The undertaking was given to remove, and the defendant promised to put the hoarding in the position required by the Council. This, however, had not been done a week ago, and on the application of the Council the summons was again put into the list. He (Mr. Chilvers), however, understood that the work had been done as required by the Council that day. Mr. Duckworth said that was so. Mr. Bros said the requirement of the County Council had now been complied with, and he

should only impose the nominal penalty of 10s. 6d., with £2 2s. costs.

**IN RE MACKINTOSH.**—Mr. Registrar Brougham heard on Friday an application by James Waugh Mackintosh, builder, for an order of discharge. The receiving order was made on August 10, 1898, the liabilities being returned at £12,081, and no available assets being disclosed. His Honour said that the bankrupt had on a previous occasion—namely, in 1874—made a composition arrangement with his creditors and paid 1s. in the pound on liabilities £1 500. His present position was due to his losses and liabilities incurred as a speculative builder, and particularly to judgment for £7,200 having been recovered against him by the petitioning creditor in respect of damages for breach of contract relating to the erection of a building in Dover-street, Piccadilly. It was not clear what experience of the building trade the bankrupt had when he embarked in it in March, 1889, but the result of his dealings was that he now came before the Court with large debts and no assets whatever. Taking into account the absence of assets and previous composition, and also the fact that the bankrupt had continued to trade after knowing himself to be insolvent and had not kept proper books of account, the discharge would be suspended for three years from October, 1898.

**TOXTETH GUARDIANS AND THEIR INFIRMARY.—CLAIM AGAINST LIVERPOOL ARCHITECTS.**—The guardians for Toxteth-park having brought an action in the High Court against Messrs. C. O. Ellison and Son, architects, of Liverpool, for alleged professional negligence, Mr. Pollock, Q.C., the official referee, sat at St. George's Hall, Liverpool, on Tuesday, Wednesday, and yesterday (Thursday) to deal with the claim. Mr. A. A. Hudson represented the guardians, and Mr. Segar appeared for Messrs. Ellison. Mr. Hudson referred in his opening statement to the serious nature of the charges involved, and said the plaintiffs claimed £1,563 damages for negligence, for the return of documents belonging to the guardians, and for moneys received by the defendants from Messrs. Kelly Bros., builders and contractors, Liverpool. A scheme for building a union infirmary in Smithdown-road was inaugurated by the guardians in 1890, and the defendants' designs were accepted, remuneration to be on the usual professional terms. It was agreed that the designs should permit additions to be made to the building from time to time, and in May, 1891, the guardians resolved that the terms of remuneration should be five per cent. for specification and 2½ per cent. for quantities. The schedule of the latter included a large amount of glazed brickwork for lining kitchens, sculleries, lavatories, corridors, &c., on the ground that extra expense for bricks would be saved because of the non-use of paint. Upon the bills of quantities made out tenders were invited, and finally that of Messrs. Kelly Bros. for £34,909 was accepted. Of that amount the sum of £4,804 indicated the cost of glazed brickwork. It was alleged by the plaintiffs that during the progress of the work the defendants allowed the builders to leave out the greater part of these bricks, plaster being used in some and salt-glazed bricks in other cases. The difference in the price of the two kinds of glazed bricks was £7 per thousand. The defendants made no deduction, and upon their certificate the guardians paid the full amount of the builders' bill. There was a second contract between the guardians and Messrs. Kelly to build three additional pavilions for the infirmary, and it was now alleged against the defendants that certain brickwork mentioned in the bill of quantities was not carried out, although the board paid for it. Counsel complained of various other matters. He said the defendants provided for a lightning conductor at a cost of £17, but they entered into a contract with Mr. Joseph Ball, of Oldham, to do the work for £163. The guardians refused to pay this sum, and Mr. Ball brought an action, the result being that Mr. Justice Wills held the defendants liable. It appeared from defendants' books that they received £200 from Kelly Bros. as a share of the costs in the action brought by Ball. Messrs. Ellison lost in the matter of the lightning conductor. The allegation of the guardians was that the defendants, after having made out the schedules of prices, entered into contracts with firms who supplied articles at a price below that in the schedules. A mass of letters was put in by counsel, who said that in the case of locks the schedule put them at 11s. 6d. apiece, but instead of 129 only 79 were used; but no reduction to the guardians was made, although the actual price of the articles was 5s. 6d. each. In the contract for the extension of the infirmary in 1895, the guardians decided to omit the arches and corridors connecting the older part of the building with the newer; but this work was retained in the quantities. Messrs. Kelly Bros., on the recommendation of the defendants, were accepted as contractors, the tender being £9,428. In regard to the present action, the defendants denied the allegations made against them, and it would be necessary to call a number of witnesses. Dealing with defendants' accounts,

Mr. Hudson said that in one block the difference in price between the salt-glazed bricks used and those scheduled was the large sum of £589. Mr. Henry Hallard, the first witness, said he had had thirty years' experience as clerk on building works, and in August, 1895, he undertook a similar position under the Toxteth Board of Guardians, who were building additions to the union infirmary in Smithdown-road. When he commenced his duties Mr. Guthrie was the foreman, and witness told him that he should require certain things done according to the plans on an understanding come to that if they were not put in the guardians should be allowed the difference between what was estimated for and what was executed. The foreman replied that Messrs. Ellison had altered certain things in the other pavilions, and that blocks C, F, and G were to be built as per the other blocks. Ignoring the foreman's statement, witness went to defendants' office, and told Mr. Ellison that the work was going to be done not only contrary to the quantities and specifications, but, in his opinion, contrary to the rules of building construction. The reply was that he (witness) must follow the other pavilions, and whatever adjustments were necessary at the completion of the work, they would be made. On that understanding the work was allowed to go on, and he took a careful account of what was done. On February 25th Mr. Ellison came to the works, and at that time witness had not seen the priced bill of quantities. The defendants also wrote that the quantities did not form part of the contract, but were taken full to cover errors. They added that witness's quantities were incorrect, and that £10 per 1,000 should be substituted for £15 on account of enamelled brickwork, and that all contractors were so informed when they made up their tenders. Mr. Hudson put in a copy of the list of quantities, showing the figure to be £15 per thousand bricks. The witness went on to say that Mr. Ellison said he wished the contract amount to remain unaltered at the end of the job. The quantities were supplied to witness by the builders, and he wrote to the defendants asking for a full list of the quantities as agreed when the tender was accepted. The reply was that they would see the work carried out and make the necessary adjustments on the completion of the contract. There was a strike, and the work was stopped for several months. In November, 1897, he wrote the defendants suggesting that the time was appropriate for making an adjustment. At that period he estimated the excessive quantities to be between £1,000 and £1,200. At that time he had not a copy of the priced bill of quantities. Several letters passed between them, and in one he complained that the glazed enamel work was not equivalent to the value specified for three pavilions. On January 31 in the following year Mr. Ellison, sen., went over the works, and remarked that when certain minor defects were remedied the whole thing would be dealt with in the ordinary way. On February 9 he received a letter from the defendants saying that Messrs. Kelly did not intend to make any claim for extras. It came upon witness like a thunderbolt. Mr. Hudson: I presume you have met few contractors who have not made a claim for extras ordered? Witness: It is quite a new experience to me. Continuing, Mr. Hallard said the letter went on to say that if Messrs. Kelly were letting their claim for extras be placed against the deductions to be made by the guardians, then they were having a good bargain. Witness replied that he was surprised no claim was to be made seeing the extras were ordered by the board. An account was sent in, but witness replied that he would not certify it as correct. A final account of the builders for the whole work was then sent in by the defendants. At the instruction of the guardians, witness prepared a list showing every item provided for in the quantities or in the specification, and indicating where there had been a deviation, or where the work had not been executed. Defendants sent an explanation, but it was untrue in some instances and incorrect in others. According to witness's figures, there was a total excess of £1,561 as between the quantities and the work done. Mr. Hallard gave several instances where the discrepancies had occurred, and mentioned that there were arches in the first-built blocks set out in the quantities for the second lot of blocks, whereas they had been done and paid for before. Cross-examined by Mr. Segar, the witness said it was the practice of architects to leave a margin for contingencies which might arise in the course of the work; this was in the shape of an amount of money to be deducted from the contract price, but not as regarded individual items in the quantities. His experience was that the quantities were mostly short. It was the rule to put at the bottom of the priced bill of quantities a note to the effect that "the quantities are taken out net." Witness had been in the building trade all his life. He had also been a singer of note in the district, but he retired years ago on his laurels. The original estimates for the work of erecting the workhouse infirmary were sent in in 1890, and there were several competitors. The defendants put in the lowest estimates for all



the blocks. Some of the blocks had been completed two years before witness became clerk of the works. He would admit that the cost of labour had gone up after the building of the first blocks; but he doubted if the ratio of increase was from 10 to 15 per cent. He believed that the final account of Messrs. Kelly was £9,277, but £100 was knocked off in settlement. Mr. Segar: Do you know that the work was completed at £500 less than the architects' estimate? The Official Referee: I presume that the architects' estimate is based on their quantities. It is not surprising, therefore, that he did it at less, if Mr. Hallard's evidence is correct. The witness proceeded to say in further cross-examination that the last set of blocks of building were completed in the same style as the first set. It was in September, 1896, that he told Mr. J. Moulding, clerk to the guardians, that there were alterations in the work, such as glazed bricks being used instead of enamel bricks. Mr. Ellison said the work was being carried out like that in the other pavilions, but there would be an adjustment on completion of the work. Witness said that on that understanding he would allow the building to go on. Mr. Segar: Would you be surprised to know that the actual additions to the work come to about the same in value as the work which you say has not been done? Witness: I should be very much surprised. The witness went on to state that in the building of the enamelled brick walls there was a saving of 12 bricks per superficial yard, because stretchers instead of headers were used. As they stood, such walls were not as good as if they had been built with headers. Mr. Segar: Our case is that the board of guardians have got every sixpence of value that we put into the work. We say the wall is as good, if not better, and at very near the same cost, as a more finished work. The witness admitted that during the progress of the work he found the contractors most obliging and ready to make any suggestions. At the close of the cross-examination, Mr. Segar said that practically their case was this—the final account sent in was a fair one, and the extras were set off against deficiencies. The Official Referee said that in that case it would be easy for the defendants to furnish the other side with particulars. Mr. Segar assented. Other witnesses on behalf of the plaintiffs were called, and the action will be continued to-day (Friday).

SCHOOL GOVERNORS SUE AN ARCHITECT AND CONTRACTOR.—At Grays County-court on Tuesday week, before his Honour Judge Paterson and a jury, the Governors of Palmer's Endowed Schools, Grays, brought an action against George Waymouth, architect, and George Benjamin Rous, builder, for damages for their alleged negligence in respect of certain drainage works in connection with the school. Mr. C. E. Jones was for the plaintiffs, Mr. W. Compton Smith for the architect, and Mr. Llewellyn Davis for the contractor. Mr. Compton Smith argued that as the case was full of technicalities, it would be better to go before an expert, pointing out that the contract provided for an arbitration in the event of dispute. The action was as to the construction of 1,072ft. of drainage.—Mr. Jones: If it were referred to an architect he would decide in favour of the architect, of course. If you would refer it to my solicitor I should be quite content. His Honour: What does your solicitor know about it? Mr. Jones: Nothing at all. But he would give us just as favourable a decision as the architect would the other way. It transpired that the work in question was done four or five years ago, and it was stated that by reason of its alleged inadequacy it had required patching ever since, until 1898, when the inspector of Grays Council, by whom the plans of the original drainage were passed, had the lot pulled up, and ordered a fresh system altogether. Counsel for the defence held that, however defective the drainage might be, the action of the Grays Council screened both architect and contractor, and no cause for action therefore lay with the governors. After a good deal of argument the action against the architect was adjourned for the plaintiffs to file the particulars of the claim of £50. In opening the case against the contractor, Mr. Jones said the drain pipes were laid up and down like a switchback; many of the pipes did not touch at all, and the joints, instead of being clay inside with a cement collar outside, were conspicuous by their absence. Waste pipes from lavatories were let into the ground and no connections made at all, and in one instance the ventilating pipe was hooked round the rain-water cistern. Other of the pipes had rough holes knocked into them for connections; no elbows or bends were used; and the ground was absolutely sodden and saturated with sewage when uncovered. In short, the governors had been put to the expense of £188 in remedying the defects as they appeared from time to time. In a letter to the governors it appeared that Mr. Rous admitted that a portion of the drainage was wrong, but accounted for that by saying that the workmen must have taken advantage of his temporary absence. Cross-examined, he denied that the foundations would subside. The further hearing of the case was adjourned until August 8.

**Trade News.**  
**WAGES MOVEMENTS.**  
**THE BUILDING TRADE DISPUTE IN YORKSHIRE.**—A specially convened meeting of the Yorkshire Federation of the building trade was held on Monday afternoon at the Leeds and County Builders' Club, Leeds. Mr. John Spink, Sheffield, presided. The representatives of the workmen passed a resolution at Hull last week insisting upon the formation of a Conciliation Board. The proposition was very favourably entertained at the opening of Monday's meeting. A letter was read from the London Order of Bricklayers stating that at a Yorkshire conference of delegates the secretary was instructed to receive a deputation of five delegates with the view to settle the matters in the present dispute. After a prolonged discussion it was resolved to send a letter to the Bricklayers' Association stating that the employers appreciated the offer of the men in conference "with the object of bringing about a settlement of the present trade dispute." The meeting failed to see that a partial conference would conduce to that end. "If, however," the resolution went on to say, "a conference of the respective trades interested can be arranged, we shall be glad to meet you along with one representative from each union. We will further offer that if this conference is arranged, we will agree to withdraw the lock-out conditionally that all men return to work to their old masters, whether look out or on strike, on the old conditions of wages, pending a settlement of the dispute between representatives of the Federation and of the operatives' societies." It was further decided that the basis of the conference be the proposed Conciliation Board and the "Yorkshire Manifesto." The conference will take place at the Queen's Hotel, Leeds, on Monday next.

**THE EDINBURGH JOINERS' DISPUTE.**—As the Edinburgh joiners have decided to strike for advanced wages, the Glasgow masters, with a view to supporting their fellow employers, have decided to lock out on an early date 25 per cent. of their men. The men's society threaten as a counterblast to declare a strike in the chief Scotch towns.

At the last sitting of the Norwich Consistory Court a faculty was decreed for alterations to the parish church of Brundall, East Norfolk, in accordance with plans prepared by Mr. A. J. Lacey, of Norwich. Considerable opposition had been raised to the proposal, and an alternative scheme of enlargement prepared by another architect practising in Norwich was put in.

A Local Government Board Inspector attended an inquiry at Blackpool on Friday with regard to the application of the corporation to borrow £3,697 for private street work. There was no opposition.

At Rugby on Saturday afternoon the Archbishop of Canterbury unveiled a statue of the late Mr. Thomas Hughes, who, as the author of "Tom Brown's Schooldays," assisted to make Rugby School and its famous headmaster, Arnold, known throughout the civilised world. The statue, which has been executed by Mr. Thomas Brock, R.A., is of marble, is 7ft. 6in. high, and stands on a pedestal of Cornish granite. On the pedestal is the name of Mr. Hughes, with the date of his birth and death, and with the notification that he was the author of "Tom Brown." Underneath is the inscription, "Watch ye, stand fast in the faith, quit you like men, be strong."

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LATEST PRICES.			
IRON, &c.			
Rolled-Iron Joists, Belgian .....	Per ton.	Per ton.	
Rolled-Steel Joists, English .....	£8 0 0	£8 10 0	
Wrought-Iron Girder Plates .....	6 10 0	7 0 0	
Bar Iron, good Staffs .....	5 15 0	6 10 0	
Do., Lowmoor, Flat, Round, or Square .....	7 5 0	8 5 0	
Do., Welsh .....	17 0 0	17 5 0	
Boiler Plates, Iron—	5 15 0	5 17 0	
South Staffs .....	7 17 6	8 5 0	
Best Sneedhill .....	10 0 0	10 10 0	
Angles 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, &c., 2½ 15s.			
Builders' Hoop Iron, galvanised, £15 10s. 0d. per ton.			
Galvanised Corrugated Sheet Iron—			
8ft. to 8ft. long, inclusive gauge .....	No. 13 to 20.	No. 22 to 26.	
Best ditto .....	Per ton.	Per ton.	
Cast-Iron Columns .....	£10 15 0	£11 0 0	
Cast-Iron Stanchions .....	11 5 0	11 10 0	
Rolled-Iron Fencing Wire .....	Per ton.	Per ton.	
Rolled-Steel Fencing Wire .....	£8 10 0	£9 0 0	
Galvanised .....	6 10 0	6 10 0	
Cast-Iron Sash Weights .....	11 10 0	12 10 0	
Cut Clasp Nails, 3in. to 6in. ....	4 12 6	4 15 0	
Cut Floor Brads .....	9 0 0	10 0 0	
Wire Nails (Points de Paris)—	8 15 0	9 15 0	
0 to 7 8 9 10 11 12 13 14 15 B.W.			
9/6 10/6 10/8 11/3 12/- 13/- 14/- 15/9 17/9			
per cw			
Cast-Iron Socket Pipes—			
3in. diameter .....	£6 7 6	£6 12 0	
4in. to 6in. ....	6 2 6	6 7 0	
7in. to 24in. (all sizes) .....	5 12 6	5 17 0	
[Coated with composition, 2s. 6d. per ton extra; turned and bored joints, 5s. per ton extra.]			
Fig Iron—			
Cold Blast, Lilleshall .....	Per ton.	105s. to 110s.	
Hot Blast, ditto .....	57s. 6d. to 62s. 6d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b.—			
Gas-Tubes .....	67½ p.		
Water-Tubes .....	62½		
Steam-Tubes .....	55		
Galvanised Gas-Tubes .....	52½		
Galvanised Water-Tubes .....	47½		
Galvanised Steam-Tubes .....	47		
10cw. casks, 5cw. cask			
Zinc, English .....	£30 10 0	£31 10 0	
Do., Vieille Montagne .....	31 10 0	32 15 0	
Sheet Lead, 8lb. per sq. ft. super. ....	16 2 6	17 2 6	
Pig Lead, in lwt. pigs .....	15 7 6	16 7 6	
Lead Shot, in 28lb. bags .....	19 0 0	20 0 0	
Copper Sheets, sheathing and rods .....	83 0 0	84 0 0	
Copper, British Cake and Ingot .....	79 0 0	79 10 0	
Tin, Straits .....	106 0 0	107 0 0	
Do., English Ingots .....	117 0 0	118 0 0	
Speier, Silesian .....	25 10 0	26 0 0	
TIMBER.			
Teak, Burmah .....	per load	£13 5 0 to £16 5 0	
" Bangkok .....	"	11 5 0 "	15 5 0
Quebec Pine, yellow .....	"	4 7 6 "	6 10 0
" Oak .....	"	4 10 0 "	6 5 0
" Birch .....	"	2 5 0 "	3 0 0
" Elm .....	"	4 12 6 "	5 15 0
" Ash .....	"	3 2 6 "	4 7 0
Danitic and Memel Oak .....	"	3 5 0 "	4 0 0
Fir .....	"	1 10 0 "	3 10 0
Waincoat, Riga p. log .....	"	3 15 0 "	6 5 0
Lath, Danitic, p. ....	"	4 10 0 "	5 10 0
St. Petersburg .....	"	4 0 0 "	6 10 0
Greenheart .....	"	7 15 0 "	8 0 0
Box .....	"	4 0 0 "	15 0 0
Sequoia, U.S.A. .....	per cube foot	0 1 9 "	0 2 0
Mahogany, Cuba, per super foot			
lin. thick .....		0 0 5 "	0 0 7
" Honduras .....	"	0 0 4 "	0 0 0
" Mexican .....	"	0 0 3 "	0 0 0
" African .....	"	0 0 3 "	0 0 0
Cedar, Cuba .....	"	0 0 4 "	0 0 4
Honduras .....	"	0 0 3 "	0 0 0
Satinwood .....	"	0 0 10 "	0 1 0
Walnut, Italian .....	"	0 0 8 "	0 0 0
Deals, per St. Petersburg Standard, 190—12ft. by 14ft. by lin. —			
Quebec, Pine, 1st .....	£19 0 0	to £25 10 0	
" 2nd .....	14 0 0	" 17 5 0	
" 3rd .....	6 15 0	" 10 0 0	
Canada Spruce, 1st .....	8 5 0	" 10 5 0	
" 2nd and 3rd .....	7 0 0	" 8 5 0	
New Brunswick .....	7 5 0	" 7 15 0	
Riga .....	8 5 0	" 9 5 0	
St. Petersburg .....	10 0 0	" 14 10 0	
Swedish .....	10 0 0	" 17 0 0	
Finland .....	9 15 0	" 10 10 0	
White Sea .....	11 0 0	" 12 5 0	
Battens, all sorts .....	5 0 0	" 16 0 0	
Flooring Boards, per square of lin. —			
1st prepared .....	£0 11 6	" £0 14 0	
2nd ditto .....	0 10 0	" 0 10 0	
Other qualities .....	0 5 3	" 0 6 0	
Staves, per standard M:—			
Quebec pipe .....			
U.S. ditto .....	£35 0 0	" £42 10 0	
Memel, cr. pipe .....	210 0 0	" 220 0 0	
Memel, brack .....	180 0 0	" 190 0 0	
OILS.			
Linseed .....	per ton.	£20 15 0 to £21 0 0	
Rapeseed, English pale .....	"	23 5 0 "	23 10 0
Do., brown .....	"	21 15 0 "	22 0 0
Cottonseed, refined .....	"	16 10 0 "	17 5 0
Olive, Spanish .....	"	30 0 0 "	32 0 0
Seal, pale .....	"	18 10 0 "	18 5 0
Cocanut, Cochiti .....	"	25 10 0 "	25 15 0
Do., Ceylon .....	"	25 10 0 "	25 15 0
Palm, Lagos .....	"	24 0 0 "	24 0 0
Oleine .....	"	15 10 0 "	19 15 0
Lubricating U.S. ....	per gal.	0 6 3 "	0 7 0
Petroleum, refined .....	"	0 0 6 "	0 0 0
Tar, Stockholm .....	per barrel	1 0 0 "	1 6 0
Do., Archange .....	"	0 18 0 "	1 0 0
Turpentine, American .....	per ton	23 15 0 "	29 0 0















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